9/14/10 10-1=-005 248 (0016)

# Exhibit \_\_(SPP-1)

# IR Responses

VOLUME 6 – 1200 - 1458



List of IR Responses for Exhibit (SPP-1):

DPS-3(AAE-3) DPS-13(RAV-9) DPS-15(RAV-11) DPS-18(RAV-13) DPS-18(RAV-13) (Supp) DPS-19(CVB-1) DPS-22(DSM-1) **DPS-23(DSM-2)** DPS-24(DSM-3) DPS-24(DMS-3)(Supp) DPS-25(RAV-14) DPS-30(RAV-19) DPS-31(RAV-20) DPS-31(RAV-20)(Supp) DPS-36(RAV-22) DPS-41(RAV-27) DPS-42(AJR-1)(Supp) DPS-42(AJR-1)(Supp 2) **DPS-48(CVB-4)** DPS-50(RAV-33) DPS-53(CVB-5) DPS-55(RAV-37) DPS-56(AJR-2) DPS-57(AJR-3) DPS-63(RAV-40) DPS-63(RAV-40)(Supp) DPS-63(RAV-40)(Supp 2) DPS-64(RAV-41) DPS-67(CVB-6) **DPS-70(MAS-3)** DPS-71(MAS-4) DPS-77(PP/KD-6) DPS-80(CLG-2)(Supp) **DPS-83(CLG-5)** DPS-88(DSM-4) DPS-97(VVP-3) DPS-100(VVP-6) DPS-102(DKS-4) DPS-103(MJR-1)Supp A DPS-104(RAV-42) DPS-106(WEL-3) DPS-107(AAE-10) DPS-107(AAE-10)(OG May Update) DPS-109(DAG-2) DPS-109(DAG-2)(Redacted Version)

1

DPS-109(DAG-2)(Supp) DPS-110(DAG-3) DPS-115(RAV-48) DPS-115(RAV-48)(Supp) DPS-116(RAV-49) DPS-116(RAV-49)(Supp) DPS-126(DKS-6) DPS-130(AAE-14) DPS-132(RAV-55) DPS-134(CVB-8) DPS-135(RAV-57) DPS-138(DAG-4) DPS-139(DAG-5) DPS-142(DAG-6) DPS-145(DAG-9) DPS-149(AJR-7) DPS-151(DAG-10) DPS-152(DAG-11) DPS-152(DAG-11)(Supp) DPS-154(AAE-17) DPS-162(CVB-9) DPS-164(DAG-12) DPS-165(DAG-13) DPS-167(RAV-60) DPS-172(RAV-65) DPS-173(RAV-66) DPS-175(DAG-15) DPS-178(DKS-7) DPS-180(RAV-68) DPS-181(RAV-69) DPS-182(AAE-20) DPS-184(JJA-2) DPS-188(JJA-6) DPS-201(JJA-19) DPS-204(RAV-71) DPS-208(RAV-75) DPS-211(AJR-9) DPS-212(AJR-10) DPS-215(AJR-13) DPS-216(CVB-10) DPS-222(AJR-14) DPS-225(WEL-6) DPS-226(DAG-18) DPS-227(DAG-19) DPS-228(LSC-1) DPS-238(CVB-13)

DPS-239(CVB-14) DPS-244(RAV-79) DPS-247(DAG-21) DPS-248(DAG-22) DPS-250(DKS-11) DPS-256(VVP-12) DPS-257(VVP-13) DPS-258(VVP-14) DPS-261(WEL-8) DPS-268(DKS-12) DPS-269(DKS-10) DPS-271(PP-KD-29) DPS-275(RAV-85) **DPS-276(RAV-86)** DPS-280(DAG-25) DPS-281(DAG-26) DPS-282(DAG-27) DPS-284(CVB-18) DPS-286(DAG-16) DPS-287(DAG-17) DPS-291(RAV-87) DPS-291(RAV-87)(Supp) DPS-292(RAV-88) DPS-293(RAV-89) DPS-299(RAV-95) DPS-300(RAV-96) DPS-302(CVB-21) DPS-309(PJD-2) DPS-309(PJD-2)(Supp) DPS-310(RAV-101) DPS-312(RAV-103) DPS-313(RAV-104) DPS-322(JJA-22) DPS-327(JJA-27) DPS-333(RAV-110) DPS-336(RAV-114) DPS-338(RAV-116) DPS-340(RAV-118) DPS-343(CVB-23) DPS-344(DKS-15) DPS-345(DMS-5) DPS-347(RAV-122) DPS-349(RAV-124) DPS-352(LMS-3) DPS-353(KAT-1) DPS-354(KAT-2)

DPS-358(AAE-32) DPS-360(CVB-25) DPS-367(RAV-126) DPS-369(DAG-31) DPS-395(AAE-35) DPS-397(DAG-32) DPS-397(DAG-32)(Supp) DPS-400(VVP-23) DPS-407(RAV-128)(Supp) DPS-411(JBM-5) DPS-415(DKS-17) DPS-416(VVP-29) DPS-419(DAG-34) DPS-426(JJA-37) DPS-431(JJA-42) DPS-438(DAG-38) DPS-439(DAG-39) DPS-440(WEL-12) DPS-444(DSM-6) DPS-447(MAS-11) DPS-449(DKS-18) DPS-457(WEL-15) DPS-459(WEL-17) DPS-459(WEL-17)(Supp) DPS-462(RAV-132) DPS-464(DKS-19) DPS-466(VVP-32) DPS-469(WEL-20) DPS-473(DKS-20) DPS-475(DAG-42) DPS-478(JJA-46) DPS-480(JJA-48) DPS-481(JJA-49) DPS-484(JJA-52) DPS-486(JJA-54) DPS-486(JJA-54)(Supp) DPS-487(JJA-55) DPS-489(JJA-57) DPS-490(JJA-58) DPS-491(JJA-59) DPS-495(JJA-63) DPS-496(JJA-64) DPS-498(PP-KD-34) DPS-515(DKS-21) DPS-517(DAG-43) DPS-518(DAG-44)

4

DPS-519(DAG-45) DPS-519(DAG-45)(Supp) DPS-521(DAG-47) DPS-521(DAG-47)(Supp) DPS-522(DAG-48) DPS-524(DAG-49) DPS-529(RAV-137) DPS-531(WEL-21) DPS-532(AAE-46) DPS-533(AAE-47) DPS-534(CED-3) DPS-535(DAG-50) DPS-537(AJR-17) DPS-546(CLG-11) DPS-548(CLG-13) DPS-549(CLG-14) DPS-550(CLG-15) DPS-566(AAE-51)(Supp) DPS-569(AJR-19) DPS-574(RAV-142) DPS-575(DAG-53) DPS-575(DAG-53)(Supp, Parts 1, 2 &4) DPS-579(DAG-55) DPS-582(CLG-21) DPS-586(DAG-56) DPS-587(CVB-29) DPS-588(WEL-23) DPS-588(WEL-23) (Supp) DPS-589(CED-4) DPS-592(DAG-57) DPSINF-24(RAVINF-11) (Supp) MM-41 (MI-41) MM-42 (MI-42)

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# Request No. CVB-25 Attachment 3

# Tri-Lakes: Summary of Estimated Buy Back Cost Dollars shown in millions

National Grid direct charges paid to date	\$ 39.8	Note 1
NYPA direct costs incurred	7.4	Note 2
Insurance costs	0.1	Note 3
Estimated indirect project costs	2.4	Note 4
Less estimated municipal contributions and NYPA portion of line costs	(18.8)	Note 5
Estimated financing cost through January 2011	4.2	Note 6
Total Estimated Buy Back Cost as of January 2011	\$ 35.0	Note 7

#### Notes:

1- National Grid charges as shown above represent New York Power Authority (NYPA) payments through March 23, 2010.

2- NYPA costs represent data as of September 2009, an updated schedule of costs has been requested from NYPA.

3- Insurance cost assumes \$50K a year on the SVC portion of the project from the time NYPA took ownership in March, 2009.

4- Assumes a five percent adder for indirect project costs.

5- Reduction shown represents the estimated municipal contributions and the portion of the new line that is NYPA's responsibility, as outlined in the October 24, 2006 agreement; paragraphs B.6 and B.7.

6- Estimated financing costs as outlined in paragraph B.6.b of the contract. Note, the cash outlay is now anticipated to be January 2011.

7- Estimated buy back cost pending final project close out costs, and subject to review and agreement with NYPA.

Date of Request: April 20, 2010 Due Date: April 30, 2010 Request No. RAV-126 NMPC Req. No. NM 595 DPS-367

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Robert Visalli

TO: Andrew Sloey

Request:

In response to RAV-97(B) information was provided concerning National Grid USA Service Company budgeting practices. The response stated,

"NGUSA Service Company does not have a similar requirement set forth in its Service agreement with Niagara Mohawk that annual budgets will be established for controlling expenses of each department. This does not mean that departmental budgets are not developed. National Grid management recognizes the importance of the budget as a tool for monitoring expenses. The budget is recognized as an entity level control."

Based on this response provide the following information regarding this area for the time periods covered by (a) FYE 3/31/2007; (b) FYE 3/31/2008; (c) FYE 3/31/2009, (d) FYE 3/31/2010; (e) FYE 3/31/2011 and (f) RYE 12/31/2011:

1) Provide a copy of all written corporate procedures regarding (a) the preparation and (b) approval of budgets and (c) the monitoring of actual expenditures to budgeted amounts. Provide this information for budgets (a) for departments or (b) any other organizational unit of National Grid USA Service Company including the overall entity.

2) Provide a copy of all written corporate procedures describing how budgets and their preparation are (a) coordinated with and (b) consider the levels of requested service from National Grid affiliates. Provide this information for budgets for (a) departments or (b) any other organizational unit of National Grid USA Service Company including the overall entity.

3) (a) Provide a copy of all budgets for departments or any other organizational unit of National Grid USA Service Company including the overall entity; (b) for each of the budgets provided in (a) above, identify if each was approved, and specifically, by who or what committee.

4) Provide a copy of all documents and / or reports monitoring, comparing and / or analyzing actual expenditures to approved budget amounts for departments or any other organizational unit of National Grid USA Service Company.

5) Provide a copy of all documents and / or reports monitoring, comparing and / or analyzing actual expenditures for services provided to approved budget amounts for departments or any other organizational unit of National Grid USA Service Company including the overall entity.

#### Response:

The Company is answering RAV 126 and RAV 127 together as National Grid has a single overall budget and plan process. For NGUSA, since the time of the KSE/National Grid merger, the Company has been working to align the budget process despite the fact that underlying budget systems have not yet been integrated. The guidance and procedures included in this response are often presented differently across the periods in question as the organizational structure has changed significantly since the merger of National Grid and KeySpan. It is not always possible to provide data in the same format for all periods requested.

1a) As stated above, the Service companies do not have separate budget procedures as all of National Grid follows one process which is aligned with the Group Business Planning Process. The following guidance is included.

- a. Corporate Guidance. Attachments 1 through 5 detail guidance received from the Corporate Budget and Planning Group for years FY07 through FY11. Guidance for the RYE December 31, 2011 is included in the guidance issued for the FY11 to FY15 period (attachment 5).
- b. US corporate level guidance. See Attachments 6 and 7 for 'legacy Grid' budget guidance for FY07 and FY08. See Attachments 8, 9, and 10 for 'legacy KeySpan' budget process for FY07, FY08, and FY09. Attachments 11 and 12 contain guidance for FY10 and FY11 for the combined National Grid
- c. In some instances, additional guidance was issued to Line of Business (LOB) finance teams. Transmission issued guidance as included in Attachments 13, 14, and 15. In FY11 the Electric Distribution and Generation issued guidance for the FY11 process (Attachment 16).

Ib) The Company does not have written corporate procedures regarding the approval of budgets. Rather, the procedures described in part a) lead to the approval of a business plan by the National Grid plc Board of Directors. The business plan typically covers a five-year period. The financial data that comprises the first year of the National Grid plc business plan become the basis for establishing budgets for the LOBs and departments.

1c)The Company does not have written corporate procedures regarding the monitoring of actual expenditures to budgeted amounts. At the Quarterly Performance Review meetings, updates are given as to how the LOBs are operating in comparison to their budgets..

2. Please see the response to 1. above. As the processes listed in part 1a) show, the services performed by each LOB or department are discussed and approved through the budget review process. The budgets thus reflect the services that each LOB or department provides to all of National Grid and all National Grid customers. Niagara Mohawk, for instance, does not develop a bottom-up Niagara Mohawk budget separate from the LOB and department budget process. Nor does Niagara Mohawk have its own management team that requests services from affiliates. Many of the personnel who provide services to Niagara Mohawk also provide services to other National Grid companies, and they are typically employed by a service company. The services provided by a service company are provided to Niagara Mohawk and other affiliates at cost, and those services are

embodied in the service agreements between the service companies and Niagara Mohawk.

The Service Level Agreements (SLAs) that National Grid is currently developing for Shared Services as a result of the recent management audit are intended to focus on the efficiency and quality aspects of the services being provided and to establish clear performance measures. National Grid management recognizes that SLAs represent best practice in terms of providing cost and performance transparency for service recipients. SLAs will be incorporated in two tiers: Master Service Level Agreements which are high level agreements which require sign off by the highest level of executive management in the respective organization, typically an Executive Vice President. The second tier, Functional Service Level Agreements, will be more granular and require sign off by a Vice President. They will provide greater transparency regarding the service levels and costs of services, types of services provided and the appropriate cost methodologies between LOBs and departments. However, the provision of services between corporate entities, including the services that the service companies provide to Niagara Mohawk, will continue to be governed by the existing service agreements.

3. The Company is requesting an extension until May 7, 2010 for question 3.

4. The documents requested by the question will be voluminous. During the 2008 Management Audit of Niagara Mohawk by NorthStar Consulting Group a similar request was received and a meeting was found to be the best solution. On April 30 the Company discussed an alternative approach with Robert A. Visalli of the PSC staff. This approach will be completed by May 7, 2010.

5. Please see the response to part 4.

Name of Respondents: David Campbell and Brian McNeill Date of Reply: May 3, 2010 Date of Request: April 20, 2010 Due Date: April 30, 2010 Request No. DAG-31 NMPC Req. No. NM 597 DPS-369

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Denise Gerbsch

<u>TO:</u> Revenue Requirement Panel

Request: Follow up to DAG-20, Tree-Trimming Expenses

1. In the Company's response to DAG-20, question 1, HYE 9/30/09 contactors expenses (exp type #110) associated with tree-trimming is \$44,943,880 (distribution related \$35,242,155 and transmission related \$9,701,725). Please provide a listing, identified (a) first by activity #, (b) then by vendor, of all invoices (c) with the invoice amount, separated by month.

2. In the same format as the Company's response to DAG-20, question 1, please provide historic year actual tree-trimming expenses, again separated between (a) distribution and (b) transmission for HYE 9/30/06; HYE 9/30/07 and HYE 9/30/08.

3. Please confirm that the amounts shown in either the Company's response to DAG-20, question 1, or the response to question 2, above, do not include amounts for tree-trimming related to storm costs (for either deferred or non-deferred amounts). If there are amounts related to storm costs, please identify in detail.

4. Effective April 1, 2011, the Company will discontinue in-house forestry work and utilize a fully outsourced model.

(a) Please provide the reason(s) why the forestry work will be completely outsourced;

(b) Please provide the analysis that was done to determine that outsourcing is the appropriate model to use for the forestry work;

(c) Please specifically identify where in the Company's rate case filing the savings associated with outsourcing the forestry work are reflected for each of the three rate years; (1) include documentation and calculations to support the determined savings amount; (2) if there are no savings reflected, please explain why not.

#### Response:

- 1. Please refer to Attachment 1 (DAG-31\_Attachment 1) that summarizes contractor payments by activity, vendor, month and amount in Exhibit 1 and Exhibit 2. An invoice itemization of this summary is provided in Exhibit 3, Exhibit 3A and Exhibit 4.
- 2. Please refer to Attachment 1 Exhibit 5 for tree-trimming costs by expense type for the HYE ending 09/30/06, 09/30/07 and 09/30/08.

- 3. DAG-20 (question 1) reported amounts that excluded major storm costs. Responses to questions 1 and 2 above have been provided in a manner that provides greater visibility around the impact of any outage/minor storm costs that were included.
- 4. Please refer to the following responses:
- (a) The Company decided to completely outsource forestry work for the reasons listed below. In addition, the elimination of in-house tree trimming crews was a recommendation made by Northstar Consulting in their Management Audit as listed in Recommendation X-3.
  - 1. Flexibility of schedule Contractors have the flexibility to ramp resources either up or down to meet the volume peaks and valleys within a yearly work plan. This flexibility is not available with an internal workforce.
  - 2. Increased availability of resources for storm response By utilizing a multiple vendor scenario over a long term contract, we have the ability to draw in significant additional resources from outside our service area for Storm response.
  - 3. Specialized equipment availability Contractors have specialized equipment which can be utilized when necessary. The cost associated with buying and maintaining this equipment internally for periods of minimal use is cost prohibitive.
- (b) The cost analysis by crew level with labor and equipment rates which reflect the optimized crew complement needed to perform the duties required of the Vegetation Management Program is shown below for both the internal and contractor workforce. Note - all rates are fully loaded.

Rate/hr
\$41.68
\$37.48
\$12.75
\$3.98
\$95.89
Rate/hr
\$51.84
\$47.57
\$11.25
<u>\$4.38</u>
\$115.04

Cost savings by Outsourcing - 17%. This analysis is independent of the rationale for outsourcing indicated in response to 4(a), above.

(c) As noted in pages 44 through 50 of the Direct Testimony of the Infrastructure and Operations Panel, Contracting Strategies is a component of the Company's Transformation program. Vegetation Management is a component of the Contracting Strategies, and the savings are reflected in the 1% efficiency savings as detailed on page 44 of the testimony of the Revenue Requirements Panel.

Name of Respondent: John Currie Tim Bodkin Gary Dionne Date of Reply: 4/29/2010

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#### Tree Trimming - Non StormOutage

1			Period												
Activity	Activity Descr	Vendor	1	2	3	4	5	6	7	8	9	10	11	12	Grand Tota
AG0485	Provide Safety & Health Servic	ASPLUNDH TREE EXPERT CO			_				12,077						12,077
	1	K W REESE INC							5,843						5,843
		NELSON TREE SERVICE INC							3,459	6 100				2,660	6,120
	Provide Safety & Health Servic Total							·····	22 006	5 199				2 660	29 865
AG0493	Provide Administrative & Gener	TAMARACK FORESTRY SERVICE INC				4,182			22,000	0,100				2,000	4,182
	Provide Administrative & Gener Total					4,182						-			4,182
AG0690	Printing & Duplicating	ACME PRINTING COMPANY LLC										13,328			13,328
DHIDOO	Printing & Duplicating Total				6 779		4 422	1 222	E 0.00			13,328			13,328
Divitions		ENVIRONMENTAL CONSULTANTS INC	3.544		11 480	11 127	3,737	3,222	5,940	1,878	2,031	8,858	2,406	5,722	43,910
		TAMARACK FORESTRY SERVICE INC			,	4,889	0,107	2,500	0,007	1,001	0,770	40,172		3,547	4 889
	Supv&Admin OH Total		3,544	-	17,253	19,447	7,760	13,191	11.827	9,728_	9,361	49,030	2,406	15,270	158,817
DM1010	Perform Spot Tree Trim/Clear L	ASPLUNDH TREE EXPERT CO	57,526		247,323	79,022	72,564	90,463	113,926	68,470	90,259	64,120	23,295	57,304	964,271
		DIERCE SERVICE INC		6,747	15,169	6,502			1,742	2,323	9,126	7,041	9,096	544	58,289
	Perform Spot Tree Trim/Clear L Total	FIEROE GERMIGES INC	57.526	6 747	262 721	85 524	72 564	90 463	115 668	70 793	99 385	71 161	32 391	67 848	1 022 789
DM1100	Maintain Fully Dressed Distrib	ASPLUNDH TREE EXPERT CO			907	3,758	639	11,967						8,271	25.541
	Maintain Fully Dressed Distrib Total				907	3,758	639	11,967						8,271	25,541
DM1205	Perform Right of Way Cleanup -	ASPLUNDH TREE EXPERT CO	8,193		12,295	6,346	7,284	8,663	10,481	2,604	3,666	3,064	1,834	3,905	68,334
	Perform Right of Way Cleanup - Total	NELSON TREE SERVICE INC	8 102	4,652	15,026	8,498	9,791	6,158	4.500	1,911	9,362	8,506	4,105	2,461	74,970
DM1210	Perform Trouble Maintenance Ve	ASPLUNDH TREE EXPERT CO	31,241	6611	133 078	62 904	60 950	50 142	57 889	4,010	50 285	71 766	21 523	27 830	143,304
		ENVIRONMENTAL CONSULTANTS INC	1	0,011				155	01,000	00,140	00,200	/3,/00	1,020	27,000	155
		K W REESE INC							757						757
1		LEWIS TREE SERVICE INC								119					119
		TAMARACK FORESTRY SERVICE INC		1,493	12,395	8,195	4,245	701	1,188	5,517	5,669	13,689	11,427	2,580	67,099
		THE DAVEY TREE EXPERT COMPANY				228					2 150				228
		THE TREE DOCTOR INC							283		2,150				2,150
	Perform Trouble Maintenance Ve Total		31,241	8,103	145,473	71,326	65,194	50.998	60,117	44,883	58,104	87,455	32,950	30,419	686,264
DM1215	Perform Planned Cycle Trimming	ASPLUNDH TREE EXPERT CO	1		6,672		494,277		3,104		310,582	24,354	8,097	627,184	1,474,270
					700	227,800	114,496	273,844	231,333	226,891	296,959	170.910	292,563	1,097,716	2,932,513
		NELSON TREE SERVICE INC			700		94,586	1,508,540	3//,/63	830,149	291,278 1 758 P41	1,131.969	210 604	3,457,478	7,692,062
1		RJ MARINE ASSOCIATES LTD						500	12,047	440,107	1,750,847		218,034	2,343,220	7,919,127
		TAMARACK FORESTRY SERVICE INC					428,033	427,235							855,268
[		THE DAVEY TREE EXPERT COMPANY			8,671							852,404	450,577	804,737	2,116,389
	Perform Planned Cycle Trimming Total				16,043	227,800	1,131,391	4,250,251	624,248	1,497,226	2,657,659	2,179,237	970,931	8,930,341	22,485,129
DM1210	Circuit Mowing Total	CLARK EUUIPMENT RENTAL LLC		10,448	15,445	8,148	3,916					7,506			45,462
DM1217	Circuit Trim Follow Up	CLARK EQUIPMENT RENTAL LLC		10,440	13,443	7.493	3,910					7,506			45,462
															7,433
		LEWIS TREE SERVICE INC				2,104		2,458							4.562
		LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC				2,104 9,097	23,169	2,458 18,832							4,562 51,098
		LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC				2.104 9,097	23,169 25,975	2,458 18,832 8,875							4,562 51,098 34,850
041220	Circuit Trim Follow Up Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC	07 896	49.726	278 601	2.104 9,097 18,694	23,169 25,975 49,144	2,458 18,832 8,875 30,165	+01 022						4,562 51,098 34,850 98,002
DM1220	Circuit Trim Follow Up Total Perform Hazardous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC	97,886	19,336	278,601	2.104 9,097 18,694 119,723 257	23,169 25,975 49,144 114,206	2,458 18,832 8,875 30,165 107,452 672	103,922	85,206	94,783	137,691	100,841	158,392	4,562 51,098 34,850 98,002 1,418,040 16,774
DM1220	Circuit Trim Follow Up Total Perform Hazardous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT REITAL	97,886	19,336	278.601 4,111	2.104 9,097 <u>18,694</u> 119,723 257	23,169 25.975 49,144 114,206	2,458 18,832 8,875 30,165 107,452 672 825	103,922	85.206	94,783	137,591	100,841	158,392 9,317	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715
DM1220	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC	97,886 2,415	 19,336	278,601 4,111	2,104 9,097 18,694 119,723 257	23,169 25,975 49,144 114,206	2,458 18,832 8,875 30,165 107,452 672 825 1,156	103,922	85,206	94,783 445 7,651	137.591 446	100,841	158,392 9,317	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715 11,346
DM1220	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W RESE INC LEWIS TREE SERVICE INC	97,886 2,415 299,865	19,336	278.601 4,111 47,278	2,104 9,097 18,694 119,723 257 250,075	23,169 25,975 49,144 114,206	2,458 18,832 8,875 30,165 107,452 672 825 1,156 133,858	103,922 2,539 79,688	85,206	94,783 445 7,651 172,961	137,691 446 129,967	100,841	158,392 9,317 257,056	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570
DM1220	Circuit Trim Foliow Up Total Perform Hazardoua Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC	97,886 2,415 299,865 119,945	19,336 185,491 44,119	278.601 4,111 47,276 137,481	2.104 9,097 <u>18,694</u> 119,723 257 250,075 70,049	23,169 25,975 49,144 114,206 106,211 51,918	2,458 18,832 8,875 30,165 107,452 672 825 1,156 133,858 41,160	103,922 2,539 79,688 20,116	85,206 126,265 9,333	94,783 445 7,651 172,961 139,677	137,591 446 129,967 118,002	100,841 3,854 217,965	158,392 9,317 257,056 359,818	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,582
DM1220	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TIRE SERVICE INC	97,886 2,415 299,865 119,945	19,336 185,491 44,119	278.601 4.111 47.276 137.481	2.104 9.097 18.694 119.723 257 250.075 70.049	23,169 25,975 49,144 114,206 106,211 51,918	2,458 18,832 8,875 30,165 107,452 672 825 1,156 133,858 41,160	103,922 2,539 79,688 20,116 2,960	85,206 126,265 9,333	94,783 445 7,651 172,961 139,677 6,206	137,691 446 129,967 118,002	100,841 3,854 217,965	158,392 9,317 257,056 359,818	4,562 51,088 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,562 9,167
DM1220	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC	97,886 2,415 299,865 119,945	19,336 185,491 44,119 10,341	278.601 4,111 47,278 137,481	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433	23,169 25,975 49,144 114,206 106,211 51,918 27,229	2,458 18,832 8,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286	103,922 2,539 79,688 20,116 2,960	85,206 126,265 9,333	94,783 445 7,651 172,961 139,677 6,206	137,691 446 129,967 118,002	100.841 3.854 217,965	158,392 9,317 257,056 359,818	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,582 9,167 10,341 37,948
DM1220	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC	97,886 2,415 299,865 119,945	19,336 185,491 44,119 10,341	278.601 4,111 47,278 137,481	2.104 9.097 18.694 119.723 257 250.075 70.049 1.433	23,169 25,975 49,144 114,206 106,211 51,918 27,229	2,458 18,832 8,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286	103,922 2,539 79,688 20,116 2,960	85.206 126.265 9.333	94,783 445 7,651 172,961 139,677 6,206	137.691 446 129.967 118.002	100,841 3,854 217,965	158,392 9,317 257,056 359,818 475	4,562 51,098 34,8500 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,582 9,167 10,341 37,948 475
DM1220	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ ECUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC	97,886 2,415 299,865 119,945 520,110	19,336 185,491 44,119 10,341 259,287	278,601 4,111 47,278 137,481 467,472	2.104 9.097 18.694 119.723 257 250.075 70.049 1.433 441.537	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565	2,458 18,832 8,675 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409	103,922 2,539 79,688 20,116 2,960 209,226	85,206 126,265 9,333 220,804	94,783 445 7,651 172,961 139,677 6,206 421,724	137,691 446 129,967 118,002 386,105	100,841 3,854 217,965 322,660	158,392 9,317 257,056 359,818 475 785,059	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,582 9,167 10,341 37,948 475 4,627,957
DM1220	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TIREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC	97,886 2,415 299,865 119,945 520,110	19,336 185,491 44,119 10,341 259,287	278.601 4,111 47.278 137.481 467.472 677	2.104 9.097 18.694 119.723 257 250.075 70.049 1.433 441.537	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839	2,458 18,832 <u>8,875</u> 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409	103,922 2,539 79,688 20,116 2,960 209,226	85,206 126,265 9,333 220,804	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684	137,691 446 129,967 118,002 <u>386,105</u>	100.841 3.854 217,965 322,660	158,392 9,317 257,056 359,818 475 785,059	4,562 51,098 34,550 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,582 9,167 10,341 37,948 475 4,627,957 3,199
DM1220	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC	97,886 2,415 299,865 119,945 	19,336 185,491 44,119 10,341 259,287	278.601 4,111 47,276 137,481 467,472 677 577	2.104 9.097 18.694 119.723 257 250.075 70.049 1.433 441.537 1.039	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839	2,458 18,832 8,875 30,165 107,452 672 825 1,156 133,858 41,150 9,286 294,409	103,922 2,539 79,688 20,116 2,960 209,226	85,206 126,265 9,333 220,804	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684	137,691 446 129,967 118,002 386,105 386,105	100.841 3.854 217,965 322,660	158,392 9,317 257,056 359,818 475 785,059	4,562 51,098 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,582 9,167 10,341 37,948 4,75 4,627,957 3,199 4,286 2,465
DM1220	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cycla Hazard Tree Off-Cycla Total Perform Distibution Right of	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC MEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO	97,886 2,415 299,865 119,945 520,110	19.336 185.491 44,119 10.341 259.287	278.601 4.111 47.276 137.481 467.472 677 677	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409	103,922 2,539 79,688 20,116 2,960 209,226	85,206 126,265 9,333 220,804	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684	137,691 446 129,967 118,002 386,105 3,258 3,258 3,258 4,891	100.841 3.854 217,965 322,660	158,392 9,317 257,056 359,818 475 785,059	4,562 51,088 34,850 98,002 1,418,040 16,774 1,715 11,346 1,792,570 1,329,562 9,167 10,341 37,948 4,627,957 3,199 4,286 7,496 4,891
DM1220 DM1221 DM1221 DM1225	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle Hazerd Tree Off-Cycle Total Perform Distribution Right of	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC MELSON TREE SERVICE INC TAMARACK FORESTRY SERVICE INC MELSON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC	97,886 2,415 299,865 119,945 520,110	19.336 185.491 44.119 10.341 259.287	278.601 4.111 47.276 137.481 467.472 677 677	2.104 9.097 18.694 119.723 257 250.075 70.049 1.433 441.537 1.039 1.039 23.760	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839	2,458 18,832 8,675 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409	103,922 2,519 79,688 20,116 2,960 209,226	85,206 126,265 9,333 220,804	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891	100,841 3,854 217,965 322,660	158,392 9,317 257,056 359,818 475 785,059	4,562 51,098 34,850 98,002 14,88,002 11,87,74 1,715 11,344 1,792,570 1,329,562 9,167 10,341 37,948 4,757 54,627,957 3,199 4,295 6 7,496 4,891 4,9914,991
DM1220 DM1220 DM1221 DM1225	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Defrom Distribution Right of Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC LEWIS TREE SERVICE INC LEWIS TREE SERVICE INC LEWIS TREE SERVICE INC LEWIS TREE SERVICE INC	97,886 2,415 299,865 119,945 520,110	19,336 185,491 44,119 10,341 259,287	278,601 4,111 47,278 137,481 467,472 677 677	2,104 9,097 18,684 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 639 839	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409	103,922 2,539 79,688 20,186 2,960 209,226	85,206 126,265 9,333 220,804	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891 4,891	100.841 3.854 217,965 322,860	158,392 9,317 257,056 359,818 475 785,059	4,5c2 51,039,8002 34,850 98,002 11,348,640 16,774 11,348,774 1,715 11,346 1,729,570 1,329,562 9,167 10,341 37,948 475 4,627,957 3,199 4,256 4,861 4,865 4,855 4,855 4,855 4,855 4,855 4,855 4,855 4,855 4,855 4,855 4,855 4,855 4,857 4,855 4,255 4,25
DM1220 DM1221 DM1225 DM1225	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Paramon Hazardous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Total Perform Distribution Right of Total Perform Distribution Right of Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC	37,886 2,415 299,865 119,945 520,110 259,241 259,241	19.336 185.491 44.119 10.341 259.287	278.601 4,111 47,278 137,481 467,472 677 677 189,209	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 1,039 23,760 23,760 23,760	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,150 9,286 294,409 294,409 82,940	103,922 2,539 79,688 20,116 2,960 209,226 	85,206 126,265 9,333 220,804 82,513	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532	137,691 446 129,967 118,002 386,105 3,258 3,258 3,258 4,891 139,007	100.841 3.854 217,965 322,860 185,640	158,392 9,317 257,056 359,618 475 785,059 	4,562 51,089 34,850 988,002 1,418,040 1,6,774 1,745,700 1,742,570 1,742,570 1,329,582 9,167 10,341 3,7,948 4,757 54,627,957 7,486 4,267,957 7,486 1,761,655 1,761,655
DM1220 DM1221 DM1225 DM1225	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off Cycle Hazard Tree Off Cycle Tearform Distribution Right of Perform Distribution Right of Total Parform Off Road Feeder Timmi	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ ECUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC MELSON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC	57,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365	278.601 4,111 47,278 137.481 467.472 677 677 189.209 99.226	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 11,597	2,458 18,832 8,875 30,165 30,165 107,452 825 1,156 133,858 41,160 9,286 294,409 82,940 57,69	103,922 2,539 79,688 20,116 2,960 209,226 100,505 3,474	85,206 126,265 9,333 220,804 82,513 3,528	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891 4,891 4,891 139,007 26,616	190,841 3,854 217,965 322,660 185,640	158,392 9,317 257,056 359,818 475 785,059 395,494	4,552 51,088 34,850 34,850 1,418,040 1,6774 1,715 1,1346 1,722,570 1,329,552 9,167 1,329,552 9,167 1,329,552 9,167 1,329,552 4,265 7,466 7,467 7,466 7,467 7,466 7
DM1220 DM1220 DM1221 DM1225 DM1230	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Total Perform Off Road Feeder Trimme	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT TRENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC	97,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365	278,601 4,111 47,276 137,481 467,472 677 677 677 189,209 99,226	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 47,632	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839 95,521 31,597	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769	103,922 2,539 78,888 20,116 2,960 209,226 100,505 3,474 1,515	85.206 126.265 9.333 220,804 82,513 3,528	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 96,532 15,732	137,691 446 129,967 118,002 388,105 3,258 3,258 4,891 139,007 26,636	100,841 3,854 217,965 322,860 185,640 172,075	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655	4,552 51,089 34,850 34,850 34,850 34,850 34,850 1,1418,040 16,774 1,742,570 11,346 1,742,570 11,345 11,346 4,757 9,167 9
DM1220 DM1221 DM1221 DM1225 DM1230	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Hazard Tree Off-Cyde Hazard Tree Off-Cyde Hazard Tree Off-Cyde Total Perform Distribution Right of Perform Distribution Right of Total Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC MERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC PROUNLIMITED INC	37,886 2,415 299,865 119,945 520,110 520,110 259,241 8,442 153,419 421,102	19.336 185.491 44.119 10.341 259.287 31.084 11.139 120.365 162.589	278.601 4,111 47.278 137.481 467.472 677 677 677 189,209 99,226 288,435	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 47,632 151,840	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 639 93,521 31,597 127,118	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,150 9,286 294,409 82,940 5,769 88,710	103,922 2,539 76,688 20,116 2,960 209,226 100,505 3,474 1,515	85,206 126,265 9,333 220,804 82,513 3,528 86,041	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732	137.691 446 129.967 118.002 386,105 3.258 3.258 3.258 4.891 139.007 26.636 165.644	100.841 3.854 217,965 322,660 185,640 172,075 357,715	158,392 9,317 257,056 359,618 475 785,059 	4,552 51,089 34,850 34,850 34,850 1,478,240 1,478,240 1,478,270 1,329,552 9,167 10,341 1,329,552 9,167 10,341 37,948 4,255 7,486 7,486 4,627,957 7,486 7,486 1,761,695 19,552 1,063,109 2,165 1,063,109 2,165 1,063,109 2,165 2,165 1,063,109 2,165 2,
DM1220 DM1220 DM1221 DM1225 DM1235 DM1235	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Perform Distibution Right of Perform Distibution Right of Total Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Total Perform Off Road Feeder Trimmi Total Perform Off Road Feeder Trimmi Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ ECUIPMENT REINTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC MELSON TREE SERVICE INC ASPLUNDH TREE SERVICE INC LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC NELSON TREE SERVICE INC ASPLUNDH TREE SERVICE INC NELSON TREE SERVICE IN	57,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419 421,102	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589	278.601 4,111 47,278 137,481 467,472 677 677 677 189,209 99,228 288,435 2,540	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 104,007 47,632	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118	2,458 18,832 3,0,165 30,165 107,452 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769 88,710	103,922 2,539 79,688 20,116 2,960 209,226 	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 96,532 15,732 112,264 5,691	137.691 446 129.967 118.002 386.105 3.258 3.258 4.891 4.891 139.007 26.636 165.644 7.427	190.841 3.854 217,965 322,660 185,640 172,075 5.165	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655 779,149 12,010	4,582 51,084 34,850 98,002 1,418,040 16,774 1,715 11,345 1,792,570 1,329,582 9,167 10,341 1,329,582 9,167 10,341 4,755 7,456 7,456 7,456 7,456 7,456 7,456 1,761,053 1,99 2,8,651 1,761,053 1,952 1,515 2,845,500 4,645,500
DM1220 DM1220 DM1221 DM1225 DM1230 DM1235	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Total Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT TRENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC RICK TURK TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE FOR CONC MASPLUNDH TREE FOR CONC MASPLUNDH TREE FOR CONC MASPLUNDH TREE SERVICE INC MASPLUNDH TREE FOR CONC MASPLUNDH TREE SERVICE INC MASPLUNDH TREE SERVI	37,886 2,415 299,865 119,945 520,110 520,110 259,241 8,442 153,419 421,102	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,385 162,589	278.601 4,111 47,278 137,481 467,472 677 677 677 189,209 99,226 288,435 2,540	2,104 9,097 18,654 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 47,632 151,840	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769 88,710	103,922 2,539 78,688 20,116 2,960 209,226 100,505 3,474 1,515 105,494 10,043 831	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531	94,783 7,651 172,961 139,677 6,206 421,724 1,684 1,684 96,532 15,732 112,264 5,691	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891 139,007 26,636 165,644 7,427	100,841 3,854 217,965 322,860 185,640 172,075 367,715 5,168	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655 7785,149 12,010	4,552 51,089 34,850 35,07535,075 35,075 35,075 35,075 35,
DM1220 DM1221 DM1221 DM1225 DM1230 DM1235	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal Hazard Tree Off-Cyde Hazard Tree Off-Cyde Hazard Tree Off-Cyde Total Perform Distribution Right of Perform Distribution Right of Total Perform Distribution Right of Total Perform Off Road Feeder Trimmi Perform Interim Trimming - Dis	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC WEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO HERTZ EOUPMENT RENTAL NELSON TREE SERVICE INC MASPLUNDH TREE EXPERT CO HERTZ EOUPMENT RENTAL NELSON TREE SERVICE INC PRO UNLIMITED INC	37,886 2,415 299,865 119,945 520,110 520,110 259,241 8,442 153,419 421,102 1,531 8,285	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,938	278.601 4,111 47.276 137.481 467.472 677 677 677 189.209 99.226 288.435 2.540 7.040	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 47,632 151,640	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839 95,521 31,597 127,118	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 	103,922 2,539 78,688 20,116 2,960 209,226 100,505 3,474 105,494 105,494 10,M3 899	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 96,532 15,732 112,264 5,691 1,195	137.691 446 129.967 118.002 386.105 3.258 3.258 3.258 4.891 139.007 26.636 165.644 7.427	100,841 3,854 217,965 322,660 185,640 172,075 357,715 5,168 4,820	158,392 9,317 257,056 359,818 475 785,059 395,494 383,855 776,149 12,010 10,789	4,552 51,089 34,850 34,850 34,850 34,850 1,418,040 16,774 1,745,270 1,329,582 9,167 10,341 37,948 4,752 7,486 4,7957 7,486 4,225 7,486 4,225 7,486 4,225 1,063,109 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 2,245,960 4,517 1,515 1
DM1220 DM1220 DM1221 DM1225 DM1235	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Hazard Tree Off-Cycle Perform Distribution Right of Perform Distribution Right of Total Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Distribution Trimming - Dis Perform Interim Trimming - Dis Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC MEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC	97,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419 421,102 1,531 8,285 9,816	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,335 29,335	278.601 4,111 47,278 137,481 467,472 677 677 677 189,209 99,226 288,415 2,540 7,040 9,580	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 23,760 104,007 104,007 147,632 151,640	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118 8,222 8,222	2,458 18,832 9,875 30,165 30,165 107,452 825 1,156 133,858 41,160 9,286 294,409 294,409 82,940 5,769 88,710 11,967	103,922 2,539 79,688 20,116 2,960 209,226 209,226 100,505 3,474 1,515 105,494 10,043 891 1,554	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684	137.691 446 129.967 118.002 386,105 3.258 3.258 4.891 139.007 26.636 165.644 7.427 7.427	190,841 3,854 217,965 322,860 185,640 172,075 367,715 5,168 4,820 9,787	158,392 9,317 257,056 359,618 475 785,059 395,494 383,655 776,149 12,010 10,769 3,252 26,031	4,562 51,084 34,850 985,002 1,418,040 1,6774 1,715,717 1,742,570 1,742,570 1,742 9,167 1,742,570 1,349 1,742 4,745 7,446 4,757 7,446 4,757 7,456 1,761,635 1,952 1,063,109 1,515 2,845,900 1,5
DM1220 DM1220 DM1221 DM1225 DM1235 DM1235	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Total Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Vendor Incentives - Di	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT TRENTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC MEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MEIGHING & SYSTEMS TECHNOLOGY ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC MEIGHINTED INC ASPLUNDH TREE SERVICE INC MEIGHINTED INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC	57,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419 421,102 1,531 8,285 9,816 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 15,938 12,997 15,938 29,935	278.601 4,111 47,278 137,481 467,472 677 677 677 189,209 99,228 288,435 2,540 7,040 9,526 6,314	2,104 9,097 18,654 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 1,039 23,760 23,760 23,760 104,007 47,632 151,840 11,290 11,290 11,290 817	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118 8,222 8,222 8,227	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769 68,710 11,967	103,922 2,539 78,888 20,116 2,960 209,226 100,505 3,474 1,515 105,494 10,505 105,494 10,554 1,554	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 3,531 517	94,783 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732 112,264 5,691 1,195 6,886 475	137,691 446 129,967 118,002 388,105 3,258 3,258 4,891 139,007 26,636 165,644 7,427 7,427 921	100.841 3.854 217,965 322,660 185,640 172,075 357,715 5,168 4.820 9,787	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655 778,149 12,010 10,769 3,252 26,031	4,552 51,058 98,002 98,002 14,18,040 16,774 1,742,570 11,346 1,742,570 11,324,552 9,167 10,341 10,341 10,341 10,341 4,652,957 4,6627,957 4,6627,957 4,6627,957 4,6627,957 4,6627,957 4,663,109 1,515 2,245,900 4,6,411 8,01 8,1110 68,644 4,117,051 1,393 1,395 1,495 1,
DM1220 DM1221 DM1221 DM1225 DM1230 DM1235 DM1245	Circuit Trim Fotiow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cyde Hazard Tree Off-Cyde Hazard Tree Off-Cyde Total Perform Distribution Right of Perform Distribution Right of Total Perform Distribution Right of Total Perform Distribution Right of Total Perform Distribution Right of Total Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Interim Trimming - Dis	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC MEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MEIGHINC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MEIGHINC ASPLUNDH TREE EXPERT CO INC MEIGHINC MEIGHINC MEIGHINC MEIGHINC NELSON TREE SERVICE INC NELSON TREE SERVICE INC	37,886 2,415 299,865 119,945 520,110 520,110 259,241 8,442 153,419 421,102 1,531 8,285 9,816 1,531 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,538 29,935 2,937 2,937	278.601 4,111 47.276 137.481 467.472 677 677 677 189.209 99.226 288.435 2.540 7.040 9.581 6.314 6.314	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 47,632 151,840 11,290 11,290 617 617	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839 95,521 31,597 127,118 8,222 8,222 6,17 6,17	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 	103,922 2,539 78,688 20,116 2,960 209,226 100,505 3,474 105,494 105,494 105,494 105,494 105,494	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 3,531 3,517 517	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732 112,264 5,691 1,195 6,886 475 475	137.691 446 129.967 118.002 386.105 3.258 3.258 3.258 4.891 139.007 26.636 165.644 7.427 7.427 7.427 9.21	100,841 3,854 217,965 322,660 185,640 172,075 357,715 5,168 4,820 9,787	158,392 9,317 257,056 359,818 475 785,059 395,494 383,855 776,149 12,010 10,789 3,252 26,031	4,552 51,089 34,850 34,850 34,850 34,850 34,850 1,1418,040 1,742,570 1,328,552 9,167 10,341 37,948 4,752 7,486 4,255 7,487 4,5577 4,5577 4,5577 4,55777 4,557777777777
DM1220 DM1220 DM1221 DM1225 DM1235 DM1235 DM1245 D09000	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Total Perform Unterim Trimming - Dis Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Total Misc Ops Supv and Admin	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT REINTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC MEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC MELSON TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC MELSON TREE SERVICE INC MELSON TREE SERVICE INC NELSON TREE SERVICE INC MELSON TREE SERVICE INC NELSON TREE SERVICE INC	97,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419 421,102 1,531 8,285 9,816 1,531 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,589 12,997 16,589 29,335 2,937 2,937 2,937 109	278.601 4,111 47,278 137,481 467,472 677 677 677 677 677 677 677 677 677 6	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 23,760 23,760 104,007 47,632 151,640	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118 8,222 6,17 6,17	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,150 9,286 294,409 	103,922 2,539 79,688 20,116 2,960 209,226 209,226 100,505 3,474 1,515 10,643 891 1,654 12,588	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 3,531 517 517	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,724 1,684 1,684 1,684 1,684 1,684 1,684 1,684 1,684 1,725 1,755 1	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891 139,007 26,636 165,644 7,427 7,427 921 921	190,841 3,854 217,965 322,860 185,640 172,075 347,715 5,168 4,820 9,787	158,392 9,317 257,056 359,618 475 785,059 395,494 383,655 779,149 12,010 10,769 3,252 26,031 	4,582 51,088,002 98,002 1,418,040 16,774 1,715,770 1,329,582 9,167 10,341 1,745,700 1,329,582 9,167 10,341 3,7,488 4,757 4,627,957 4,627,957 4,265 7,486 7,486 7,486 1,761,685 1,956 2,3,760 4,264,411 3,110 5,245,900 1,515 2,345,900 1,515 1,5
DM1220 DM1220 DM1221 DM1225 DM1235 DM1235 DM1245 DO9000	Circuit Trim Foliow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Total Misc Ops Supv and Admin	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ ECUIPMENT REINTAL K W REESE INC LEWIS TREE SERVICE INC NELSON TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC MELSON TREE SERVICE INC ASPLUNDH TREE SERVICE INC ASPLUNDH TREE SERVICE INC LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC OCE IMAGISTICS INC POWER HOUSE PRO UNLIMITED INC	57,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419 421,102 1,531 8,285 9,816 1,531 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,938 29,935 2,937 2,937 109	278.601 4,111 47,278 137,481 467,472 677 677 677 677 677 677 288,435 2,540 9,580 6,314 6,314	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 23,760 104,007 47,632 151,840 11,290 617 617 617	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118 8,222 6,17 6,17	2,458 18,832 3,0,165 30,165 107,452 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769 85,710 11,967 11,967	103,922 2,539 78,888 20,116 2,960 209,226 100,505 3,474 1,515 105,494 10,505 105,494 10,505 105,494 10,505	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 617 517 24 1,065	94,783 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732 112,264 5,691 1,195 6,886 475 475	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891 139,007 26,636 165,644 7,427 7,427 7,427 921 921	190.841 3.854 217,965 322,660 185,640 172,075 5.168 4.820 9,787	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655 779,149 12,010 10,769 3,252 26,031 	4,552 51,058 34,850 34,850 34,850 34,850 34,850 11,346 1,742,570 11,324,552 11,346 1,722,570 11,329,552 9,167 10,341 37,948 4,475 4,627,957 4,627,957 4,627,957 4,627,957 4,627,957 4,627,957 4,627,957 4,627,957 4,631,09 1,515 2,345,900 2,545,900 4,641,110 8,1110 8,144 4,17,061 1,3931 1,3931 1,3931 1,3931 1,3931 1,3931
DM1220 DM1221 DM1221 DM1225 DM1230 DM1235 DM1245 DO9000	Circuit Trim Fotiow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cyde Hazard Tree Off-Cyde Hazard Tree Off-Cyde Total Perform Distribution Right of Perform Distribution Right of Total Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Total Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Total Misc Ops Supv and Admin Misc Ops Supv and Admin Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT RENTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC RICK TURK TREE SERVICE INC RICK TURK TREE SERVICE INC RICK TURK TREE SERVICE INC CWEIGHING & SYSTEMS TECHNOLOGY INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC RICK TURK TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC PRO UNLIMITED INC ASPLUNDH TREE EXPERT CO INC ASPLUNDH TREE SERVICE INC PRO UNLIMITED INC OCE IMAGISTICS INC POWER HOUSE PRO UNLIMITED INC	97,886 2,415 299,865 119,945 520,110 520,110 259,241 8,442 153,419 421,102 1,531 1,531 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,938 162,589 29,935 2,937 2,937 109	278.601 4,111 47,276 137.481 467,472 677 677 189,209 99,226 288,435 2,540 7,040 9,580 6,314 6,314	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 1,039 23,760 23,760 104,007 47,632 151,840 11,290 11,290 11,290 21,751 21	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 839 95,521 31,597 127,118 8,222 8,222 617 617	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 	103,922 2,539 76,688 20,116 2,960 209,226 100,505 3,474 1,515 105,494 10,M3 891 1,654 12,588 748 748	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 3,523 3,523 3,5313 3,531 3,531 3,5313 3,5313,531	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732 112,264 5,691 1,195 6,886 475 475 1,139 1,139	137,691 445 129,967 118,002 386,105 3,258 3,258 3,258 4,891 139,007 26,636 165,544 7,427 7,427 921 921 921 724 724	150,841 3,854 217,965 322,660 185,640 172,075 357,715 5,168 4,820 9,787 	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655 776,149 12,010 10,769 3,252 26,031 207 8,79 10,664	4,552 51,089 34,850 34,850 34,850 34,850 1,418,804 1,6774 1,148,804 1,782,570 1,328,582 9,167 10,341 37,948 4,795 7,486 4,256 4,256 4,256 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,515 2,245,500 4,517 1,51
DM1220 DM1220 DM1221 DM1225 DM1230 DM1235 DM1245 DO9000 DO8025	Circuit Trim Foliow Up Total Perform Hazardous Tree Removal Perform Hazardous Tree Removal Total Hazard Tree Off-Cyde Hazard Tree Off-Cyde Perform Distribution Right of Perform Distribution Right of Perform Distribution Right of Teacher Trimming - Dis Perform Off Road Feeder Trimmi Total Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Sourdor Incentives - Di Perform Vendor Incentives - Di Total Misc Ops Supv and Admin Misc Ops Supv and Admin Total Attend Training Other Than Saf	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC MERTZ EQUIPMENT REINTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC MEISON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC NELSON TREE SERVICE INC NELSON TREE SERVICE INC MEISON TREE SERVICE INC NELSON TREE SERVICE INC	37,886 2,415 299,865 119,945 520,110 520,110 259,241 8,442 153,419 421,102 1,531 1,531 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,938 29,935 2,937 2,937 109 109 109	278.601 4,111 47.278 137.481 137.481 467.472 677 677 677 677 189.209 99.226 288,435 2,540 7.040 9.580 6,314 6,314	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 23,760 104,007 47,632 151,840 11,290 11,290 617 617 21 21	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 93,521 31,597 127,118 8,222 617 617	2,458 18,832 9,875 30,165 107,452 672 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769 88,710 11,967 11,967 109	103,922 2,539 79,688 20,116 2,960 209,226 100,505 3,474 1,515 105,494 10,M3 891 1,654 12,588 748 748	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 517 517 517 24 1,055 1,078	94,783 445 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732 112,264 5,691 1,195 6,886 475 475 1,139 1,138	137.691 446 129.967 118.002 386,105 3.258 3.258 3.258 4.891 139.007 26,636 165.644 7.427 7.427 921 921 921 724 724	190,841 3,854 217,965 322,860 185,640 172,075 337,715 5,168 4,820 9,787 1,823 1,823	158,392 9,317 257,056 359,618 475 785,059 395,494 383,655 779,149 12,010 10,769 3,252 26,031 207 879 1,086	4,582 51,088,002 98,002 1,418,040 1,6,774 1,748,240 9,167 1,329,582 9,167 1,329,582 9,167 1,329,582 9,167 1,329,582 9,167 1,329,582 9,167 1,329,582 7,486 7,486 7,486 7,486 7,486 7,486 1,329,582 1,95
DM1220 DM1220 DM1221 DM1225 DM1235 DM1235 DM1245 DO9000 D09025	Circuit Trim Foliow Up Total Perform Hazerdous Tree Removal Perform Hazerdous Tree Removal Total Hazard Tree Off-Cycle Hazard Tree Off-Cycle Total Perform Distribution Right of Perform Distribution Right of Perform Off Road Feeder Trimmi Perform Off Road Feeder Trimmi Perform Interim Trimming - Dis Perform Interim Trimming - Dis Perform Vendor Incentives - Di Perform Vendor Incentives - Di Perform Vendor Incentives - Di Total Misc Ops Supv and Admin Total Attend Training Other Than Saf Total Attend Training Other Than Saf Total	LEWIS TREE SERVICE INC TAMARACK FORESTRY SERVICE INC THE TREE DOCTOR INC ASPLUNDH TREE EXPERT CO ENVIRONMENTAL CONSULTANTS INC HERTZ EQUIPMENT REINTAL K W REESE INC LEWIS TREE SERVICE INC PRO UNLIMITED INC RICK TURK TREE SERVICE INC TAMARACK FORESTRY SERVICE INC MEISON TREE SERVICE INC ASPLUNDH TREE EXPERT CO LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC LEWIS TREE SERVICE INC ASPLUNDH TREE SERVICE INC MEISON TREE SERVICE INC ASPLUNDH TREE SERVICE INC ASPLUNDH TREE SERVICE INC ASPLUNDH TREE SERVICE INC MEISON TREE SERVICE INC MEISON TREE SERVICE INC MEISON TREE SERVICE INC MEISON TREE SERVICE INC INCLOSENCE INC OCE IMAGISTICS INC PRO UNLIMITED INC OCE IMAGISTICS INC PRO UNLIMITED INC INCLOSE PRO UNLIMITED INC INCLOSE PRO UNLIMITED INC	57,886 2,415 299,865 119,945 520,110 259,241 8,442 153,419 421,102 1,531 8,285 9,816 1,531 1,531	19,336 185,491 44,119 10,341 259,287 31,084 11,139 120,365 162,589 12,997 16,938 29,935 2,937 2,937 2,937 109 109 415	278.601 4,111 47,278 137,481 467,472 677 677 677 189,209 99,228 288,435 2,540 9,580 6,314 6,314	2,104 9,097 18,694 119,723 257 250,075 70,049 1,433 441,537 1,039 1,039 23,760 104,007 104,007 11,290 11,290 617 617 617 21	23,169 25,975 49,144 114,206 106,211 51,918 27,229 299,565 839 95,521 31,597 127,118 8,222 6,17 6,17	2,458 18,832 3,0,165 30,165 107,452 825 1,156 133,858 41,160 9,286 294,409 82,940 5,769 88,710 11,967 11,967 11,967	103,922 2,539 78,888 20,116 2,960 209,226 100,505 3,474 1,515 105,494 100,505 3,474 1,515 105,494 10,505 1,554 12,588 748 748	85,206 126,265 9,333 220,804 82,513 3,528 86,041 3,531 617 517 24 1,055 1,075	94,783 7,651 172,961 139,677 6,206 421,724 1,684 1,684 1,684 96,532 15,732 112,264 5,691 1,195 6,886 475 475 1,139	137,691 446 129,967 118,002 386,105 3,258 3,258 4,891 139,007 26,636 165,644 7,427 7,427 7,427 921 921 921	190.841 3.854 217,965 322,660 185,640 172,075 5.165 4.820 9,787 1.823 1.823	158,392 9,317 257,056 359,818 475 785,059 395,494 383,655 779,149 12,010 10,769 3,252 26,031 	4,552 51,088 34,850 39,002 39,002 39,002 39,002 11,346 11,346 11,346 11,346 11,346 11,346 11,346 11,346 11,346 11,347 11,

1207

DO9030	Attend Distribution Safety Tra	ASPLUNDH TREE EXPERT CO						5,860							5 860
1		K W REESE INC								5 293					5 293
		LEWIS TREE SERVICE INC						5,739		-,					5 739
		NELSON TREE SERVICE INC						32,135							32 136
1		TAMARACK FORESTRY SERVICE INC						15.343							14 141
		URBAN FORESTRY LLC					1.187								1 187
	Attend Distribution Safety Tra Total						1,187	59.077		5.293					65 556
DO9045	Attend Other Employee Meetings	NELSON TREE SERVICE INC			1,830										1 810
	Attend Other Employee Meetings Total				1,830					_					1 830
009050	Perform Distribution Police Pr	ANTHONY J PULCI	75												75
		BRANDON MARX							1,083						1 083
		MARK J POWERS	75												75
	Perform Distribution Police Pr Total		149						1,083						1 233
DO9070	Perform Emergency Standby - Di	ASPLUNDH TREE EXPERT CO	1,170											336	1 506
		NELSON TREE SERVICE INC			135										135
	Perform Emergency Standby - Di Total		1,170		135									336	1 641
TM1245	Perform Right of Way Off-Cycle	NELSON TREE SERVICE INC							-		1.127	~			1 127
	Perform Right of Way Off-Cycle Total		_								1,127			·	1 127
TM1291	Perform Vegetation Management	LEWIS TREE SERVICE INC					946								946
	Perform Vegetation Management Total						946								946
Grand Tota			1,054,383	485,222	1,259,606	1,083,626	1,786,177	4,916,126	1,177,986	1,949,609	3,382,837	2.968.257	1,736,603	10.642.835	32,463,266

#### Tree Trimming - Unplanned Outage Minor Storm

			Period												
Activity	Activity Descr	Vendor	1	2	3	4	5	6	7	8	9	10	11	12	Grand Total
DM1100	Maintain Fully Dressed Distrib	ASPLUNDH TREE EXPERT CO	3,929		113,664	58.220	119,324	37,960		6.051	6.851	46.571		29.180	421 750
		ENVIRONMENTAL CONSULTANTS INC			614	510									1 123
		HERTZ EQUIPMENT RENTAL			891	891								I	1 782
		K W REESE INC				10.351	10,472			12,831					33 654
		LEWIS TREE SERVICE INC	1			27.817								I	27.817
		NELSON TREE SERVICE INC	1			11,959								i	11 959
		TAMARACK FORESTRY SERVICE INC				3,740									3 740
DM1210	Perform Trouble Maintenance Ve	ASPLUNDH TREE EXPERT CO	1,624	2,528	43,402	9,993	17,254	7,455				6.608			88 853
		K W REESE INC								1.537		-,		i i	1 537
		LEWIS TREE SERVICE INC				2,808								,	2 808
		NELSON TREE SERVICE INC		3,343	52,418	10,148	11,148	7.125	424		527	1 354	2 3 3 3	3 038	91 857
		RJ MARINE ASSOCIATES LTD		673				•					500	0,000	1 173
		TAMARACK FORESTRY SERVICE INC				3.573		2.477							6.050
DO9070	Perform Emergency Standby - Di	TAMARACK FORESTRY SERVICE INC				-		405			_				405
TM1100	Instal Attachments Structural	ASPLUNDH TREE EXPERT CO							687			838	1 021		2 546
		LEWIS TREE SERVICE INC										20.938		ł	20.938
Grand Tota	<u> </u>		5.553	6,544	210.989	140,010	158,197	55,422	1,111	20,419	7,378	76,310	3,853	32,218	718.004
Total Tree	Triemming Accounts Payable		1,059,936	491,766	1,470,594	1,223,636	1,944,375	4,971,548	1,179,097	1,970,027	3,390,215	3,064,567	1,740,456	10,675,053	33,181,269

Other Tree Trimming Accruais

Total Tree Trimming

2,060,886

35,242,155

Date of Request: April 21, 2010 Due Date: May 3, 2010

# Request No. AAE-35 NMPC Req. No. NM 623 DPS-395

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Allison Esposito

<u>TO:</u> Revenue Requirement Panel

Request:

1. The response to IR AAE-14 listed 10 non-utility properties which have costs included in the SIR deferral. For each property, please provide the date of purchase.

#### Response:

The purchase dates of the 10 non-utility properties listed in AAE-14 are as follows:

**Property Location** 

Purchase Date:

Rome (Jay & Madison) MGP Gloversville MGP Fulton MGP Saratoga Springs MGP Malone MGP Harbor Point MGP Ogdensburg MGP Rome (Kingsley Ave) MGP February, 1999 May, 1999 January, 2001 May, 2001 October, 2001 January, 2007 (two properties) January, 2007 October, 2009 (Voci & Vecchio properties)

Name of Respondent: Michael Bogan Date of Reply: April 29, 2010 Date of Request: April 21, 2010 Due Date: May 3, 2010

# Request No. DAG-32 NMPC Req. No. NM 625 DPS-397

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### **Request for Information**

FROM: Allison Esposito

TO: Revenue Requirement Panel

<u>Request:</u> Labor Agreement Extension / Memorandum of Understandings 1. Niagara Mohawk Power Corporation and Local Union 97 entered into an extension to the existing labor agreement that will be effective April 1, 2011 through March 31, 2014 (provided in Company response to DAG-6) (the "extended agreement"). This extended agreement was signed and dated July 29, 2009. For each term outlined in the extended agreement, please provide the estimated annual impact to Niagara Mohawk, with supporting calculations and documentation.

2. For each term outlined in the extended agreement, please identify the RYE 12/2011 implications and specifically show where this has been addressed and the impacts reflected within the Company's rate filing. Include supporting calculations for all amounts.

3. As part of the extended labor agreement and Memorandums of Agreements provided as part of response to DAG-6, there are terms relating to certain "Job Families" that impact the determination of wage increases. For example, for the job families (e.g. the "Accounts Payable Representative Job Family"), wage increases will be effective April 1st of each year, and will based on the relative change in market based wages, as provided by the national data base of wages, and any wage increases will be dependent upon each year's computed wage index. The wage index will be computed on annual basis by comparing the previous year to the current year "Wage Data Base."

(a) Please provide a copy of the January 31, 2009 established baseline for the market based wages, and all documents that support the established baseline.

(b) Please provide a copy of the January 31, 2010 wage index that was computed by comparing the rate of change from the January 31, 2009 established baseline year to the baseline year + 1, and all documents that support the updated January 31, 2010 wage index.

(c) Please explain and identify how the terms related to wage increases of the specified "Job Families" that are contained in the various documents have been addressed and the impacts reflected within RYE 12/2011 of the Company's rate filing. Include supporting calculations for all amounts.

#### Response:

1. Terms of the Contract Extension that have financial impacts and related references to annual financial impact are listed below:

- General Wage Increases As noted in the Revenue Requirements Panel Testimony pages 35-36, labor expense was calculated using the 2.5% average base wage increase per the contract extension beginning in April, 2011. Schedule 31 to RRP-2 calculates the wage increase impact by rate year for all of Niagara Mohawk represented labor costs.
- Employee Benefits The Company estimates that the net impact of the employee benefit changes is \$13M in the first year and (\$1.1M) in ongoing years. The table below summarizes the cost impacts for pension and retiree medical plan changes. As these benefits impacted only those covered by the Local Union 97 contract extension, the cost estimates below are for only those employees.

	Pension	Retiree Medical	Net Result
One-time PBO* charge	\$15.3 million	(\$14.3 million)	\$1 million
Ongoing increase	2.2  million	(\$3.3  million)	(\$1.1 million)
Total cost for initial year	\$16.5 million	(\$3.5 million)	\$13 million

\* Projected Benefit Obligation

- EDO Operating Model Costs and benefits of implementing EDO Transformation were provided in response to AJR-13 for Niagara Mohawk in total. Impacts of this contract extension are a component of those costs and benefits. EDO Transformation program costs and savings are not measured on individual union/management basis.
- 2. General Wage Increase Where referenced to RRP-2 schedules, RYE 12/2011 impacts are represented in the schedules referred to in Question 1, above.

Employee Benefits - As indicated in the table above, ongoing savings in RYE 12/2011 are \$1.1M.

RYE 12/2011 impact of EDO Transformation costs are included in DAG-16. As indicated in the response to MI-M-41, the rate case filing includes estimated savings from efficiency improvements, of which EDO Transformation is one effort, in order to produce year-on-year expected labor savings of 1%.

- 3a. Please see Attachment 1
- 3b. Please see Attachment 1
- 3c. The Company used a 2.5% annual wage increase in rate years 2011 through 2013 to forecast all represented labor. It is the Company's position that a 2.5% annual wage increase is appropriate based on the minimal number of FTEs that fell within these "Job

Families" and the fact that a 2.5% annual wage increase was below the Wage Adjustment Cap for these "Job Families."

Name of Respondent: Pat Easterly Mark Stiner Ed Considine Date of Reply: 5/3/2010

DAG-32 Labor Agreement Extension/Memorandum of Understanding Docket Number 10-E-0050 Niagara Mohawk Power Corporation Attachment 1, Page 8 of 8

#### Niagara Mohawk Power Corporation (Electric) d/b/a National Grid Job Family Wage Rates

#### SUMMARY OF ANNUAL WAGE INCREASE EFFECTIVE APRIL 1, 20XX

							Effective 04/01/2009			Effective 04/01/2010		
Code	Job Title	Minimum Experience (months)	Base Wage Rate (\$/hour)	Variable Pay Percentage on Base	Variable Pay Rate (\$/hour)	Total Starting Compensation (\$/hour)	First Annual Cycle Wage Index Percentage	First Annual Cycle BASE Wage Rate (\$/hour)	First Annual Cycle Total Compensation (\$/hour)	Second Annual Cycle Wage Index Percentage	Second Annual Cycle BASE Wage Rate (\$/hour)	Second Annual Cycle Total Compensation (\$/hour)
	Customer Call Center											· · · · · · · · · · · · · · · · · · ·
CSR-1	Associate CSR	Entry	\$9.00	10%	\$0,90	\$9.90	1.97%	\$9.18	\$10.10	2.75%	\$9,43	\$10.37
CSR-2	Associate CSR-1	6	\$10.25	10%	\$1.03	\$11.28	1.97%	\$10.45	\$11.50	2.75%	\$10.74	\$11.81
CSR-3	Customer Service Rep 1	12	\$12,50	10%	\$1.25	\$13.75	1.97%	\$12.75	\$14.02	2.75%	\$13.10	\$14.41
CSR-4	Customer Service Rep II	18	\$13.75	10%	\$1.38	\$15.13	1.97%	\$14.02	\$15.42	2.75%	\$14.41	\$15.85
CSR-5	Customer Service Repp III	30	\$14.25	10%	\$1.43	\$15.68	1.97%	\$14.53	\$15.98	2.75%	\$14.93	\$16.42
CSR-6	Senior Customer Service Rep 1	42	\$15.50	10%	\$1.55	\$17.05	1.97%	\$15.81	\$17,39	2.75%	\$16.24	\$17.86
CSR-7	Senior Customer Service Rep II	54	\$16.25	10%	\$1.63	\$17.88	1.97%	\$16.57	\$18.23	2.75%	\$17.03	\$18.73
	Accounts Processing											
CSR-1	Associate CSR	Entry	\$9.00	10%	\$0.90	\$9.90	1.97%	\$9,18	\$10,10	2.75%	\$9,43	\$10,37
CSR-2	Associate CSR-1	6	\$10.25	10%	\$1.03	\$11,28	1.97%	\$10.45	\$11,50	2.75%	\$10.74	\$11.81
CSR-3	Customer Service Rep I	12	\$12,50	10%	\$1.25	\$13,75	1.97%	\$12,75	\$14.02	2.75%	\$13.10	\$14.41
CSR-4	Customer Service Rep II	18	\$13.75	10%	\$1.38	\$15,13	1.97%	\$14.02	\$15.42	2 75%	\$14.41	\$15.85
CSR-5	Customer Service Repp III	30	\$14.25	10%	\$1.43	\$15.68	1.97%	\$14.53	\$15.98	2.75%	\$14.93	\$16.42
CSR-6	Senior Customer Service Rep I	42	\$15.50	10%	\$1.55	\$17,05	1.97%	\$15.81	\$17.39	2 75%	\$16.24	\$17.86
CSR-7	Senior Customer Service Rep II	54	\$16.25	10%	\$1.63	\$17,88	1.97%	\$16.57	\$18.23	2.75%	\$17.03	\$18.73
	Payment Processing Clerk											
PP-1	Payment Processing Clerk 1	Entry	\$9,00	10%	\$0,90	\$9.90				0.00%	\$9.00	\$9.90
PP-2	Payment Processing Clerk 2	6	\$11.50	10%	\$1.15	\$12.65				0.00%	\$11.50	\$12.65
PP-3	Payment Processing Clerk 3	12	\$13.00	10%	\$1.30	\$14.30				0.00%	\$13.00	\$14.30
PP-4	Payment Processing Clerk 4	24	\$14.50	10%	\$1.45	\$15.95				0.00%	\$14.50	\$15,95
	Credit & Collection Services											
CCS-1	CCS Rep 1	Entry	\$9.00	10%	\$0.90	\$9.90				2 75%	\$9.25	\$10.17
CCS-2	CCS Rep 2	6	\$10.25	10%	\$1.03	\$11.28				2.75%	\$10.53	\$11.59
CCS-3	CCS Rep 3	12	\$12.50	10%	\$1.25	\$13.75				275%	\$12.84	\$14.13
CCS-4	CCS Rep 4	18	\$13.75	10%	\$1.38	\$15.13				2.75%	\$14.13	\$15.5A
CCS-5	CCS Rep 5	24	\$14.25	10%	\$1.43	\$15.68				2.75%	\$14.64	\$16.11
CCS-6	CCS Rep 6	36	\$15.50	10%	\$1.55	\$17.05				2.75%	\$15.03	\$17.52
CCS-7	CCS Rep 7	48	\$16.25	10%	\$1.63	\$17,88				2.75%	\$16.70	\$18,37
	Accounts Pavable Clerk											
AP-1	Accounts Pavable Clerk 1	Entry	\$10.25	10%	\$1.03	\$11.28				1 45%	\$10.40	811 44
AP-2	Accounts Payable Clerk 2	6	\$13.92	10%	\$1.39	\$15.31				1.4576	\$14.10	\$11,44 \$15.50
AP-3	Accounts Payable Clerk 3	12	\$15.51	10%	\$1,55	\$17.06				1.45%	\$14.12 \$15.73	\$17,31
	Employee Services Representative											
ES-1	ES Reg 1	Entry	\$9.00	10%	\$0.90	\$9.90				1 78%	CO 16	£40.09
FS-2	ES Rep 2	6	\$12.50	10%	\$1.25	\$13.75				1 799/	39.10 610.70	\$10.08 \$43.00
FS-3	ES Reg 3	12	\$13.75	10%	\$1.25	\$15.10				1 781	312.72 \$12.00	913.99
		14	<b>W</b> ( <b>O</b> ( ) <b>O</b>	10 %	<b>9</b> 1.01	φ1J.1∠				1.70%	212,22	315.39

Date of Request: May 18, 2010 Due Date: May 28, 2010

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

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# **Request for Information**

#### **FROM:** Allison Esposito

**TO:** Revenue Requirement Panel

# Request: Labor Agreement Extension / Memorandum of Understandings

1. Niagara Mohawk Power Corporation and Local Union 97 entered into an extension to the existing labor agreement that will be effective April 1, 2011 through March 31, 2014 (provided in Company response to DAG-6) (the "extended agreement"). This extended agreement was signed and dated July 29, 2009. For each term outlined in the extended agreement, please provide the estimated annual impact to Niagara Mohawk, with supporting calculations and documentation.

2. For each term outlined in the extended agreement, please identify the RYE 12/2011 implications and specifically show where this has been addressed and the impacts reflected within the Company's rate filing. Include supporting calculations for all amounts.

3. As part of the extended labor agreement and Memorandums of Agreements provided as part of response to DAG-6, there are terms relating to certain "Job Families" that impact the determination of wage increases. For example, for the job families (e.g. the "Accounts Payable Representative Job Family"), wage increases will be effective April 1st of each year, and will based on the relative change in market based wages, as provided by the national data base of wages, and any wage increases will be dependent upon each year's computed wage index. The wage index will be computed on annual basis by comparing the previous year to the current year "Wage Data Base."

(a) Please provide a copy of the January 31, 2009 established baseline for the market based wages, and all documents that support the established baseline.

(b) Please provide a copy of the January 31, 2010 wage index that was computed by comparing the rate of change from the January 31, 2009 established baseline year to the baseline year + 1, and all documents that support the updated January 31, 2010 wage index.

(c) Please explain and identify how the terms related to wage increases of the specified "Job Families" that are contained in the various documents have been addressed and the impacts reflected within RYE 12/2011 of the Company's rate filing. Include supporting calculations for all amounts.

#### Response:

The response to question #1 of DAG-32 included a description of the cost impacts of negotiated changes to pension and retiree health benefits for Local 97. The response included a table showing the impacts under International Accounting Standards. Below is the response showing the cost impacts under US Generally Accepted Accounting Principles.

• Employee Benefits - The Company estimates that the net impact of the employee benefit changes is (\$1.0M) in the first year and (\$1.7M) in ongoing years. The table below summarizes the cost impacts for Pension and Retiree Medical plan changes. As these benefits impacted only those covered by the Local Union 97 contract extension, the cost estimates are for those employees impacted.

	Pension	Retiree Medical	Net Result
Total cost for FY 2010	\$1.2 million	(\$2.2 million)	(\$1.0 million)
Ongoing increase	\$2.1 million	(\$3.8 million)	(\$1.7 million)

Name of Respondent: Ed Considine Date of Reply: 5/18/2010

Date of Request: April 22, 2010 Due Date: May 3, 2010

# Request No. VVP-23 NMPC Req. No. NM 628 DPS-400

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

# **Request for Information**

FROM: Vijay Puran

TO: Infrastructure and Operations Panel

#### Request:

1. For each project listed under the Relay Replacement Strategy, please provide:

- a. The number of relays replaced in FY06, FY07, FY08, FY09 and FY10.
- b. The number of relays forecasted to be replaced in FY11, FY12, FY13, FY14 and FY15.
- c. Workpapers showing the derivation of the unit costs used to develop the capital expenditures for FY11, FY12, FY13, FY14 and FY15.

d. Workpapers showing the derivation of the capital expenditures for FY11, FY12, FY13, FY14 and FY15.

e. An explanation of how the capital expenditures for FY11, FY12, FY13, FY14 and FY15 could be derived from information contained in the January 2010 Capital Investment Plan (Book 29).

#### Response:

- a. There have been no relays replaced under the relay replacement strategy program during FY06 through FY10. The relay replacement strategies and individual projects listed within this program are currently in the conceptual engineering phase and none have yet been approved.
- b. The total number of relays forecasted to be replaced under this program in FY11, FY12, FY13, FY14, and FY15 is as follows;

·	FY11	FY12	FY13	FY14	FY15
Browns Falls	0	0	0	0	0
Edic	0	0	0	10	10
Geres Lock	0	0	0	0	0
Menands	0	0	0	0	0
North Troy	0	0	0	0	10
NY Protection & Control Replacement	0	0	66	85	85
Oswego	0	0	0	0	0
Relay Replacement Strategy – Phase 2	0	0	0	0	60
Riverside	0	0	0	0	0
Yahundasis	0	0	0	0	0
Total	0	0	66	95	165

Note that some of the strategies and projects listed in this program include scopes beyond simply replacing relays e.g. CNYAS41 which includes the replacement of the entire control house. For these complex projects the engineering will take several years and any relay replacement will occur outside the plan period.

- c. The majority of the relay replacements will be undertaken as part of the "NY Protection & Control Replacement" project which is currently targeting approximately 650 relays. Following a conceptual engineering report, more accurate cost and schedule information will be available. For purposes of project funding for the CIP, the Company used a value of \$50k per relay replaced. This is an investment grade estimate based on the replacement of a relay package (1 relay package ~ 4 individual relays) at a cost of \$200k.
- d. The derivation of the costs included in the CIP for the Relay Replacement Strategy was based on assessing initial engineering costs and using the estimate discussed above to arrive at estimated costs over FY11 through FY15. As indicated in the list of individual strategies in the CIP, there are ten unique projects that comprise the relay replacement strategy. Each project is unique and represents different field conditions and scope. For example, certain projects call for replacing the entire control house which would include the replacement of the relays inside.
- e. A breakdown of spending for the individual projects under the Relay Replacement Plan is listed in Exhibit 2 on sheet 127 of 308 in Exhibit \_\_(IOP-14) Schedule 2. The Company estimated \$50k per replaced relay to determine the spend for a relay replacement and made some engineering cost assumptions in cases where control houses were under review. This would not have been directly evident based on the material available in the CIP. Line item costs of under \$500k in the referenced schedule are intended to fund engineering work where no actual relays are yet replaced.

Name of Respondent: Michael Cooper

Date of Reply: May 2, 2010 Date of Request: May 19, 2010 Due Date: May 29, 2010

# Request No. RAV-128 SUPP NMPC Reg. No. NM 635 DPS-407

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Informal Request for Information

**FROM:** Jane Cicerani

**TO:** Revenue Requirement Panel

#### **Request:**

RAV-128 question 5 asked the following:

In response to RAV-49(B) the Company states that due to the change in repair and maintenance expense deduction taken for income tax reporting purposes, NMPC received an income tax refund as a result of overpayment during FYE 3/09. Please explain why this change in repair and maintenance expense deduction taken for income tax purposes should not be considered a refund under NY Public Service Law section 113(2).

In a telephone conversation with Company Counsel, Staff Counsel requested that the Company supplement its response to RAV-128 question 5 to more specifically explain why Section 113.2 of the PSL does not apply.

#### Supplemental Response:

5. PSL Section 113.2 applies to "any refund". The Company does not believe that there has been a "refund" as the term is intended, but rather a return of estimated taxes. Support for the Company's position is provided in 16 NYCRR Section 89.3 which excludes ordinary operating refunds (such as refunds for overpayment of estimated taxes) from the requirement to notify the Commission of tax refunds.

Name of Respondent: Aaron Russell/James Molloy Date of Reply: 5/26/2010

Date of Request: April 22, 2010 Due Date: May 3, 2010 Request No. JBM-5 NMPC Req. No. NM 639 PS-411

### NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

# Request for Information

FROM: Johanna Miller

<u>TO:</u> Infrastructure and Operations Panel

Request:

1. Please confirm that the following transmission projects do not have a strategy paper, sanction paper, or relevant study to fully describe, justify, and support the project's need, cost, and schedule, as requested in MJR-1.

Project Name	Project Number
Alps #188 Obsolete Circuit Switcher	C28304
Ash to Teall Cathodic Protection Upgrade	C27082
Colton Replace CBs and disconnects	C29844
EJ West-Warrensburg 9 115kV Cross Bracing	C03383
Elnora 115kV Tap Cross Bracing	C03384
Fenner-Cortland 3 Cross Braces.	C03281
Gardenville Control Cables	C27829
Greenbush- Replace TB3	C31663
Porter Replace 11 GE 230kV RF2 Discs	C20912
Rochester HPFF Cable Plant	C15988
Silver Creek switch structure - replace 115kV disconnects	CNYAS38
Temple Pressuring Plant	CNYX26
Trinity UG Pumphouse Redesign	C11318
Buffalo 115kV - replace disconnects	CNYAS40
Elm St. Refurbishment	CNYAS91
LightHH 115kv Yard Repl & cntrl hse	C31662
Lockport Rebuild	CNYAS2
Mohican - rebuild including transformers and oil circuit	CNYAS44
breakers	
N. Leroy Rebuild Station	C29180
Porter 230kV - replace disconnects and PTs	CNYAS36
Reynolds Road - protection replacement & new control	CNYAS27
building \$ replace. Overduty 115kv Breakers	
Rotterdam R/R 230kV FPE RHE CB's	C17849
Leeds - PV 92 T5330 Str 361	C32964

New Gardenville-Repl 230kV Discs	C20546
Replace Damaged Insulators	C31660

S. Oswego R/R LN1 Tone Package	C18952
Asset Separation strategy	CNYAS87
Repl DFR at Non-BPS Stations	C29487
Replace TB#1 - Everett Rd	C30824
Albany Steam – Add 2nd Station svc	C22071
BlackRiver-Taylorville#2 New Switch	C33742
Boonville-Rome #4 Reconductoring	CNYPL4
Eastern NY 115kV Capacitor Additions	CNYPL7
Fourth Elm 230-23kV Bank (N-1-1)	CNYPL14
Fourth Sawyer 230-23kV Bank (N-1-1)	CNYPL13
Install Capacitance/TRV	CNYPL34
Install new Alps Site Sub- Nassau	C30806
Install new Alps Site Sub-Line Work	C33619
LTC Filtration Systems NY	C24064
Reconductor 24 & 25 Line - Hogan Taps to Panell Road	CNYPL33
Reconductor Black River LHH	CNYPL1
Replace overdutied 115kV breakers at Central and Mohawk	CNYPL26
Valley	
Replace overdutied 115kV breakers at Maplewood	CNYPL25
Reynolds Road - Cap Blocking Scheme	C29964
Sta Homer Hill Transformers	C10705
Syracuse Area Reconductoring	CNYPL28

2. If a strategy paper, sanction paper, or relevant study describing, justifying or supporting any of the projects listed in No. 1 above does exist, please provide such documentation.

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Response: Please see below.

Project Name	Project Number	Comment
Alps #188 Obsolete Circuit	C28304	Please see Attachment 1 (JBM-5_Attach1_
Switcher		Problem Identification Worksheet (PIW) for
		the basis of the justification for this project.
		This project is likely to be sanctioned in FY
		11.
Ash to Teall Cathodic Protection	C27082	The existing cathodic protection system on
Upgrade		the Ash-Teall cable use a polarizing resistor
		and high current rectifier driven impressed
		current design. This type of system is
		obsolete and makes it difficult to determine it
		an adequate level of cathodic protection
		exists. Modern systems use polarization cells
		or solid state isolators, and these can be
	· · · ·	resistor cathodic protection system was in
		place at the time the Rochester area cables
		developed a leak and it was subsequently
		determined that the cathodic protection
		system had failed A need exists to assess all
		the NY cables and determine the best overall
		approach to cathodic protection.
Colton Replace CBs and	C29844	Please see Attachment 2 (JBM-
disconnects		5 Attac2 Colton10) and Attachment 3 (JBM-
		5 Attach3 Colton11) containing the
		condition assessments for justification for this
		project. This project is likely to be sanctioned
		in FY 11.
EJ West-Warrensburg 9 115kV	C03383	No strategy or sanction paper exists at this
Cross Bracing		stage. The intent of the cross-bracing is to
		strengthen existing structures in accordance
		with new structure standards for heavier ice
		and wind loadings. This project is likely to be
Elmont 115hW Tan Cross Drasing	C02284	Salictioned in F f 11.
Elnora 115kv Tap Cross Bracing	003384	stage. The intent of the cross bracing is to
		strengthen existing structures in accordance
		with new structure standards for heavier ice
		and wind loadings. This project is likely to be
	,	sanctioned in FY 11.
Fenner-Cortland 3 Cross Braces.	C03281	No strategy or sanction paper exists at this
		stage. The intent of the cross-bracing is to
		strengthen existing structures in accordance
		with new structure standards for heavier ice
		and wind loadings. This project is likely to be
		sanctioned in FY 11.
Gardenville Control Cables	C27829	The rebuild of Gardenville station was
		approved in March 2009. Please see

		Attachment 4 (JBM-5_Attach4 Gardenville),
	·	strategy paper, SG112, which was also
		provided in response to MJR-1. Supp-C
		(listed projects C05156 and C30084) The
		construction work at Gardenville is due to
		commence in EV12 but there is an urgent
		commence in r i 12 out mere is an urgent
· · · · · · · · · · · · · · · · · · ·		need to address control cable issues anead of
		the main project.
Greenbush- Replace TB3	C31663	No strategy or sanction paper exists at this
		stage of the project. The condition of this
		transformer is currently being re-assessed.
Porter Replace 11 GE 230kV	C20912	Please see Attachment 5 (JBM-
RF2 Discs		5 Attach5 Porter Assessment) for the basis of
		the justification for this project. This project is
		likely to be sanctioned in FY11
Pochester HPEE Cable Plant	C15088	Please see Attachment 6 (IRM-
	013300	5 Attaché Dochester) for the constion name
		This constient monon was empirical from these
		This sanction paper was omitted from those
		submitted in response to MJR-1, which will
		be supplemented accordingly.
Silver Creek switch structure -	CNYAS38	This prospective project is based on anecdotal
replace 115kV disconnects		condition information obtained during the
		ongoing asset health review process. Site
		specific condition assessment will be
		undertaken to confirm the justification for this
		project. Depending upon the condition
		assessment results this project may be
		sanctioned in FY12
Tomple Pressuring Plant	CNIVV26	Condition assessment is surrantly angoing to
remple riessuring riam		continuon assessment is currently ongoing to
		Depending upon the condition reconcert
		Depending upon the condition assessment
		results, this project is likely to be sanctioned
		in FY13.
Trinity UG Pumphouse Redesign	C11318	Condition assessment is currently ongoing to
		justify the need case. Depending upon the
		condition assessment results, this project is
		likely to be sanctioned in FY11.
Buffalo 115kV - replace	CNYAS40	This prospective project is based on anecdotal
disconnects		condition information obtained during the
		ongoing asset health review process. Site
		specific condition assessment will be
		undertaken to confirm the need case
		Depending upon the condition assessment
	· ·	results this project may be sanctioned in
		EV12
		$\begin{bmatrix} \Gamma & I & I \\ I & I \end{bmatrix}$
Elm St. Refurbishment	CNY ASYI	I ne strategy for the rebuild of Elm Street is
		currently under development. The attached
		Condition Assessment report, Attachment 7
		(JBM-5_Attach7_Elm St) forms the basis of
		the justification for this project. This project is

		likely to be sanctioned in FY 12		
LightHH 115by Vard Repl &	C31662	The strategy for the rehuild of Lighthouse Hill		
antri haa	051002	is currently under development. The attached		
chur iise		is currently under development. The attached		
		(IDM 5 Attach 8 Lighthauga Hill) forms the		
		(JBM-5_Attach8_Lighthouse Hill) forms the		
		basis of the justification for this project. This		
		project is likely to go to strategy in FY 11.		
Lockport Rebuild	CNYAS2	The strategy for the rebuild of Lockport is		
		currently in development. The attached		
		Condition Assessment report, JBM-		
		5_Attach9_Lockport) forms the basis of the		
		justification for this project. This project is		
		likely to go to strategy in FY 11.		
Mohican - rebuild including	CNYAS44	This prospective project is based on anecdotal		
transformers and oil circuit		condition information obtained during the		
breakers		ongoing asset health review process. Site		
breakers		specific condition assessment will be		
		undertaken to confirm the justification for this		
		project. Depending upon the condition		
		project. Depending upon the condition		
		assessment results this project may be		
		sanctioned in FYTT.		
N. Leroy Rebuild Station	C29180	Please see Attachment 10 (JBM-		
		5_Attach10_N.Leroy) for the basis of		
		justification for this project.		
Porter 230kV - replace	CNYAS36	This prospective project is based on		
disconnects and PTs		engineering condition assessment. Please see		
		Attachment 11 (JBM-5_Attach11_Porter)		
		This project is likely to be sanctioned in FY		
		11.		
Reynolds Road - protection	CNYAS27	This prospective project is based on anecdotal		
replacement & new control		condition information obtained during the		
building replace. Overduty		ongoing asset health review process. Site		
115ky Breakers		specific condition assessment will be		
		undertaken to confirm the justification for this		
		project Depending upon the condition		
		assessment results this project may be		
		sanctioned in FV11		
Potterdam P/P 230kV EDE PHE	C17840	Following site condition assessment		
CD's	017049	Attachment 12 (IDM		
CBS		Attachinent 12 (JDIVI-		
		5_Attach12_Rotterdam), the scope of this		
		project has expanded significantly to address		
		an of the asset condition issues at this critical		
		site. Conceptual engineering, Attachment 13		
		(JBM-5_Attach13_Kotterdam Eng.) is		
		currently ongoing but overall costs are likely		
		to $>$ \$100m over the total project. A strategy		
		for this project is targeted for approval in FY		
		14		
Leeds - PV 92 T5330 Str 361	C32964	These are related to continuing the work		

,

		started on the Edic-New Scotland 14 line to address potential Type 3A-3B tower safety
		concerns identified in Strategy Paper SC032
		concerns identified in Subject SOUS2,
		provided as Attachment 14 (JDM-
		5_Attach14_Leeds), and previously provided
		in response to MJR-1, Supp-A. The strategy
		will be revised to address the remaining 4
		lines using these towers once Transmission
		Planning completes its assessment of whether
		to upgrade these lines for load purposes.
New Gardenville-Repl 230kV	C20546	Please see Attachment 15 (JBM-
Discs		5 Attach15 New Gardenville) for the
		condition assessment. This project is likely to
		be sanctioned in FY11.
Replace Damaged Insulators	C31660	Prospective project to replace damaged
Replace Damaged Abulators	001000	insulators as and when they occur
S Oswaga P/P I NII Tana	C18952	Please see Attachment 16 (IRM-
Declare	010952	5 Attach 16 South Onward for the hasis of
Гаскаде		5_Attachino_South Oswego) for the basis of
		the justification for this project. This project is
		likely to be sanctioned in FYII.
Asset Separation strategy	CNYAS87	No strategy or sanction paper has been
		developed yet for this project. The project is
		driven by the need to separate National Grid's
		assets from jointly owned facilities.
Repl DFR at Non-BPS Stations	C29487	No strategy or sanction paper has been
		developed yet for this project. The project is
		currently under evaluation.
Replace TB#1 - Everett Rd	C30824	The peak load demand on Everett Rd over the
		summer of 2007 was 27.8MVA. TB#1 is a
		15/20/25MVA transformer and is expected to
		reach 102% of Summer Normal (SN) rating in
		2010. A project to temporarily relieve load
		from Everett Rd has been proposed for
		implementation prior to the summer of 2010
		(Refer to 2008 Annual Plan). After
		completion of this project, the load demand
		on Everett Rd is expected to reach SN rating
	1	around 2012. A failure of the existing TB#1
		will result in outages, dropping an estimated
		5.3MVA of load in the area. The
		recommendation is for the replacement of the
		existing Everett Rd TB#1 with a 115/13.2kV
		24/32/40MVA transformer bank with LTC
		and EMS.
Albany Steam - Add 2nd Station	C22071	Existing station service has single mode of
svo		failure See Attachment 18 (IBM-
		5 Attach 18 Albany Steam) This project is
		likely to be sanctioned in FY 11.
Black River-Taylorille#? New	C33742	This work would allow Fort Drum to be
Suitch		picked up if the line faults between the
OWIGH	1	proved up it the fille futile between the

		existing switch X2-1 and the tap. The installation of this switch is needed to address lightning arrestors. Please see Attachment 19 (JBM-5_Attach19_Blackriver-Taylorville)	
Boonville-Rome #4 Reconductoring	CNYPL4	Please see Attachment 20 (JBM- 5_Attach20_Boonville-Rome) for the condition report for basis justification for this project. This project is likely to be sanctioned in FY 12.	
Eastern NY 115kV Capacitor Additions	CNYPL7	No strategy or sanction paper has been developed yet for this project. The project will be examined under this year's Capital Region area Study	
Fourth Elm 230-23kV Bank (N- 1-1)	CNYPL14	The 2008 Western Division area study identified a potential need, and recommended further study, which has not yet begun. Please see Attachment 21 (JBM-5_Attach21_Final Report West 2008)	
Fourth Sawyer 230-23kV Bank (N-1-1)	CNYPL13	The 2008 Western Division area study identified a potential need, and recommended further study, which has not yet begun. Please see Attachment 21 above.	
Install Capacitance/TRV	CNYPL34	CNYPL34 was superseded by Project Number C36071. Please see Attachment 22 (JBM- 5_Attach22_TRV) for the justification for this project.	
Install new Alps Site Sub- Nassau	C30806	Hoag substation is fed from a 34.5kV line that loops in and out of NYSEG's service territory. The 34.5kV system is composed of three lines adding to a total length of 18.9 miles. All three lines are partly owned by National Grid and by NYSEG. Hoag is the only National Grid substation on this system. The 34.5kV system has been responsible for an average of 56.9% of the CI (Total: 10,013) and CMI (Total: 2,333,904.6) since 2004 (Data: Electric Service Interruption Report). In addition to the conditions of the 34.5kV system, there have been operational issues on the 34.5kV system between National Grid and NYSEG that have exposed the customers served out of Hoag to extended outages. The recommendation is for the installation of a new 6.0/7.5MVA 115/13.2kV substation in Alps and the retirement of Hoag and the 34.5kV system.	
Install new Alps Site Sub-Line Work	C33619	Hoag substation is fed from a 34.5kV line that loops in and out of NYSEG's service territory. The 34.5kV system is composed by three lines adding to a total length of 18.9 miles. All	

		three lines are partly owned by National Grid and by NYSEG. Hoag is the only National Grid substation on this system. The 34.5kV system has been responsible for an average of 56.9% of the CI (Total: 10,013) and CMI (Total: 2,333,904.6) since 2004 (Data: Electric Service Interruption Report). In addition to the conditions of the 34.5kV system, there have been operational issues on the 34.5kV system between National Grid and NYSEG that have exposed the customers served out of Hoag to extended outages. The recommendation is for the installation of a new 6.0/7.5MVA 115/13.2kV substation in Alps and the retirement of Hoag and the 34.5kV system.	
LTC Filtration Systems NY	C24064	The Condition Assessment report provided a Attachment 23 (JBM-5_Attach23_LTC Filtration Systems NY) forms the basis of the justification for this project.	
Reconductor 24 & 25 Line - Hogan Taps to Panell Road	CNYPL33	This project has changed to an in-line breaker (same project number), and is discussed in the recently approved Mortimer-Elbridge area study. Please see Attachment 24 (JBM- 5_Attach24_Mortimer-Elbridge). This project is likely to be sanctioned in FY11.	
Reconductor Black River LHH	CNYPL1	This project will only be pursued if found necessary in the upcoming 2010 Northern Area study.	
Replace overdutied 115kV breakers at Central and Mohawk Valley	CNYPL26	The potential need was found in a screening study but the actual need will be verified in the 2010 area study.	
Replace overdutied 115kV breakers at Maplewood	CNYPL25	The potential need was found in a screening study but the actual need will be verified in the 2010 area study.	
Reynolds Road - Cap Blocking Scheme	C29964	This project resulted from a failure, the project was initiated to determine a permanent solution.	
Sta Homer Hill Transformers	C10705	The justification for this project for this project is currently being reviewed.	
Syracuse Area Reconductoring	CNYPL28	The study for this project is expected to be submitted for review and approval in April 2010; if approved, a strategy paper then be developed	

Name of Respondent: Allan Roe Date of Reply: 5/4/2010

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Date of Request: April 22, 2010 Due Date: May 3, 2010

# Request No. DKS-17 NMPC Req. No. NM 642 DPS-415

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### **Request for Information**

FROM: David Shahbazian

TO: Revenue Requirement Panel

Request:

1. Please refer to Excel worksheet labeled, DKS-17 Transportation Worksheet (attached) for the following questions. The referenced worksheet is a compilation of historical motor fuel consumption, as provided in Company response Attachment 4 to DKS-7 (sheets 1-6) and vehicle lease count as provided in Company response Attachment 5a to DKS-7.

a) A review of the Company's historical motor fuel consumption over the period of 2005 - 2009, shows increases of over 10% in fuel consumption in 2006 and 2008. Please explain this increase, particularly as the number of leased vehicles has decreased by 352 and 4 in the respective years.

b) Total motor fuel consumption in 2009 reflects a decrease in gallons consumed of -2.74% while at the same time, the number of leased vehicles for Company 36 & 99 shows a -5.97% decline. Please explain why a greater reduction in fuel consumption is not warranted considering the larger percentage decline in leased vehicles.

c) With reference to the Company's response, Attachment 5 to DKS-7, how many gallons does NGRID plan to reduce its petroleum consumption by, in terms of GGE's, for 2010 and RY1, RY2, and RY3? How is this reduction in fuel consumption reflected in the Company's rate case filing?

d) How many vehicles powered by CNG (compressed natural gas) are currently in the Company 36's fleet, and Company 99's fleet respectively? How many vehicles powered by CNG are forecast to be in service during RY1, RY2, RY3?

2. Attachment 2 in the Company's response to IR DKS-9 shows information for FY06. Please provide this information for FY09 as well.

3. Please refer to the Company's responses Attachments 3a-d to DKS-7.3 to answer the following questions.

a) The schedule of replacement vehicles provided by the Company (3b and 3d) shows an increase to the projection of 6.5% for interest. Please identify the basis for this interest calculation.

b) Exhibit RRP-2, Schedule 32, Sheet 8 shows the Company adding sales tax to the RY1 PHH leases at a rate of 8% for NMPC and 6.25% for National Grid. However, the Company's response to DKS-10.1 shows the Company deducting sales tax from the HTY leases at a rate of 6.16% for NMPC and 5.33% for National Grid.
(1) Please explain this discrepancy; (2) In addition, explain why the Company thinks it is appropriate to use a higher tax rate for the rate year expense; (3) Provide all supporting workpapers and calculations for both the HTY sales tax rates and for the rate years.

c) For each of the below listed vehicles identified in Attachment 3b of Company response to DKS-7, (1) please provide a written quote and (2) physical description / picture of each of the below listed assets with (3) a written justification of each.

00036	06488	FORK LIFT	\$250,000
00036	06894	CRANE	\$270,000
00036	06925	ATV	\$410,000
00036	06930	ATV	\$290,000
00036	06947	ATV	\$295,000
00036	06946	ATV	\$285,000
00036	06927	ATV	\$290,000
00036	06920	ATV	\$290,000

4. The allocation of transportation expense from National Grid USA to Company 36 is 61.89%. With which bill pool number does this allocation percentage align? If the allocation percentage is not associated with a specific bill pool number, (1) please provide the justification and support for allocating 61.89% of total NGUSA transportation cost to Company 36; (2) Please include all assumptions, workpapers and calculations to support the Company's response.

5. Company response Attachment 1a to DKS-10 outlines \$3.7 million of auction credits received in the HTY but only forecasts \$1.7 of auction credits for each RY1, RY2, and RY3. Likewise, Company 99 shows RY1, RY2, and RY3 auction credits of \$93,000 each while the HTY reflects \$185k of credits. (1) Please explain this decrease; (2) In addition, provide all workpapers and calculations showing how the rate year forecasts were developed.

6. Please provide the auction credits, by year, for 2005 – 2008 for each Company 36 and Company 99.

7. Please explain the procurement / bid process for the lease agreements prepared by PHH. Upon what assurances did the Company base its conclusion that it is receiving the best pricing available?

8. Attachment 1 to DKS-9, sheet 1, references NYMEX commodity prices as of 10/13/09 settlement. Please fully explain the following:

a) Which specific product / commodity is the settlement in reference to?

b) Which contract number (usually 1-4) does the reference apply to?

c) For the commodity / contract referenced, what is the delivery date of the product?

d) Please explain how use of a commodity price settled on 10/13/09 is relevant to the commodity prices projected by the Company beginning in January 2011 as shown on the Company's workpapers.

e) Please provide a reference / link to the NYMEX settlement closing data for 10/13/09.

9. Attachment 1b to DKS-10, references a projection for RY1 auction revenues.a) Please describe fully how the estimated residual % is calculated and provide documentation to support such percentages.

b) Please explain what the column labeled "Est. Cost" represents, the time period that it relates to, and describe how it is relevant in the use of calculating auction revenues.

Response:

1a. The Company's historical motor fuel consumption over the period of 2005 - 2009 shows an increase of over 10% in 2006 and 2008, while at the same time, total vehicle inventory decreased by 352 and 4 in the respective years. The following are several factors that contributed to the increase in motor fuel consumption:

Bulk consumption data is not available for Company 36 for January through March 2005 and the original response designated N/A for those months. Therefore, the data used to analyze % change and change in quantity in Attachment 4 to DKS-7 understates 2005 consumption by 25%. Assuming an average consumption for bulk fuel for those three months based on the last nine months of 2005, the assumed total 2005 consumption for Company 36 would be a total of 3,109,093 instead of 2,786,703, a decrease in Company 36 consumption of 89,180 gallons or -2.8% from 2005 to 2006.
	original 2005 <sup>1</sup>	revised 2005 <sup>2</sup>	2006
Bulk Gas	453,581	604,775	214,589
C card Gas	1,156,991	1,156,991	1,483,346
Bulk Diesel	513,588	684,784	483,065
Ccard Diesel	662,543	662,543	838,913
subtotal	2,786,703	3,109,093	3,019,913

<sup>1</sup> Original 2005 totals represent actual consumption data from Apr 2005 through Dec 2005

<sup>2</sup> Revised 2005 totals represent assumptions based on avg calcs below for Jan 2005 through Mar 2005

	Apr-Dec 2005	Monthly Ave	Jan-Mar Est	Total 2005
Bulk Gas²	453,581	50,398	151,194	604,775
Bulk Diesel²	513,588	57,065	171,196	684,784

- Of the 350 vehicles disposed of by Company 36 from 2005 to 2006, the majority were either trailers [61] which do not consume fuel or light duty vehicles (passenger cars [116], vans [120] and SUVs [48]) with higher average MPG resulting in lower overall annual fuel consumption than the majority of the fleet. Additionally, the majority of these vehicles were disposed of after being identified as surplus and/or underutilized.
- In October 2006, a snowstorm blasted western New York which left in its wake more than 20 inches of snow, thousands of downed trees and tree limbs and 260,000 homes and businesses served by National Grid without power. In addition to more than 50 Western Division crews, National Grid brought in more than 450 mutual aid crews from other parts of our territory in New York and New England. The majority of the restoration effort took approximately one week of working around the clock to complete and thereby significantly increased fuel consumption during the month of October.
- In December 2008, a severe ice and wind storm swept across eastern New York, Massachusetts, Rhode Island and New Hampshire. In New York, approximately 187,000 customers in the eastern division, including the greater Capital region in and around Albany, were affected. In New England, approximately 290,000 homes and businesses in Massachusetts were affected, along with 22,000 in New Hampshire and 6,000 in Rhode Island. More than 650 crews were dedicated to the restoration, backed by hundreds of logistics, safety and administrative personnel. The majority of the restoration effort took approximately one week of working around the clock to complete and thereby significantly increased fuel consumption during the month of December.

**1b.** Total motor fuel consumption in 2009 reflects a decrease in gallons consumed at a lesser rate than that of the number of leased vehicles decreased for both Company 36 and Company 99 because of the vehicles disposed of by Company 36, the majority were either trailers [30] which do not consume fuel or light duty vehicles (passenger cars [31], vans [89] and pickups [120]) with higher average MPG resulting in lower overall annual fuel consumption than the majority of the fleet. Additionally, the Company 99 [21]) with lower average MPG resulting in higher overall annual fuel consumption for these additions.

**1c.** The Company has an EPAct Model Year 2010 Petroleum Reduction Requirement of 148,274 GGE and has submitted a plan to the US Department of Energy estimating a 299,262 GGE

decrease. For Company 36 and Company 99, this will be accomplished by maximizing the use of bio-diesel blends. There are no forecasts calculated for petroleum reduction for RY1, RY2 or RY3.

While petroleum consumption will be reduced due to the usage of bio-diesel fuels (typically B20 which is a blend of 20% bio-diesel and 80% petroleum diesel), fuel consumption is not forecasted to decrease. The Company's fuel consumption data accounts for total diesel fuel consumed regardless of content.

1d. There are currently no vehicles powered by CNG in Company 36 and Company 99's fleet. No CNG powered vehicles are forecasted to be added in RY1, RY2 or RY3.

2. The columns on IR DKS-9 showing FY06 are mislabeled. The data provided is for FY09 and all references on this schedule to FY06 should instead read FY09.

**3a.** The schedule of replacement vehicles provided by the Company (3b and 3d) shows an increase to the projection of 6.5% for interest because the Company was in the midst of the competitive bid process for a new fleet lease contract and interest rates were being discussed of up to 8%. Therefore, a probable interest rate of 6.5% was estimated based on the personal knowledge of subject matter experts involved in the competitive bid process.

**3b.** Exhibit RRP-2, Schedule 32, Sheet 8 estimates future sales taxes based on actual taxing jurisdiction rates. Company 36 vehicles are located in New York State where sales tax rates vary from 7% to 8.875%, with the majority of taxing jurisdictions having an 8% tax rate. Company 99 vehicles are located in the Commonwealth of Massachusetts which has a sales tax rate of 6.25%.

Actual sales tax collection is billed to the Company two different ways dependent on the age of the vehicle.

- At acquisition, up to the first 32 months of sales taxes based on the previously identified tax rates are remitted by the leasing company to the taxing jurisdiction and the total amount added to the capital cost of the vehicle where it is billed to the Company as part of the monthly lease payment.
- For leases lasting longer than 32 months, beginning in the 33<sup>rd</sup> month, sales tax is collected by the leasing company based on the previously identified tax rates on the amount of the monthly lease payment and billed to the Company as part of the rental taxes.

The Company's response to DKS-10.1 does not show a deduction of sales taxes from the HTY leases. It shows a deduction of net monthly rental taxes (monthly taxes charged – refund of overpayment of taxes from final settlements) billed by the leasing company from the invoice used for the HTY. Note: Because some sales taxes are collected up front and capitalized in the capital cost of the vehicle, those taxes are not broken out and billed as a separate line on the invoice as rental tax as per the explanation in bullet 1 above.

**3c.** The unit estimated replacement cost is calculated based on the vehicle specifications at the time of acquisition. The Company does not have written quotes for these units.

- 06488: 1988 Lull model 2044 all wheel drive, all terrain 20,000lb. capacity forklift. It has been in service for 22 years and is well past its cost effective life. The Company is currently going through the procurement process which includes a competitive bid process and results in a contract with pricing for the various units within these asset categories.
- 06894: 1992 Grove model TMS250C rough terrain 35Ton capacity crane. It has been in service for 18 years and is well past its cost effective life. The Company is currently going through the procurement process which includes a competitive bid process and results in a contract with pricing for the various units within these asset categories.
- 06925: 1997 Bombardier model GT3000 all terrain track vehicle with mounted XHD digger derrick. It has been in service for 13 years and is past its cost effective life. Replacement unit ordered with acquisition cost of \$538,551.
- 06930: 1999 Bombardier model GT2000 all terrain track vehicle with mounted MD digger derrick. It has been in service for 11 years and is past its cost effective life. Replacement unit ordered with acquisition cost of \$185,600.
- 06947: 2001 Bombardier model GT2000 all terrain track vehicle with mounted HD . digger derrick. It has been in service for 9 years and is past its cost effective life. The Company is currently going through the procurement process which includes a competitive bid process and results in a contract with pricing for the various units within these asset categories. 06946: 2001 Bombardier model GT2000 all terrain track vehicle with mounted HD digger derrick. It has been in service for 9 years and is past its cost effective life. The Company is currently going through the procurement process which includes a competitive bid process and results in a contract with pricing for the various units within these asset categories. 06927: 1999 Bombardier model GT2000 all terrain track vehicle with mounted D digger derrick. It has been in service for 11 years and is past its cost effective life. The Company is currently going through the procurement process which includes a competitive bid process and results in a contract with pricing for the various units within these asset categories. 06920: 1998 Bombardier model GT2000 all terrain track vehicle with mounted D digger derrick. It has been in service for 12 years and is past its cost effective life. The Company is currently going through the procurement process which includes a competitive bid process and results in a contract with pricing for the various units within these asset categories.

4. The FY2009 bill pool 00629 allocates transportation expense from National Grid USA to Company 36 at the rate of 61.89%.

5. The Company's response in Attachment 1a to DKS-10 outlines the gross total of auction credits received. Remaining liability for vehicles sent to auction was billed on the monthly invoice by the leasing company and that cost is included in the lease payment line of Attachment 1a to DKS-10.

The forecasts provided for RY1, RY2, and RY3 are estimated net auction proceeds (gross auction credits – remaining liability). The estimates are based on residual percentages by asset

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category. Following is the calculation to show the annual estimates provided for RY1, RY2, and RY3.

Company	Asset Category	Est. Residual %	Est. Cost	Est. Residual \$
00036	Rack Trucks	15%	\$674,600	\$101,190
00036	Aerial /Digger Derricks/ATV (HD)/Sweepers	13%	\$7,948,800	\$1,033,344
00036	Utility/ATV (LD) /Trenchers	10%	\$782,300	\$78,230
00036	Dumps/Cranes/Forklifts/Excavators	7%	\$4,275,600	\$299,292
00036	Cars/Walkins/	7%	\$424,400	\$29,708
00036	Backhoes/Tractor	6%	\$306,700	\$18,402
00036	Pickups/Vans/SUV/Tractors/Trailers	5%	\$3,692,600	\$184,630
Company	Asset Category	Est. Residual %	Est. Cost	Est. Residual \$
00099	Aerial /Digger Derricks/ATV (HD)/Sweepers	13%	\$102,000	\$13,260
00099	Utility/ATV (LD) /Trenchers	10%	\$177,000	\$17,700
00099	Dumps/Cranes/Forklifts/Excavators	7%	\$314,300	\$22,001
00099	Backhoes/Tractor	6%	\$297,300	\$17,838
00099	Pickups/Vans/SUV/Tractors/Trailers	5%	\$444,200	\$22,210

6. Gross auction credits for the years 2005 through 2008 for each Company 36 and Company 99 are as follows:

Company	2005	2006	2007	2008
00036	(1,059,346)	(4,666,925)	(2,512,550)	(3,126,417)
00099	0	(1,125,530)	(298,127)	0

7. The Company uses a competitive bid process to ensure that it is receiving the best pricing available. The process is outlined as follows:

- Fleet Engineering meets with the Client (user) to ascertain current business requirements for units identified to be replaced.
- Fleet Engineering develops the specifications and provides them to Procurement along with estimated quantities for the next few years.
- Together, Fleet Engineering and Procurement develop a bid to be distributed to numerous entities within the pertinent industry.
- Once returned to Procurement, the bids are reviewed with Fleet Engineering and Client without pricing revealed to ascertain if the bidder meets the specifications.
- Once completed, Procurement puts into place a contract with the most cost effective bidder(s) for the commodity.
- Once the contract is in place, Fleet Asset orders the units through our leasing company using the contracted pricing negotiated via the Company's competitive bid process.

**8a.** The New York Mercantile Exchange (NYMEX) date shown in DKS-9, sheet 1, is mislabeled and was based on 11/4/09 NYMEX settlement prices. Settlement prices are for the NYMEX New York Harbor No. 2 Heating Oil Futures, NYMEX symbol HO, (which is used as a proxy for diesel), and for the NYMEX RBOB Gasoline Futures, NYMEX symbol RB.

**8b**. Please refer to response to 8a.

**8c.** There is no delivery date for the Heating Oil and Gasoline Futures referenced in the 11/4/09 NYMEX settlement since there was no purchase by the Company. The Futures settlement pricing was only used to estimate fuel pricing for RY1, RY2 and RY3.

**8d.** The NYMEX date shown in DKS-9, sheet 1, is mislabeled and was based on 11/4/09 NYMEX settlement prices. The New York Mercantile Exchange (NYMEX) provides the price individuals are actually willing to buy and sell today for delivery in a specific future month. Therefore the NYMEX pricing is the most current, best indication of prices for delivery in a future month. The Company uses these prices to help estimate its costs to procure fuel beginning in January 2011 because they are the most up to date indication of price in a future month. The NYMEX is the world's largest physical commodity futures exchange where energy, metals, and other commodities are bought and sold. The prices quoted for contracts traded on the NYMEX are the basis for prices that people pay for various commodities throughout the world. These prices change everyday throughout each business day.

**8e.** The NYMEX date shown in DKS-9, sheet 1, is mislabeled and was based on 11/4/09 NYMEX settlement prices.

	Heating Oil	RBOB		Heating Oil	RBOB
Date/Days Ahead	Value	Value	Date/Days Ahead	Value	Value
Nov-09	209.02	201.27	Dec-11	245.64	221.76
Dec-09	212.60	203.82	Jan-12	246.22	224.37
Jan-10	215.46	206.43	Feb-12	245.70	227.66
Feb-10	217.29	209.10	Mar-12	244.63	240.39
Mar-10	217.98	221.74	Apr-12	243.74	242.96
Apr-10	218.65	222.55	May-12	243.57	243.74
May-10	219.65	223.18	Jun-12	244.13	243.47
Jun-10	221.40	223.68	Jul-12	244.91	242.70
Jul-10	223.55	223.88	Aug-12	245.92	240.61
Aug-10	225.90	223.48	Sep-12	246.91	229.58
Sep-10	228.25	213.63	Oct-12	247.66	226.88
Oct-10	230.53	213.13	Nov-12	248.22	226.01
Nov-10	232.75	214.19	Dec-12	248.73	227.83
Dec-10	234.86	215.75	Jan-13	249.80	230.37
Jan-11	236.02	217.62	Feb-13	251.68	233.39
Feb-11	235.82	220.63	Mar-13	251.98	247.15
Mar-11	235.71	232.43	Apr-13	249.90	249.24
Apr-11	235.08	234.30	May-13	250.23	249.93
May-11	234.41	234.11	Jun-13	250.56	249.42
Jun-11	235.81	232.89	Jul-13	248.52	248.45
Jul-11	237.44	232.38	Aug-13	248.87	246.18
Aug-11	239.52	230.88	Sep-13	249.18	234.94
Sep-11	241.88	223.60	Oct-13	251.89	232.06
Oct-11	243.47	222.22	Nov-13	252.23	230.97
Nov-11	244.82	220.23	Dec-13	252.57	232.86

Quotes for Heating Oil and Gasoline were requested from Macquarie Bank, a financial counterparty that makes a market in energy commodities. These quotes served as the basis for the fuel price forecast.

http://www.cmegroup.com/trading/energy/refined-products/heating-oil quotes globex.html

## http://www.cmegroup.com/trading/energy/refined-products/rbob-gasoline.html

**9a.** The Company does not have documentation to support the estimated residual percentages by asset category that were used. The numbers are based on the personal knowledge of subject matter experts including knowledge of previous auction sales and the typical cost of units within an asset category.

**9b.** The "Est. Cost" column represents typical cost of units within each asset category based upon the personal knowledge of subject matter experts times the number of units being replaced on an annual basis within that particular asset category. This "Est. Cost" is then multiplied by the residual percentage described in question 9a to obtain an estimate of the annual net auction proceeds.

Company	Asset Category	Est. Residual %	Est. Cost	Est. Residual \$
00036	Rack Trucks	15%	\$674,600	<u>\$101,190</u>
00036	Aerial /Digger Derricks/ATV (HD)/Sweepers	13%	\$7,948,800	\$1,0 <u>33,34</u> 4
00036	Utility/ATV (LD) /Trenchers	10%	\$782,300	\$78,230
00036	Dumps/Cranes/Forklifts/Excavators	7%	\$4,275,600	\$299,292
00036	Cars/Walkins/	7%	\$424,400	\$29,708
00036	Backhoes/Tractor	6%	\$306,700	\$18,402
00036	Pickups/Vans/SUV/Tractors/Trailers	5%	\$3,692,600	\$184,630
Company	Asset Category	Est Residual %	Est Cost	Est Residual \$
00099	Aerial /Digger Derricks/ATV (HD)/Sweepers	13%	\$102.000	\$13.260
00099	Utility/ATV (LD) /Trenchers	10%	\$177,000	\$17,700
00099	Dumps/Cranes/Forklifts/Excavators	7%	\$314,300	\$22,001
00099	Backhoes/Tractor	6%	\$297,300	\$17,838
00099	Pickups/Vans/SUV/Tractors/Trailers	5%	\$444,200	\$22,210

Name of Respondent: Fleet Services Department James Molloy Date of Reply: May 3, 2010

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1236

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Date of Request: April 23, 2010 Due Date: May 3, 2010

## Request No. VVP-29 NMPC Req. No. NM 651 DPS-416

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

## **Request for Information**

FROM: Vijay Puran

TO: Infrastructure and Operations Panel

#### Request:

- 1. For each project listed under the Conductor Clearance Strategy (C31141 and C03256) program, please provide:
  - a. The number of spans repaired in FY06, FY07, FY08, FY09, and FY10.
  - b. The number of spans forecasted to be repaired in FY11, FY12, FY13, FY14, and FY15.

c. Workpapers showing the derivation of the unit costs used to develop the capital

expenditures for FY11, FY12, FY13, FY14, and FY15.

d. Workpapers showing the derivation of the capital expenditures for FY11, FY12, FY13, FY14, and FY15.

e. An explanation of how the capital expenditures for FY11, FY12, FY13, FY14, and FY15 can be derived from information contained in Strategy Paper SG029v3.

2. Why is project C31141, with a risk score of 33, scheduled to be completed in FY11 given that SG029v3, page 35 states, "A corporate risk score of 33 exists for spans in remote areas away from critical crossings ... with an estimated 200 years to a certain event for spans with a clearance span risk points of 2 or 3; remote Level 1 or Level 2?"

#### Response:

 The table below provides the number of spans repaired in FY06, FY07, FY08, FY09, and FY10. Thirteen (13) of these were repaired under C03256. Two other spans were repaired in FY08 under a separate funding order.

Fiscal Year	FY06	FY07	FY08	FY09	FY10
Spans	0	13	2	0	0

1b. Below is a table indicating the number of spans forecasted to be repaired in FY11, FY12, FY13, FY14, and FY15 (via projects C31141 and C03256). In addition, approximately 25 lines will have conceptual engineering starting in FY12 (and each subsequent fiscal year) under project C03256 which will be reflected in the FY13 work plan and beyond.

Fiscal Year	FY11	FY12	FY13	FY14	FY15
Spans projects – C31141	8	0	0	0	0
Spans projects – C03256	130	200	150	TBD	TBD

- 1c. A conceptual engineering cost estimate spreadsheet is provided for project C31141. The average, per-span capital cost to bring non-compliant spans into compliance with National Electric Safety Code (NESC) requirements is approximately \$100,000 (\$782,000 in capital to address 8 spans). The unit costs are provided in Attachment 1 (VVP-29\_Attach 1\_C31141 Cost Est), Exhibit 1. The total capital costs are provided in Attachment 1, Exhibit 2. The \$782,000 is higher than the FY11 budget (\$549,000) as some engineering costs and advanced materials costs were originally anticipated to occur in FY10.
- 1d. Project C31141 capital expenditures for FY11, FY12, FY13, FY14, and FY15 are provided as described in question (1c). For FY11 and later, \$15 million per year is allocated in project C03256. This is a conceptual estimate pending actual field and/or aerial verification on a line by line basis. The verification process determines whether the Level 1 and 2 substandard spans identified during Aerial Laser Surveys (ALS) are valid. Once conceptual engineering is completed, initial cost estimates are provided. These conceptual cost estimates are transferred into a separate funding order (such as C31141) and taken out of C03256.

At this time, conceptual engineering is complete on the following lines and funding project numbers established.

			ALS Level	Actual	Capital
Proj Number	Title	Voltage	Spans	Spans	Conceptual
C31137	Nine Mile One-Clay 8 T2350 CCR	345	28	11	\$960,000
C31141	Oswego-LaFayette 17 T2420 CCR	345	17	8	\$782,000
C31138	Scriba-Volney 20 T2540 CCR	345	28	7	\$577,000
C31136	Volney-Clay 6 T2720 CCR	345	32	23	\$1,760,000
	Approx. cost per substandard span				\$82,000

For the above projects, the conceptual capital cost to correct each substandard span was approximately \$82,000. Much of the work for these 345kV lines is anticipated to be live line due to congestion. For lower voltages, this is not expected to be the case and therefore we have assumed an average cost per span of \$75,000. ALS results on approximately 50 lines undergoing conceptual engineering to date indicate 1,057 Level 1 & 2 substandard spans will require Conductor Clearance Refurbishment modifications. Based on the first

four lines with conceptual engineering completed, we anticipate about 40% of the ALS substandard spans will remain valid. Therefore, 450 spans at \$75,000 to correct equates to \$33,750,000. There are more than 50 lines that are being evaluated under this program.

1e. Strategy paper SG029v3, related to project C31141 and provided in response to IR MJR-1, SUPP-A, anticipates an investment of \$120,000,000 (±25%) over a 10 to 13 year period. Figure 6 on page 30 of SG029v3 shows the Company's estimate of 1,700 spans requiring clearance correction over the 10 year period. Pages 38 and 39 of the strategy discusses 614 substandard spans which will be addressed in Phase 2 at \$75,000 per span. The remaining 1,100 spans will be corrected at an estimate of \$75,000 each resulting in a further \$82,500,000. Table 15 on page 39 provides a total for New York of \$107,529,219, which when inflated gives approximately \$120,000,000.

2. A corporate risk score above 30 is still considered to be a moderately high risk project, especially when it relates to public safety. However, other factors besides the corporate risk score are considered when decising projects such as conductor clearance refurbishment. This strategic program is designed to ensure that transmission lines meet the clearance requirements established by the National Electric Safety Code ("NESC") This follows standard industry practice and the Public Service Commission Order (per Case 04-M-0159 effective January 5, 2005) to adhere to the NESC. The goal is to correct all substandard Level 1 and 2 spans within 10 years of ALS analysis completion. To accomplish this goal, projects must be move forward in an expeditious manner.

Name of Respondent: Alan Roe Art Peterson Ken Gavurnik Chris Denny Date of Reply: May 5, 2010 VVP-29 Attachment 1 Exhibit 1

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			Estim	late Tem	plate							
				Detail Re	port:							
Funding Project #:	C31141		Work Or	der #:	8	00088042	Company	¥		8		
Study Project #:			Jobbing:				Division:		Central	_		
Project Name:	Oswego -	Lafayette	Revision	¥			Organiza	tion:				
Estimate Type:	Planning		Revised	on:	D	6/01/2009	Bus. Seg	ment:				
Alfernative:							Created	by:	Black & Ve	atch		
Description:	Oswego to	Lafayete (1	7) - 345 kV	Clearance /	Analysis		Engineer	·.	Rachel Rei	bden		
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PRAFTER AUTHORIZED VERSION IN LASE REFER TO THE BORDREERING DEFARITION. File: PK.06.01 001E Project Estimates Transmission Line Environt Department So Line Engineering

VVP-29		
Attachment	1	
Exhibit 2		

nationalgrid	ENGINEERING DOCUMENT Template: Transmission	Doc.# PR.06.01.001E
	Project Estimates	Version 2.0 - 03/02/2009
	Estimate Template	

Summary Report							
Funding Project #:	C31141	Work Order #:	9000088042	Company:		36	
Study Project #:		Jobbing:		Division:	Central		
Project Name:	Oswego - Lafayette	Revision #:		Organization:			
Estimate Type:	Planning	Revised on:	39965	Bus. Segment:			
Alternative:				Created by:	Black & Veatch		
Description:	Oswego to Lafayete (1	7) - 345 kV Clearance Analysis		Engineer:	Rachel Redden		
Asset Location		Asset Steward:		Planner:			
	Capi	tal Removal	O&M	Jobbing	al	Totals	

	Capital	Removal	O&M	Jobbing	Totals
Materials	214,375.00	0.00	0.00	0.00	214,375.00
Labor	61,221.00	3,206.00	1,603.00	0.00	66,030.00
Other	1,050.00	0.00	0.00	0.00	1,050.00
Transportation	9,618.00	2,748.00	1,374.00	0.00	13,740.00
Reimbursement	0.00	0.00	0.00	0.00	0.00
Labor Adders	61,221.00	3,206.00	1,603.00	0.00	66,030.00
Contractors	233,650.00	63,900.00	31,950.00	0.00	329,500.00
Subtotals	581,135.00	73,060.00	36,530.00	0.00	690,725.00
Contingency 30%	174,340.50	21,918.00	10,959.00	0.00	207,217.50
Capital Overhead 3.5%	26,441.64				26,441.64
<u>S</u> &A 15.0%	0.00	0.00	0.00	0.00	0.00
AFUDC (XX%)				•	
Totals	782,000.00	95,000.00	48,000.00	0.00	

Total Rounded to Nearest 10000:	930,000.00
Allowable Variance (+/- 5%):	50,000.00
DOA:	980,000.00

Install:

(11) Wood H-Frame Structures Remove:

(11) Wood H-Frame Structures Maintain:

Modify (1) Lightpole within the Lafayette Substation

Prepared by:

Reviewed by:

Date:

05/04/2010

Date: July 2nd, 2009

Date: July 2nd, 2009

PRD/TED COPIES ARE NOT DOCUMENT CONTROLLED.
POR THE LATEST AUTHORIZED VERSION PLEASE REFER TO THE EMOREERING DEPARTMENT DOCUMENTS CABINET IN DOCUMENTUM
File: PR.06.03.001E Project Estimates
Organizing Department:
Transmission Line Engineering
Mark S. Browne

Date of Request: April 23, 2010 Due Date: May 3, 2010

## Request No. DAG-34 NMPC Req. No. NM 654 DPS-419

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

## **Request for Information**

FROM: Denise Gerbsch

TO: Revenue Requirement Panel

Request: Capitalization of Employee Benefits / Service Company Allocations

1. The HTY capitalization factor for direct Niagara Mohawk's employee benefits cost is 33.02%, as per Company workpapers in Book 17 of Exhibit \_\_\_\_ (RRP-10). Please provide the calculation(s) and supporting workpapers that derive the 33.02%.

2. As demonstrated by the various employee benefit workpapers contained in Book 17 of Exhibit \_\_\_\_\_\_ (RRP-10), numerous capitalization adjustments were made to normalize the HTY. Please explain why these adjustments were necessary.

3. The HTY National Grid USA Service Co. allocation factor for the allocation of its employee benefits cost is 25.58%, as per Company workpapers in Book 17 of Exhibit \_\_\_\_(RRP-10). Please provide the calculation(s) and supporting workpapers that derive the 25.58%.

4. For both the HTY and the RY, there is no allocation to capital for the National Grid USA Service Co. employee benefits costs. Please explain why not, and why an adjustment to allocate a portion of the National Grid USA Service Co. employee benefits costs to capital is not appropriate.

5. In the Company's supplemental response to RAV-20, the Company indicates the initial capitalization rate of 33.02% used in the HTY was incorrect, and should have been 35.64%. Please provide the calculation(s) and supporting workpapers that derive the 35.64%.

6. Attachment 2 to the Company's supplemental response to RAV-20 shows an adjustment "to adjust capitalization % - 37.75%" (line 1). Please explain what the 37.75% represents, and provide the calculation(s) and supporting workpapers that derive the 37.75%.

7. Attachment 2 to the Company's supplemental response to RAV-20 shows an adjustment "to adj amount from Company 99 – 25.24%." Please explain what the 25.24% representatives, and provide the calculation(s) and supporting workpapers that derive the 25.24%. Also, explain the change from the initial National Grid USA Service Co. allocation of 25.58% to 25.24%.

#### Response:

1. The HTY capitalization factor of 33.02% was used in the Company's original filing for Niagara Mohawk's employee benefits. However, as explained in RAV-20, the capitalization factor of 33.02% was based on 6 months ended September 30, 2009 and should have been based on twelve months ended. Therefore, the Company has adjusted the capitalization factor to 35.64% for all benefits in its corrections and updates filing. Refer to Attachment 1 for the original capitalization rate calculation of 33.02% and to Attachment 2 for the corrected calculation of 35.64%.

2. Capitalization adjustments were made to align benefit expense to the appropriate level based on the capitalization factor calculated at September 30, 2009. In theory, the capitalization percent of all the benefits should tie to the capitalization percent of payroll. Since neither the total benefits nor total payroll are known until the end of the fiscal year, there can be differences for the percentage dollars capitalized.

3. Please refer to Attachment 3 for the calculation of 25.58% HTY National Grid USA Service Company allocation factor.

4. The employee benefit schedules, Exhibit\_\_(RRP-2) Schedules 19 through 26, all represent O&M benefit costs only. The costs allocated to Niagara Mohawk from National Grid USA Service Company included in these schedules are O&M expenditures only and therefore no adjustment is necessary. Capital expenditures are picked up in the Capital Exhibits included in the Company's filing.

5. Please see the response to Part 1.

6. The reference "to adjust capitalization % - 37.75%" was a typographical error. The 37.75% should have read 35.64% which is the capitalization factor that was used in the corrections and updates filing.

7. The reference "to adj amount from Company 99 - 25.24%" was also a typographical error. The 25.24% should have read 25.58% which is the capitalization factor that was used.

Name of Respondent: James Molloy Date of Reply: May 4, 2010

Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 1 to DAG-34 Page 1 of 2

### NIAGARA MOHAWK POWER CORPORATION NON-PRODUCTIVE TIME, FRINGE BENEFITS and OPEB RATES CALC RATES TO BE USED 93009

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		New Method	PSC 276
1 Total Payrall		168 533 683	168 533 683
2 3rd Party		100,555,005	(569,662)
3 Cost of Removal			(4 358,169)
A Other			(110 120)
5 Associated			(3 673 652)
6 Payroll Accrual			(3,013,052)
7 Incremental Quertime		(13 706 530)	
8 Less: Transportation Clearing Labor charged to O&M (66%)		(4 145 828)	(4 277 249)
$0$ Less. Stores Clearing Labor charged to $\Omega \ell M (10\%)$		(2, 123, 569)	(2, 197, 976)
10 Less: Non-Broductive Time		(2,123,307)	(2,17,570)
It less. Non-Froductive finite		(25,008,517)	(2,575,404)
11 NET PRODUCTIVE LABOR		123,549,238	150.771.451
			150.580.689
			,,,,,
Fringe Benefits:			
12 Thrift Plan (Expense Type B07)	6,617,118	5.36%	4.39%
13 FAS 112 (Expense Type B02)	2,980,544	2.41%	1.98%
14 Group Insurance (Expense Type B04)	1.712.347	1.39%	1,14%
15 Medical Care & Prescription Plans (Expense Type B03)	29.346.650	23.75%	19.46%
16 Pension (Expense Type B06)	45.031.069	36.45%	29.87%
17 OPEB (Expense Type B01)	41,191,253	33.34%	27.32%
18 TOTAL FRINGE BENEFITS	126,878,981	102.70%	84.15%
19 Workers Compensation (Expense Type B08)	1,729,494	1.40%	1.15%
20 Payroll Taxes (Expense Type B09)	1,061,809	0.86%	0.70%
21 Total percentage to be applied to productive Company labor for			
Payroll Taxes, Fringe Benefits and OPEBs:	129,670,284	104.95%	86.00%
			25 4/0 101
22 CWIP		32,821,956	35,460,121
23 Time Not Worked			6,322,886
24 Cost of Removal		3,963,039	
25 3rd Party		495,120	665,043
26 Associated Company		3,521,426	4,352,027
27 Incremental Overtime			
28 Capital, Associated Company and Billable Projects		40,801,541	46,800,077
29 OPER/Pension Rates		69 79%	57 19%
30 OPFB/Pension Canitalized		28.474 507	26 763 762
31 Other Benefits Rates		35 17%	20,703,702
32 Other Benefits Canitalized		14 348 480	13.486.426
		11,510,100	10,100,420
33 Capital percent		33.02%	31.04%

Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 1 to DAG-34 Page 2 of 2

2009 Payroll Data	P10	P15	P20	P25	Subtotal	P21	P26	Total	TNW	
CWIP	22.521.560	5,750,551	4,375,311	174,534	32,821,956	2,559,966	78,199	35,460,121	6,322,886	41,783,007
COR	3,201,604	130,330	626,662	4,442	3,963,039	392,909	2,221	4,358,169	763,448	5,121,617
TNW	19,740,615	4.292.577	975,325		25,008,517	-	•	25,008,517	(25,008,517)	-
Assoc Co Billings	2.046.514	1.202.641	227.308	44,963	3.521.426	132,143	20,082	3,673,652	678,374	4,352,027
3rd Party Billings	295.808	72.377	123,963	2,973	495,120	73,776	766	569,662	95,381	665,043
ORM	51 887 645	16.444.524	12.613.533	1.691.875	82.637.578	9,469,641	770,998	92,878,217	15,919,465	108,797,682
Stores Cléaring	1 781 911	216,263	125.247	149	2,123,569	74,333	75	2,197,976	409,089	2,607,065
Transportation Cleamo	3 336 041	561.817	245.765	2,206	4.145.828	130,318	1,103	4,277,249	798,661	5,075,910
Other	19 776	90.344			110.120			110,120	21,214	131,333
Total	104,831,474	28,761,423	19,313,114	1,921,142	154,827,153	12,833,086	873,444	168,533,683	0	168,533,683

CWIP	Construction Work in Progress
COR	Cost of Removal
TNW	Time Not Worked
P10	Regular Represented Labor
P15	Regular Management Labor
P20	Base OT - Represented
P25	Base OT - Management
P21	Incremental OT - Represented
P26	Incremental OT - Management

## NIAGARA MOHAWK POWER CORPORATION NON-PRODUCTIVE TIME, FRINGE BENEFITS and OPEB RATES CALC RATES TO BE USED 12 Mos Ended 93009 REVISED

		New Method
1 Total Payroll		327 120 416
2 3rd Party		527,120,410
2 Soft of Removal		
4 Other		
5 Associated		
6 Payroll Accrual		
7 Incremental Overtime		(22.382.713)
8 Less: Transportation Clearing Labor charged to O&M (66%)		(8.351.798)
9 Less: Stores Clearing Labor charged to O&M (19%)		(4,185,742)
10 Less: Non- Productive Time		(48,230,546)
11 NET PRODUCTIVE LABOR		243,969,618
Fringe Benefits:		
12 Thrift Plan (Expense Type B07)	6.617 118	2 71%
13 FAS 112 (Expense Type B02)	2.980.544	1.22%
14 Group Insurance (Expense Type B04)	1.712.347	0.70%
15 Medical Care & Prescription Plans (Expense Type B03)	29,346,650	12.03%
16 Pension (Expense Type B06)	45,031,069	18.46%
17 OPEB (Expense Type B01)	41,191,253	16.88%
18 TOTAL FRINGE BENEFITS	126,878,981	52.01%
19 Workers Compensation (Expense Type B08)	1,729,494	0.71%
20 Payroll Taxes (Expense Type B09)	1,061,809	0.44%
21 Total percentage to be applied to productive Company labor for		
Payroll Taxes, Fringe Benefits and OPEBs:	129,670,284	53.15%
		(0.001.007
22 UW 15 23 Time Not Worked		09,901,227
24 Cost of Removal		8 879 686
25 3rd Party		833.056
26 Associated Company		7.344.464
27 Incremental Overtime		· ,- · · , · - ·
28 Capital, Associated Company and Billable Projects		86,958,434
29 OPEB/Pension Rates		35.34%
30 OPEB/Pension Capitalized		30,732,343
31 Other Benefits Rates		17.81%
32 Other Benefits Capitalized		15,486,218
33 Capital percent		35.64%

		,	Attachment 4 Table 2							
2009 Payroll	Data									
	P10	P15	P20	P25	Subtotal	P21	P26	Total	TNW	
CWIP	48,593,227	11,758,491	9,225,863	323,646	69,901,227	5,253,351	143,401	75,297,980	13,143,393	88,441,373
COR	7,152,975	325,175	1,392,386	9,150	8,879,686	838,578	4,575	9,722,840	1,669,630	11,392,470
TNW	38,106,420	7,985,488	2,138,638	-	48,230,546	-	-	48,230,546	(48,230,546)	-
Assoc Co E	4,333,808	2,557,635	386,012	67,009	7,344,464	228,917	29,812	7,603,193	1,380,965	8,984,159
3rd Party B	537,562	134,336	171,957	(10,799)	833,056	89,572	(8,175)	914,453	156,638	1,071,091
O&M	102,676,970	31,512,920	20,363,757	2,224,201	156,777,849	14,470,641	1,028,041	172,276,531	29,478,636	201,755,168
Stores Cle:	3,551,040	434,057	200,496	149	4,185,742	114,334	75	4,300,150	787,037	5,087,187
Transporta	6,881,434	1,117,347	348,644	4,373	8,351,798	187,403	2,186	8,541,388	1,570,372	10,111,760
Other	42,445	190,890	-	-	233,336	•	-	233,336	43.874	277,209
Total	211,875,881	56,016,340	34,227,754	2,617,730	304,737,704	21,182,797	1,199,916	327,120,416	0	327,120,416

Construction Work in Progress Cost of Removal Time Not Worked Regular Represented Labor Regular Management Labor Base OT - Represented Base OT - Management Incremental OT - Represented Incremental OT - Management CWIP COR TNW P10 P15 P20 P25 P21 P26

Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 3 to DAG-34 Sheet 1 of 1

## Orig Co 99 HTY 9/30/09

	National Grid USA				
Orig Bus Unit Descr					
Regulatory Acct		removes reg accounts 184	118 (INW)		
Business Unit		J			
Sum of GL Act \$	Business Unit Desc				<u> </u>
					Niagara Mohawk
	Niagara Mohawk	National Grid USA	All Other		as Percent of
Expense Type	Power Corp.	Service Co.	Companies	Grand Total	Total
P10	2,491,669.13	(3,332,122.49)	30,571,969.02	29,731,515.66	8.38%
P15	54,535,061.95	(986,758.19)	95,189,252.62	148,737,556.38	36.67%
P20	70,603.65	(91,727.61)	3,807,473.02	3,786,349.06	1.86%
P21	37,602.77	(51,203.39)	2,353,451.63	2,339,851.01	1.61%
P25	741,800.27	(17,948.79)	3,711,714.43	4,435,565.91	16.72%
P26	334,449.91	(11,272.12)	1,503,796.76	1,826,974.55	18.31%
P30	22,009,352.01	15,879,397.85	37,925,929.94	75,814,679.80	29.03%
P50	11,019,601.86	(749,906.03)	23,789,547.61	34,059,243.44	32.35%
Grand Total	91,240,141.55	10,638,459.23	198,853,135.03	300,731,735.81	30.34%
Excl OT/TNW/Bonus (P21 P26 P30)	P50)		Revised %	186.690.987.01	25.58%
Regular Pay as a percent of Total	A 429/			17 95%	
Represented	4.43%			17.95%	
Management	100.00%	-		82.05%	-
	100.00%	_		100.00 %	-
TNW Allocated by % of Reg Pay					
Represented	488,168.19			6,114,880.70	
Managemen	10,531,433.67	_		27,944,362.74	<b>_</b>
	11,019,601.86	-		34,059,243.44	-
Regulare Pay with TNW					
(Sheet 3 & 4 of Co 99 EP					
Represented	2,979,837.32			35,846,396.36	8.31%
Management	t 65,066,495.62			176,681,919.12	36.83%
	68,046,332.94	-		212,528,315.48	32.02%
Regulare Pay with TNW & Base					
	2 050 440 07			20 622 746 42	7 700/
Kepresented				191 117 195 03	1.10%
Managemen		-		220 750 230 45	- 30.33%
	00,000,730,00			220,700,200.40	- 51.1976

(3,332,122.49)

Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0950 Attachment 3 to DAG-34 Sheet 1 of 1

Regulatory Acct	(Multiple Items)	removes reg accounts 184118 (TNW)					
Business Unit	(All)	]					
P15	54,535,061.95	(986,758.19)	95,189,252.62	148,737,556.38	36.67%		
P20	70,603.65	(91,727.61)	3,807,473.02	3,786,349.06	1.86%		
P21	37,602.77	(51,203.39)	2,353,451.63	2,339,851.01	1.61%		
P25	741,800.27	(17,948.79)	3,711,714.43	4,435,565.91	16.72%		
P26	334,449.91	(11,272.12)	1,503,796.76	1,826,974.55	18.31%		
P30	22,009,352.01	15,879,397.85	37,925,929.94	75,814,679.80	29.03%		
P50	11,019,601.86	(749,906.03)	23,789,547.61	34,059,243.44	32.35%		
Grand Total	91,240,141.55	10,638,459.23	198,853,135.03	300,731,735.81	30.34%		

Date of Request: April 23, 2010 Due Date: May 3, 2010 Request No. JJA-37 NMPC Req. No. NM 661 DPS-426

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

## Request for Information

FROM: Jerry Ancona

<u>TO:</u> Infrastructure and Operations Panel

Request:

Subject: Hydro One BP76 Transformer Follow-Up

Reference: [RAV-048JJA-027, RAV-048 and Book 26, IOP Testimony, Pg. 166 - 169]

As a follow-up to IR RAV-048 and JJA-027, please response to the following: (A) In lieu of a sanction paper, please explain in detail on what basis the Hydro One BP76 Transformer replacement was analyzed, evaluated, documented and formally approved for inclusion in the rate case by the Company;

(B) Please indicate if any other economic analysis of the BP76 transformer replacement was performed in addition to Attachment 1 of IR RAV-048;

(C) Please verify that Attachment 1 of IR RAV-048 includes:

(1) The total DAM congestion rent shortfall charged to New York Transmission Owners for the simultaneous outages of the BP76 230 kV, PA301 345 kV and/or PA302 345 kV lines amounted to \$555,000 per day in a Fall 2008 outage of unknown duration, and \$313,500 daily or a total of \$7.8 million for a Spring 2009 25 day outage;

(2) Based upon these historical values, that the simultaneous 21 day outage of the BP76 230 kV, PA301 345 kV and/or PA302 345 kV lines in Fall 2009 resulted in an estimated total DAM congestion rent shortfall of between \$6.6 million and \$11.7 million;

(3) Based upon these historical values, that a simultaneous 20 week outage of the BP76 230 kV, PA301 345 kV and/or PA302 345 kV lines in Fall 2010 is estimated to result in a total DAM congestion rent shortfall of between \$43.8 million and \$77.7 million;

(4) Based upon these historical values, that a simultaneous 2 month outage (based upon the response to IR-027, "I.2") of the BP76 230 kV, PA301 345 kV and/or PA302 345 kV lines in Fall 2010 is estimated to result in a total DAM congestion rent shortfall of between \$19.1 million and \$33.9 million;

(D) Please provide estimates of the total DAM congestion rent shortfall charged to New York Transmission Owners for an outage of the PA301 345 kV and/or PA302 345 kV lines with BP76 230 kV line in service for the previously mentioned outages in:

(1) Fall 2008;
 (2) Spring 2009;
 (3) Fall 2009;
 (4) Fall 2010 (20 weeks);
 (5) Fall 2010 (2 months);

(E) Please provide estimates of the DAM congestion rent shortfall charged in 2008 and 2009 to Company ratepayers for the BP76 230 kV outage;

(F) Please provide documentation to substantiate the projected \$4.8 million to \$15.6 million congestion rent shortfall charge (as stated in Book 26, IOP Testimony, pg. 166) to Company ratepayers and the timeframe associated with this projection;

(G) With respect to the Company's response to IR JJA-027, "D" (i.e., that the Company does not forecast loadings on the BP76 line), please explain:

(1) What loadings on the BP76 230 kV line are assumed in the Company's transmission planning power-flow studies;

(2) What impact various loadings on the BP76 230 kV line have on the results of Company transmission planning studies;

(H) With respect to the Company's response to IR JJA-027, "H", given that the BP76 transformer failed on January 30, 2008, please explain:

(1) What studies were performed by the Company and/or Hydro One regarding the reliability and/or economic need to replace the transformer;

(2) Why the Company waited until January 8, 2009 to contact the NYISO regarding the regional need for the transformer replacement;

(3) Why the project currently remains in the conceptual engineering stage.

(I) With respect to the Company's responses to IR JJA-027, "Q" and IR RAV-048, Attach 1, given that the conceptual schedule for the BP76 transformer

(1) What plans if any are in place to mitigate the effects of the simultaneous outages on congestion rent shortfall;

(2) If other New York Transmission Owners see a need for the BP76 transformer replacement with an in service date of December 31, 2013 given their expectations for the frequency and severity of transmission outages and associated congestion rent shortfall that may result subsequent to that date.

## Response:

- There were several main factors behind the analysis and evaluation of the Hydro One Α Transformer replacement and formal approval for inclusion in the rates case by the Company. As described in the Infrastructure and Operations Panel ("IOP") Testimony on pages 166-167. Hydro One determined after its post fault analysis that the asset could not be repaired and would need to be replaced. Secondly, as indicated on page 168 of the IOP Testimony, the economic analysis performed by the NYISO indicated there is an economic justification for replacement of the transformer. Further, during discussions with the Company, the NY PSC indicated conditional support for replacement of the Transformer. Based on the value to the Company's customers and the benefits to the region, and pursuant to the Interconnection Facilities Agreement between Niagara Mohawk and Hydro One, the Company proposed to equally share the costs associated with replacement of the BP76 Transformer. Like all matters, the Hydro One BP76 replacement was recommended for inclusion by the Transmission management and was approved for inclusion in the rate case in accordance with the Company's rate case governance process.
- B The Company has not been provided, nor is aware of, any additional economic analysis in addition to Attachment 1 of IR RAV-048 of the BP76 transformer replacement.
- C.1 The Company does not have a full view of the actual costs charged to New York Transmission Owners for the simultaneous outage of the BP76 230KV line and the PA 301 345KV line or the BP76 230KV line and the PA 302 345KV line during the Fall 2008 outage but can confirm the Spring 2009 25 day outage had a total DAM congestion rent shortfall of approximately \$7.8 million dollars.
- C.2 The Company agrees that the analysis included in Attachment 1 of IR RAV-048 anticipated DAM congestion rent shortfall of between \$6.6 million and \$11.7 million for a 21 day outage of the BP76 230KV line and PA 301 345KV line or the BP76 230KV line and the PA 302 345KV line in Fall of 2009.
- C.3 The Company agrees that the analysis included in Attachment 1 of IR RAV-048 anticipated DAM congestion shortfall of between \$43.8 million and \$77.7 million for a 20 week outage of the BP76 230KV and PA 301 345KV line or the BP76 230KV line and the PA 302 345KV line in Fall of 2010. As stated in the response to question I.2 of IR JJA-27, at this time the Company is not aware of any formal requests for additional outages from NYPA to the NYISO; however the original expectation of the time to complete the work requiring the 345KV outages was on the order of 20 weeks.
- C.4 Attachment 1 of IR RAV-048 does not explicitly address the 2 month outage scenario, discussed in response to question I.2 of IR JJA-027, of the BP76 230KV line and the PA 301 345KV line or the BP76 230KV line and the PA 302 345KV line in the Fall of 2010. However, using the data provided in Attachment 1 of IR RAV-048, the Company agrees that a reasonable estimate of the DAM congestion rent shortfall for a 2 month (61 days) outage of the BP76 230KV line and PA 301 345KV line or the BP76 230KV line and the PA 302 345KV line in Fall of 2010 is between \$19.1 million and \$33.9 million.
- D.1 See response to C.1

- D.2 See response to C.1
- D.3 See response to C.2
- D.4 See response to C.3
- D.5 See response to C.4
- E NYISO has advised the Company that the months in 2008 and 2009 when the BP76 230KV line was not combined with other NYPA 345KV outages. The DAM congestion rent shortfall charged to Company ratepayers and other New York Transmission Owners due to the outage of the R76 regulating transformer was insignificant and in most months less then \$200.00 dollars.
- F Note question (F) should have read "....documentation to substantiate the projected \$8.8 million to \$15.6 million...." as written on page 166 of the testimony of the Infrastructure and Operations panel.

Book 26, IOP Testimony, pg. 166 was drafted based on the NYISO economic analysis which anticipated a 20 week outage of the BP76 230KV line and PA 301 345KV line or the BP76 230KV line and the PA 302 345KV line in the Fall of 2010. The estimated congestion rent shortfall for the outages in the economic analysis was \$44 - \$78 million. Per the NYISO tariff, the costs would be split between the outages causing the congestion shortfall, which in this scenario would be the NYPA 345KV outage and the R76 regulating transformer which is owned by Hydro One. The Company assumed 50% (\$22 - \$39 million) of the congestion shortfall would be directly allocated to NYPA, and 50% (\$22 - \$39 million) would be allocated to all New York Transmission Owners because the R76 regulating transformer is an external outage. The Company then assumed that approximately 40% or \$8.8 - \$15.6 million of the external outage congestion shortfall would be allocated to Niagara Mohawk.

- G.1 When the Company develops base cases for power flow studies, first the area load levels and local generation dispatch are developed. Following this, the important transfer levels in the area are stressed by adjusting generation in neighboring areas. For western NY, the major interface is Dysinger East. To stress Dysinger East to an appropriate level, generation in Ontario and central or eastern NY is adjusted. The amount of adjustment required and the base case dispatch outside NY and downstate NY will dictate the flows on the circuits between NY and Ontario, including Beck Packard #76. As such, the flow on this circuit can vary from case to case and from study to study. Typical study levels would be between 300 MW into NY and 300 MW into Ontario.
- G.2 Evaluation of the impact of various loading conditions on the BP76 circuit have not been completed during recent studies of the area.
- H.1 An assessment of the reliability impact of the failure was performed by the Company which concluded that the system would not violate any reliability criteria with the line out of service. No further studies have been performed by the Company.

- H.2 First, Hydro One needed to perform a post fault analysis to understand the root cause of the event which caused the fault on the R76 regulating transformer. Once the post fault analysis was completed, Hydro One started reviewing the possibility of repairing the regulating transformer. Hydro One determined the R76 regulating transformer could not be repaired and required replacement. The Company then started investigating the reliability impact to the Company's system of a long term outage of the R76 regulating transformer. Our analysis showed that loss of the transformer would not result in a violation of reliability criteria for the Company (as stated in response H.1). After the results of the Company's assessment, both Hydro One and the Company turned to our respective ISO and requested an economic analysis be performed.
- H.3 Hydro One owns the asset and is responsible for the schedule. The project remains in a conceptual stage, in the Company's view, until all the bids have been collected and can be evaluated which is expected to be completed per Hydro One's schedule by September 2010. The Company's confidence level in the project estimates and schedule will increase once the bids are received and reviewed.
- I.1 The NYISO and IESO are currently discussing options with National Grid and Hydro One respectively to temporarily place the Beck Packard #76 circuit in service without the regulating transformer while NYPA takes outages on the circuits between Beck and Niagara. The feasibility of this short term bypass and operating arrangement between NYISO and IESO is still being reviewed by all parties.
- I.2 The Company has not specifically polled the other New York Transmission Owners, however the New York Transmission Owners will see a reduction in congestion shortfall on any future maintenance outages on the PA301 or PA302 after December 31, 2013 when the R76 regulating transformer is in service.

Name of Respondent: Bill Malee Jeff Maher Frank Graydon Date of Reply: May 3, 2010



The goal is to take the key issues and group them into manageable working groups to facilitate resolution and delivery

The power of action.

nationalgrid

Date of Request: April 23, 2010 Due Date: May 3, 2010

Request No. JJA-42 NMPC Req. No. NM 666 DPS-431

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

## Request for Information

FROM: Jerry Ancona

<u>TO:</u> Infrastructure and Operations Panel

Request:

Subject: Gardenville 230/115 kV Substation Upgrade

Reference: [Book 28, IOP Testimony, Pg. 11-8]

With respect to the Gardenville 230/115 kV transformer replacements, upgrade to breaker-and-a-half eonfiguration and capacitor bank installations the Niagara Packard #195 115kV Line Reconductoring (within the Frontier Area Program), please provide:

(A) A detailed description of the project in terms of the age, condition, rating, magnitude and type of existing facilities and equipment being retired, replaced and/or supplemented, and new facilities being added or upgraded;

(B) A description of the reliability criteria violation associated with the need for this project in terms of the specific limiting contingency and limiting element(s) associated with the violation – including pre-contingency and post-contingency voltage levels at critical buses:

(C) A statement and citing of the specific reliability criteria associated with this project;

(D) Relevant assumptions – including real and reactive load levels, load growth, reactive compensation assumed (including whether the two 52.5 MVAr portable capacitor banks on the 115 kV Huntley bus are in the base case), local generation assumed, anticipated changes, etc. – that drive the prediction of the criteria violation;

(E) Whether the violation is for all-elements in service or for a single contingency;

(F) The degree to which the violation is expected to exceed the criteria;

(G) Whether the criteria violation has actually occurred or is projected to occur:

(II) Whether an Article VII filing associated with the project is anticipated;

(I) An indication of how the proposed project will eliminate the violation;

(J) The degree of incremental load serving capability margin that is expected to be added above criteria needs by this project;

(K) Findings and conclusion of global studies which indicate a strong correlation between the age and condition of the transformers being proposed for replacement, and a significantly increased likelihood of permanent failure including catastrophic failures;

(L) Whether the retired transformers will be returned to inventory as spares for ultimate use elsewhere and/or salvaged;

(M) The most recent total estimated original cost (comprising all labor, equipment, material, invoices and other charges escalated to the date of expected expenditure) including:

- (1) Capital investment;
- (2) Net salvage value;

(3) Incremental spare equipment and material costs;

(4) O&M expenses associated with the proposed capital project;

(5) Costs resulting from associated facility outages needed to complete the work:

(6) Incremental transportation, delivery and construction equipment charges:

(7) Incremental A&G;

(8) Incremental taxes;

(9) Other incremental overhead costs;

(10) Interest during construction;

(11) Allowance for contingencies;

(N) The total estimated annual incremental costs to the ratepayer (present valued levelized over the proposed project's anticipated useful life) of the proposed project including:

(1) Carrying charges associated with the rate base portion of the total estimated original cost;

(2) Amortization of the non-rate portion of the total estimated original cost;

(3) Increases in O&M;

(4) Increases in real power losses (if any);

(5) Increases in congestion costs (if any):

(6) Increases in taxes;

(7) Increases in other charges occurring over the proposed project's useful life:

(O) A quantification of the total estimated annual incremental cost savings to the ratepayer expected to result from the proposed project (for both the first full year of service and present value levelized over the proposed project's anticipated useful life) – including:

(1) Efficiency improvements:

(2) Reduction in costs of real power losses and unaccounted use of energy:

(3) Congestion savings;

(4) O&M cost savings;

(5) Reductions in the cost of outages;

(6) Other one-time or re-occurring savings;

(P) The proposed project's estimated benefit-cost ratio based upon the total increment cost savings versus total incremental costs both present value levelized over the proposed project's anticipated useful life;

(Q) The most recent detailed project milestone and implementation schedule including preliminary design start; construction start; project in-service; and project close-out;

(R) Current status of the proposed project;

(S) Total estimated original costs, annual costs, and annual savings of a straight bus substation configuration compared to a breaker-and-half configuration;

(T) A detailed reliability and economic evaluation and justification for the need for a breaker-and-ahalf configuration compared to a straight bus design;

(U) The expected variations and associated confidence levels in the project's estimated savings, costs and schedules;

(V) With respect to each potential alternative solution developed (in addition to the proposed project), please provide:

(1) A brief description;

(2) An estimate of total original cost:

(3) An estimate of life-cycle costs;

(4) An estimate of associated incremental cost savings;

(5) Level of confidence levels and expected variances in estimates of savings, costs and schedules;

(6) A description of expected system impacts compared to the proposed project;

(7) An explanation of why the proposed project was deemed better,

(W) Also with respect to potential alternative solutions developed (in addition to the proposed project), please indicate:

(1) Whether circumstances have changed such that a previously rejected alternative needs to be reconsidered;

(2) Whether a newly developed alternative may need to be evaluated.

#### Response:

(A) The four remaining 230-115kV transformers (two at Gardenville and two at Packard) needing replacement were all built between 1957 and 1958 and are the last of their kind on the National Grid system. Analysis has shown that all four units are generating elevated levels of combustible gas, indicating internal problems. They have an unusual construction, making field maintenance impossible. The tap changer and the reversing switch are not accessible for visible inspection and would require complete disassembly at an appropriate rebuild facility. The same kind of unit that failed at Dunkirk in 2007 showed similar combustible gassing patterns. In the case of the failed unit at Dunkirk, a post failure teardown showed a failure of a tap changer lead near the bottom of the unit (the area that is not accessible in these kinds of units). It is estimated that the units at Gardenville will have reached the end of their lives within the next five to ten

years. The units will be replaced with new units, as refurbishing would be difficult and too costly.

The current station configuration (a "partial loop") is not optimal. Not only are many of the components vintage 1930's and in poor condition, but the current set up is not adequate to keep the Station running reliably. A fault along with a breaker failure, for example, could impact up to 13 elements at the Station. Unplanned as well as planned outages could potentially cause serious operating issues and result in customer outages. Further, in order to remove a circuit breaker from service, a transfer bus must be used to keep lines energized. Utilizing the transfer bus in turn requires a series of complex switching steps to be completed, raising exposure to equipment damage and unplanned customer outages.

The main driver for the capacitor bank work is the change in the Station configuration. The three 75 MVAR units currently at the Station will be replaced with two new 120 MVAR units. Due to the time it will take to construct the Substation, these capacitor banks will not go online until 2013. Because of this, the mobile capacitor banks at Huntley are recommended to be moved to Gardenville.

For further details on the Gardenville Station rebuild and the replacement of the transformers at Packard please refer Infrastructure and Operations Panel Exhibit .... (IOP-14), Schedule 2 pages II-32 & II-44.

For details of the Niagara Packard #195 115kV Line Reconductoring (within the Frontier Area Program) please refer to the response to IR JJA-39.

(B) The station rebuild and the replacement of transformers at Gardenville are not being driven by any reliability criteria violations. These projects are driven by the condition of assets at Gardenville.

The installation of capacitor banks at Gardenville is driven by the voltage performance of the 230kV system for all lines in service and during outage conditions. For peak summer conditions with all lines in service, the recorded 230kV voltage has been at 95%, which is below the National Grid criteria of 98% voltage with all lines in service. Studies have shown that for N-1 and N-1-1 conditions the voltages would fall below 95% and 90% respectively. which is outside the National Grid contingency low voltage limit of 95%. The worst N-1-1 condition is an outage of the Gardenville – Stolle Rd #66 circuit followed by a double circuit tower contingency that takes out Huntley – Gardenville #79 and #80. For this contingency, the voltage was expected to fall to 86.3%.

The recommendation to increase the size of the Gardenville transformers is driven by thermal overload concerns during N-1-1 conditions. The worst overload would occur for an outage of TB #2 followed by a fault on Gardenville bus sections 4 or 5. For this condition, the loading on single remaining transformer would reach 151% of Long Term Emergency (LTE), 110% of Short Term Emergency (STE) ratings.

(C) Low voltages on the 230kV bus is a violation of National Grid's Transmission Planning Guide TGP 28 (TGP28) and is projected to be a violation in the near future of NERC Standard TPL-001, NPCC Regional Reliability Reference Directory #1, and New York State Reliability

1259

Council (NYSRC) Reliability Rules for Operating and Planning the New York State Power if the projects are not completed.

The N-1-1 projected overloads on the transformers would be a violation of NPCC Regional Reliability Reference Directory #1, New York State Reliability Council (NYSRC) Reliability Rules for Operating and Planning the New York State Power System and the National Grid Transmission Planning Guide TGP 28.

These projects are required to maintain our compliance with the NERC Standards and NYSRC Reliability rules standards.

- (D) Various reviews of the area have been performed since 2007. The most relevant one was based on the system as it exists today, which included the 52.5 MVAr portable capacitor banks at Huntley. The study also assumed that generation at Indeck Yerkes and Oxbow power was not in service. The real and reactive load level studied was consistent with the actual system peaks recorded in recent years. For these conditions, the voltage and thermal issues discussed in the previous responses were found to exist.
- (E) The voltage issues at Gardenville are for conditions with all lines in service, single contingency conditions and for N-1-1 outages. The transformer overloads are for N-1-1 conditions.
- (F) The actual bus voltage has been recorded at 3-4% below the TGP 28 criteria requirements and at or slightly above the NYISO System Operation Procedures (Appendix Exhibit A-3) that list voltage set points for the Gardenville bus. In the 2007 study of the area, N-1-1 conditions tested in the 2012 case were found to result in Gardenville voltages at 86%, 9% below criteria requirements. The same study showed that N-1-1 conditions at Gardenville resulted in transformer loadings as high as 150% of the LTE ratings, which is 110% of the STE rating.
- (G) During the summer of 2006, the voltage on the Gardenville bus was below 95% on several heavy load days and was also below the NYISO System Operating Procedure (Appendix Exhibit A-3) voltage set point. For the period 2003-2008, the Gardenville voltage was below 98% approximately 2700 hours. The predicted overloads on the transformers have not happened.
- (II) No Article VII filing is anticipated for this project.
- (I) The addition of capacitor banks at Gardenville will boost the 115kV voltage and reduce the amount of support required from the 230 kV system, by way of the voltage regulating capability of the 230/115 kV transformers. This reduced demand on the 230kV system will improve voltage performance and bring the bus voltages within criteria requirements.

The larger transformers will increase the 230/115 kV transformation capability at Gardenville which will correct the overloads predicted during outage conditions.

(J) The degree of incremental load serving capability margin that is expected to be added above criteria needs by this project was not determined as part of recent area studies.

(K) As stated in Exhibit (IOP-14) Schedule 2, Sheet 229 of 308 "While it is recognized that age is not always a reliable indication of condition, the use of age as a proxy for condition is considered justifiable in the case of power transformers. This is because the degradation mechanism for paper insulation is well understood, and the asset lives are supported by CIGRE and other industry statistics. As the paper ages, it becomes mechanically brittle and susceptible to dielectric failure if mechanically disturbed (as experienced during throughfaults). The rate of ageing is mainly dependent upon the temperature and moisture content of the insulation and ageing rates can be increased significantly if the insulating oil is allowed to deteriorate to the point where it becomes acidic. The thermal aging of paper insulation is also a chemical process that liberates water. Any moisture that enters the transformer during its operation and maintenance will also tend to become trapped in the paper insulation. Increased moisture levels may also cause dielectric failures directly or indirectly due to formation of gas bubbles during overload conditions."

Attached are two examples that illustrate the correlation between age and condition for power transformers. The first report provided in Attachment 1 (JJA-42 Attach 1\_CIRED2007\_0546\_paper) entitled "A statistical approach to processing power transformer failure data"<sup>T</sup> concludes that "Based on the analysis it can be concluded that the failures in the population of power transformers are a result of ageing". The second example report provided in Attachment 2 (JJA-42\_Attach 2\_Transformer Failures), entitled "Analysis of Transformer Failures"<sup>2</sup> states "Aging of the insulation system reduces both the mechanical and dielectric-withstand strength of the transformer. As the transformer ages, it is subjected to faults that result in high radial and compressive forces. As the load increases, with system growth, the operating stresses increase. In an aging transformer failure, typically the conductor insulation is weakened to the point where it can no longer sustain mechanical stresses of a fault. Turn to turn insulation then suffers a dielectric failure, or a fault causes a loosening of winding clamping pressure, which reduces the transformer's ability to withstand future short circuit forces."

(L) As stated in Exhibit (IOP-14) Schedule 2, Sheet 229 of 308. Option - 3: Replace-oncondition - this is the recommended option. In the short-term, the Company has produced a prioritized list of 39 transformer replacement candidates. These are known to be in poor condition based on the results of dissolved gas analysis, electrical testing, or continuous monitoring. These candidates will be replaced over the next six years.

As the retired transformers are known to be in poor condition they will not be returned to inventory for use as spares. The transformers will be scrapped following forensic assessment to validate their condition.

- (M) No estimate of the cost has been made.
- (N) No estimate of the cost to the ratepayer has been made.

<sup>&</sup>lt;sup>1</sup> A statistical approach to processing power transformer failure data 19<sup>th</sup> International Conference of Electricity Distribution, Vienna, May 2007.

<sup>&</sup>lt;sup>2</sup> Analysis of Transformer Failures, William H. Bartley – 36<sup>th</sup> Annual Conference, International Association of Engineering insurers, Stockholm, 2003

- (O) No estimate of the savings to the ratepayer has been made.
- (P) As this project is not justified by cost-benefit analysis, this type of analysis has not been completed.
- (Q) Please see Attachment 3 (JJA-42\_Attach 3\_Schedule) for the current draft version of a high level schedule.
- (R) This project is in the early stages of Step 2A of the Project Management Playbook (PMP), preliminary engineering.
- (S) This evaluation has not been done, as the decision on the configuration of the Station was not based on cost. It was mostly based on the impact on reliability that certain configurations provide.
- (T) See Response to question (A).
- (U) This project is in the conceptual phase and as such confidence levels are consistent with the discussion in the testimony of the IOP beginning at p. 139 of 266.
- (V) In addition to the recommended option, four other options were considered: 1) "Do nothing",
   2) "Defer for two years", 3) "Defer for five years or more" and 4) "Do some of the work, but not all". Please refer to the strategy paper SG112, provided in response to IR MJR-1. Supp. C, for a detailed description of the other options considered as well as the reasons for not recommending them.
- (W1 & W2) Circumstances have not changed in a way that would call for a need to re-evaluate the existing proposals.

Name of Respondent: Alan Roe Peter Kohnstam Jeff Maher Date of Reply: 5/3/2010

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## A STATISTICAL APPROACH TO PROCESSING POWER TRANSFORMER FAILURE DATA

19<sup>th</sup> International Conference on Electricity Distribution

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#### ABSTRACT

CIRED

Replacements of transformers are costly, especially when the replacement takes place before the (technical) end of life. The different failure modes that can take place in a power transformer can have different origins. If ageing can be denoted as the main cause for failure, the question then becomes to what extent ageing occurs.

By means of statistical failure analysis the ageing processes related to the ages of the transformers can be shown. As input for the analysis a population of power transformers with different ratings and different manufactures is used. Statistical analyses can be done for the total population as well for sub-populations, based on voltage level or transformer component. The failure data is fitted with mathematical statistical distributions and the accompanying parameters can be estimated. From the analysis it can be seen in what way the components are in their wear-out life and what can be expected for the fature regarding failures. Although the population of power transformers is not uniform, statistical analyses can provide valuable information to help the asset manager in the decision process.

#### INTRODUCTION

Power transformers can be considered as one of the most significant parts in the electricity network. This involves that the transformer has a lot of attention by the asset manager of every electric utility. Replacement or repair of power transformers is costly and time consuming. But when the ages of the transformers which are now in service are considered, replacement will become necessary in the future.

To get an impression of the condition of the total transformer population, utilities develop a life cycle transformer management program. The management of the transformer population can be dived by three steps [1]:

- Risk assessment of the transformer population(s) in service; which transformers are critical, important connections.
- Condition assessment of the individual transformers; e.g. visual inspection, diagnostic measurements, monitoring.
- Life cycle decisions about the future of the transformer: Is retirement, refurbishment, replacement or relocation necessary.

Another aspect of the management of transformers is to determine in what way spare transformers are needed to be

able to replace a transformer in case of a failure resulting in a long term outage. If a spare transformer is not available for replacing a failed transformer, it is possible that the N-1 criterion is not fulfilled for a longer time. The N-1 criterion provides for each network that it has to be able to withstand the sudden outage of a failed network component at any time without intolerable violation of technical limitations or interruption of supply to any customer.

A way to get an overall impression of the state of the total transformer population, statistical failure analysis can be performed. The failures reported the last years are used as input for the analysis. In this paper the analysis will be discussed starting by showing the population now in service. This population can be split up in two sub-populations based on the voltage level (and power rating) of the transformers. The reported failures are also discussed and also the failures can be divided into sub-groups based on the type of failures reported. The failure data together with the populations in service are used to perform statistical analysis. From the analysis it can be seen whether failures occur in relation to the age of the transformers (ageing). The general approach is graphically presented in Figure 1.



Figure 1 Approach of the analysis on power transformers

#### POPULATIONS OF POWER TRANSFORMER IN SERVICE

The analysis is performed for a population of power transformers with a power rating starting at 14 MVA up to 175 MVA. The service life of this population differs a lot due to the different installation years from 1950 up to now. The range of service life is from one up to 55 years. The numbers of power transformers installed with the years of installation is shown in Figure 2. From this figure it can be seen that a large part of the transformer population is installed between 1955 and 1980. The average age of the total population is 29 years.

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A total population of almost 500 transformers is in service. The total population consists of different types of transformers. Groups of transformers can be distinguished. In this case this is done based on the voltage level:

- Group 1 transformers: Voltage levels of 150/50/10, 150/50, 150/20, 150/10, 110/20 and 110/10 kV.
- Group 2 transformers: Voltage levels of 50/10 and 50/6 kV.
- Booster transformers: Voltage level 10/10 kV.
- Other: Voltage level 20/10 kV.

The last two types are not taken into account in the analysis, because for these two categories only a few failures are reported.



Figure 2 Total number of power transformers in service with their years of installation, the devission in the two groups is shown

The populations of Group 1 and Group 2 transformers with their years of installation are shown in Figure 2. By making these sub-populations it is possible to do statistical failure analysis on the whole population as well on the subpopulations. Failure behavior of these sub-populations can be different and this can influence the analysis of the total population. These two sub-populations differ a lot concerning type of transformers is considered. Differences in the results of the analysis between the two populations can be taken into account for the decision to obtain extra spare transformers.

#### FAILURE STATISTICS OF POWER TRANSFORMERS

An overall database of the complete population of the utility is available which reports failures of the past years. Failures are listed from the early nineties up to now. The age of the transformers at time of failure can be found in the database and this is used as input for the analysis. By reporting what the defect was it is possible to divide the failures in categories.

#### **Failed components**

The reported failures consist of different type of failures.

This means that the failures can be divided into the different components. This is done by making groups of components according to Cigré [2]:

- Tap-changer: This includes the off-load as well the onload tap changers
- Leakage: Problems concerning the tank and the dielectric fluid.
- Bushings
- Windings: Short circuit of the windings of a transformer
- Core: Problems concerning the magnetic circuit.
- Other: e.g. Temperature problems.

The occurrence of failures in power transformers as reported in [2] is graphically shown in Figure 3.

For the failures reported in the database of the transformer population a same graphical presentation can be made. For this the reported failures are grouped in the same way as described above. The failure statistics of Cigré consists of approximately 800 failures, the number of reported failures in the Continuon failure database is obvious much smaller (about 50).



# Figure 3 Failure statistics of different transformer components reported by CIGRE [2] (upper) and in the failure database (lower)

STATISTICAL FAILURE ANALYSIS OF LIFETIME DATA

#### Total population

For the statistical analysis the ages of the transformer

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failures and the ages of transformers still in service are used as input. To get a first impression the complete population together with all the reported failures is used to fit a statistical distribution.

The failure data can best be futed with a two-parameter Weibull distribution, based on different goodness-of-fit tests (correlation coefficient. Kolmogorov-Smirnov). The extimated Weibull shape parameter  $\beta = 3.3$  and the characteristic life or scale parameter  $\eta = 70$ . In Figure 4 the data points are shown with the fitted Weibull distribution. Also the 90% confidence bounds are shown. The mean life of the total population regarding all type of failures is 62 years.

From the analysis the failure rate function can de derived. The failure rate is shown in Figure 4 together with the 90% confidence bounds. The rising failure rate function and the value of the Weibull shape parameter ( $\beta$ >1) indicates that the population of transformers is in the agoing part of its life cycle.



Figure 4 Fitted two parameter Weibull CDF (left) and the accompanying failure rate function (right) with the 90% confidence bounds for the total population

#### Sub-populations

The total population can be divided in two sub-populations. The division is made based on voltage level. This results in a population of Group 1 transformers with a voltage level above 50 kV and a population of Group 2 transformers with a voltage level equal to 50 kV.

First the population of Group 4 transformers is analyzed. The best fitted distribution is in this case the threeparameter Weibull distribution. The age distribution of the reported failures for this subpopulation shows that the youngest reported failure occurred at the age of 23. Because not the whole failure history is known, it can be possible that younger failures are unknown. These facts can explain the use of the three parameter Weibull distribution with the introduction of the location parameter y. The Weibull parameters are estimated resulting in a shape parameter {} = 2.8, scale parameter  $\eta = 36$  years and the location parameter  $\gamma = 17$  years, see Figure 5. The mean life of this subpopulation regarding the reported failures of this population is 49 years. Because the low number of failures the 90% confidence bounds are relatively wide. This can also be seen in the failure rate function with the 90%

confidence bounds of Figure 5. The population of Group 1 transformers is in the aging state of its life cycle as can be seen by the rising failure rate function.



Figure 5 Fitted three parameter Weibull CDF (left) and the accompanying failure rate function (right) with the 90% confidence bounds for the sub-population Group 1

The same analysis as discussed above can be done on the Group 2 transformers. This subpopulation is larger and consists of more reported failures. According to the goodness-of-fit test, the two parameter Weibull distribution gives the best fit for this data set.

The Weibull parameters are estimated resulting in the shape parameter  $\beta = 2.8$  and the characteristic life  $\eta = 80$  years. The mean life is 71 years. Because of the larger amount of available failure data, the 90% confidence bounds are narrower compared to the analysis of the Group 1 transformers. This can also be seen in the failure rate function of Figure 6. The steepness of the failure rate function is lower compared to the failure rate function of the Group 1 transformers, but starts at earlier age.



Figure 6 Fitted two parameter Welbull CDF (left) and the accompanying failure rate function (right) with the 90% confidence bounds for the sub-population Group 2

#### Discussion

If the total population is considered, it can be seen that the fuilure probability will increase by an increasing age of the transformers. The same trend can be seen when the two subpopulations based on voltage level are considered. The failure rate of the Group 1 transformers shows a steeper trend compared to the failure rate of the Group 2 transformers. For the Group 1 transformers the fitted three parameter Weibull distribution indicates that no failures
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occur before the age of 17 years.

Every industry uses B fives indicating a certain level of reliability based on the age of a component. In the workt of engineering the used B-life starts mostly around B10. This means that 10 % of the total population will fail at a certain age and that 90 % survives. Different industries use different values for an acceptance value for unreliability/reliability depending on the criticality of n failure. These B-lives can also be used to compare analysis. To see the difference's between the reliabilities the B-lives and mean life (B50) from the (sub-) populations can be compared with each other. This is shown in Tuble 1.

Table 1 B-lives and mean live resulting from the analyses of the total- and sub-populations, in parenthesis the upper and lower values of the 90% confidence bounds.

	Total population [years]	Sub-pop. Group 1 [ycars]	Sub-pop. Group 2 [years]
B1 life	17 (15-21)	24 (22-27)	15 (12-20)
B10 life	35 (33-38)	33 (31-36)	35 (32-39)
Mean life	63 (56-70)	49 (44-55)	71 (60-84)

From the table it can be seen that for a reliability of 99% (B1 life) the Group 2 transformer shows failures at a lower age compared to the Group 1 transformer. The mean life however is higher for the Group 2 transformer. This difference is due to the fact that the age of the youngest failure is occurring after 20 years. The ages at lower values of reliability are lower for the Group 1 transformer compared to the Group 2 transformers.

The analysis can also be performed on component level. The most critical components are the tap-changer and the windings. The failure data of these components is used for the analysis for the two sub-populations. The fitted Weibull distributions show that failures occur due to ageing. The failures of the tap-changer start at younger ages compared to the failures of the windings.

# FAILURE EXPECTATION BASED ON THE ANALYSIS

The different analyses as discussed before can be used to perform a failure prediction. The failure rate function together with the population in service is used to estimate the development of failures in the future.

Firstly the failure expectation is done for the total population of transformers and for the two sub-populations. This results in the failure expectation as shown in Figure 7. The number of expected failures of the total population is around 4 with 90% confidence bounds of 3 to 6. If this is related to the previous years it is comparable with the average number of failures occurred in former years. The number of expected failures of the two sub-populations is also comparable with the average of the occurred failures of

the last years. If the number of expected failures are taken together the number is slightly higher than that of the total population but lies under the 90% upper confidence bound.



Figure 7 Number of expected failures in coming years together with the 90% confidence bounds for the total population (upper) and for the two sub-populations based on voltage level (lower)

The analysis of the different components from the two subpopulations can also be used for a failure expectation.

#### CONCLUSIONS

Based on the analysis it can be concluded that the failures in the population of power transformers are a result of ageing. The number of expected failures is stable and comparable with the past years. The spare transformer policy, that showed to be successful in the past, can be continued in the near future, e.g. ten years, without impairing the system's reliability.

#### REFERENCES

- W.H. Hartley, "Life Cycle management of Utility Transformer Assets", presented at Breakthrough Asset Management for the Restructured Power, Industry forum, Salt Lake City, USA, October, 2002.
- [2] A. Bossi, J.E. Dind, J.M. Frisson, U. Khoudiakov, H.F. Light, et. al., "An International Survey of Failures in Large Power Transformers in Service". Final Report of the CIGRE Working Group 12.05, Electra, 1983, no. 88, pp. 21-48

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IMIA - WGP 33 (03)

# **Analysis of Transformer Failures**



presented at

International Association of Engineering Insurers 36<sup>th</sup> Annual Conference – Stockholm, 2003

### **Analysis of Transformer Failures**

by William H. Bartley P.E. The Hartford Steam Boiler Inspection & Insurance Co. Hartford, CT USA

#### SUMMARY

This paper will address the transformer failure statistics over the last 5 years, the aging of our worklwide transformer fleet, and a global perspective of the transformer industry.

#### INTRODUCTION

Major losses involving large oil-cooled transformers continue to occur on a frequent basis. An IMIA Working Group was established in 1995 to examine this topic and presented a report at the 1996 Conference. The magnitude of the losses has increased significantly since the last study. Increased equipment utilization, deferred capital expenditures and reduced maintenance expenses are all part of today's strategies for transformer owners. To make matters worse, world power consumption is increasing, and the load on each aging transformer continues to grow.

#### SCOPE OF STUDY

A request was sent to all national delegations seeking information on losses of transformers rated at 25MVA and above, for the period 1997 through 2001. Information was requested concerning Year of loss, Size in MVA, Age at failure, Application (utilities, industrials etc.) Cause of failure, Property Damage portion, and Business Interruption portion. Data was obtained on 94 cases. An estimate of the total population of power transformers would have been useful, but it is impractical to obtain this information. Some of the contributors were not able to identify the age of the transformers, and in some cases, the size of the transformer. Thus, the analysis is annotated wherever data is missing. All amounts of losses were converted to U.S. dollars, using the following exchange rates: 0.9278 Euros; 8.542 Swedish kronas; and 6.0858 French francs.

#### . FIVE YEAR TREND

During this period, the number of transformer claims reached a peak (25) in 1998. But, the dollars-paid out, reached a maximum in 2000 due to several claims in the multi-million dollar range. plus one large Business Interruption loss. The largest transformer loss also occurred in 2000, at a power plant, with a Business Interruption portion of over \$80 million Euros, or \$86million US dollars. Three of the top four Property Damage claims were in industrial plants. Table#1 displays the annual transformer claims (We have included Property Damage, Business Interruption and Total Paid). Unfortunately, all of the data contributed did not have size information. Thus, we could only analyze 78 claims for cost per size. The average cost (for Property Damage only) was approximately US\$9000 per MVA (or \$9 per kVA). Table #1-A displays the annual transformer claims and Cost per MVA.

Table 1	Total # of Losses	Total Loss	T	otal Property Damage	Т	otal Business Interruption
<u>19</u> 97	19	\$ 40,779,507	\$	25,036,673	\$	15,742,834
1998	25	\$ 24,932,235	\$	24,897.114	s	35,121
1999	15	\$ 37, <b>391</b> ,591	\$	36,994,202	\$	397,389
2000	20	\$ 150,181,779	\$	56,858,084	\$	93,323,695
2001	15	\$ <u>3</u> 3,343,700	\$	19,453,016	\$	13,890,684
Grand Total	94	\$ 286,628,811	\$	163,239,089	\$	123,389,722

Table 1 - Number and Amounts of Losses by Year

\* Total losses in 2000 includes one claim with a business Interruption portion of over \$86 million US

 Table 1A	Number and	Amounts of Lo	sses by MVA	and Year
(Total # of	100000	Total MVA	Tatal DD	

Table 1 A	Total # of Losses	Losses w/data	Total MVA reported	Total PD (with size data)	Cost /MVA
1997	19	9	2567	\$20,456,741	\$7969
1998	25	25	5685	\$24,897,114	\$4379
1999	15	13	2433	\$36,415,806	\$14967
2000	20	19	4386	\$56,354,689	\$12849
2001	15	12	2128	\$16,487,058	\$7748
Total	94	78	17,199	\$15,4611,408	

During this five year period, the average cost is \$8,990 per MVA, or about \$9 per kVA.

#### TYPE OF APPLICATION

During this period, the largest number of transformer claims (38) occurred in the Utility Substation sector, but the highest paid category was Generator Step Up transformers, with a total of over USS200million. If the extraordinary Business Interruption loss is ignored, the generator step up transformer is still significantly higher than any other category. (This is to be expected due to the very large size of these transformers.) Table 2 displays the annual claims, by application.

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Year	Generator Step	Up	Industrial		Utility Substa	ions	unknown		Annual Tota	ls
1997	\$ 29,201,329	3	\$ 2,239,393	4	\$ 5,243,075	11	\$ 4,095,710	1	\$ 40,779,507	19
1998	\$ 15,800,148	8	\$ 3,995.229	6	\$ 5,136,858			1	S 24,932,235	25
1999	\$ 3,031,433	4	\$ 24,922,958	4	\$ 6,116,535	6	<b>S</b> 3,320,665	1	\$ 37,391,591	15
2000	\$ 123,417,788	10	\$ 24,724,182	4	\$ 2,039,810	6			\$ 150,181,779	20
2001	\$ 32,082,501	11			\$ 1,261,199	4			\$ 33,343,700	15
Totals	\$ 203.533,199	36	\$ 55,881,762	18	\$ 19,797,476	38	\$ 7,416,375	2	\$ 286,628,811	94

Table 2 - Losses by Application

#### CAUSE OF FAILURE

For the failures reported, the leading cause of transformer failures is "insulation failure". This category includes inadequate or defective installation, insulation deterioration, and short circuits, ... but <u>not</u> exterior surges such as lightning and line faults. Table 3 lists the costs and number of failures for each cause of failure. A description of each cause category is found below.

Cause of Failure	Number		Total Pald
Insulation Failure	24	\$	149,967,277
Design /Material/Workmanship	22	\$	64,696,051
Unknown	15	\$	29,776.245
Oil Contamination	4	\$	11,836,367
Overloading	5	\$	8,568,768
Fire /Explosion	3	\$	8,045,771
Line Surge	4	\$	4,959,691
Improper Maint /Operation	5	\$	3,518,783
Flood	2	\$	2,240,198
Loose Connection	6	S	2,186,725
Lightning	3	S	657,935
Moisture	1	\$	175,000
	94	\$	286,628,811

Table	-3	Cause	of	Fai	lures
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The risk of a transformer failure is actually two-dimensional: the frequency of failure, and the severity of failure. Figure 1 is a scatter plot, or sometimes referred to as an "F-N curve" (frequency –number curve). The number of failures for each cause is on the X-axis, and the dollars paid for each cause is on the Y-axis. The higher risks are in the upper right-hand corner. According to this analysis, the Insulation Failure is the highest risk for all types of transformer failures.

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Analysis of Transformer Fakures IMIA 2003



Figure 1 - Frequency - Severity of Transformer Pailures

Cause of Failure

Insulation Failures – Insulation failures were the leading cause of failure in this study. This category excludes those failures where there was evidence of a lightning or a line surge. There are actually four factors that are responsible for insulation deterioration: pyrolosis (heat), oxidation, acidity, and moisture. But moisture is reported separately. The average age of the transformers that failed due to insulation was 18 years

Design *Manufacturing Errors* - This category includes conditions such as: loose or unsupported leads, loose blocking, poor brazing, inadequate core insulation, inferior short circuit strength, and foreign objects left in the tank. In this study, this is the second leading cause of transformer failures.

Oil Contamination – This category pertains to those cases where oil contamination can be established as the cause of the failure. This includes sludging and carbon tracking.

Overloading - This category pertains to those cases where actual overloading could be established as the cause of the failure. It includes only those transformers that experienced a sustained load that exceeded the nameplate capacity.

Fire /Explosion - This category pertains to those cases where a fire or explosion outside the transformer can be established as the cause of the failure. This does not include internal failures that resulted in a fire or explosion.

Line Surge - This category includes switching surges, voltage spikes, line faults/flashovers, and other T&D abnormalities. This significant portion of transformer failures suggests that more attention should be given to surge protection, or the adequacy of coil clamping and short circuit strength.

Maintenance /Operation - Inadequate or improper maintenance and operation was a major cause of transformer failures, when you include overloading, loose connections and moisture. This category includes disconnected or improperly set controls, loss of coolant, accumulation of dirt & oil, and corrosion. Inadequate maintenance has to bear the blame for not discovering incipient troubles when there was ample time to correct it.

*Flood* – The flood category includes failures caused by inundation of the transformer due to man-made or natural caused floods. It also includes mudslides.

LOOSE Connections - This category includes workmanship and maintenance in making electrical connections. One problem is the improper mating of dissimilar metals, although this has decreased somewhat in recent years. Another problem is improper torquing of bolted connections. Loose connections could be included in the maintenance category, but we customarily report it separately.

Lightning - Lightning surges are considerably fewer in number than previous studies we have published. Unless there is confirmation of a lightning strike, a surge type failure is categorized as "Line Surge".

Moisture - The moisture category includes failures caused by leaky pipes, leaking roofs, water entering the tanks through leaking bushings or fittings, and confirmed presence of moisture in the insulating oil. Moisture could be included in the inadequate maintenance or the insulation failure category above, but we customarily report it separately.

#### TRANSFORMER AGING

Notice that we did not categorize "age" as a cause of failure. Aging of the insulation system reduces both the mechanical and dielectric-withstand strength of the transformer. As the transformer ages, it is subjected to faults that result in high radial and compressive forces. As the load increases, with system growth, the operating stresses increase. In an aging transformer failure, typically the conductor insulation is weakened to the point where it can no longer sustain mechanical stresses of a fault. Turn to turn insulation then suffers a dielectric failure, or a fault causes a loosening of winding clamping pressure, which reduces the transformer's ability to withstand future short circuit forces.

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Table 4 displays the distribution of transformer failures by age. The average age at failure was 18 years.

Age at failure	Number of Failures	Cost of Failure
0 to 5 years	9	\$ 11,246,360
6 to 10	6	\$ 22,485,881
11 to 15	9	\$ 3,179,291
16 to 20	9	\$ 10,518,283
21 to 25	10	\$ 16,441,930
Over 25 years	16	\$ 15,042,761
Age Unknown *	35	\$ 207,734,306

\* This line includes the one claim with a business interruption element of \$80 million Euros or \$86 million US

The age of transformers deserves special attention, because the world went through significant industrial growth in the post World War II era, causing a large growth in base infrastructure industries, especially the electric utilities. World energy consumption grew from 1 trillion to 11 trillion kwhr in the decades following the war. Most of this equipment is now in the aging part of its life cycle.

According to U.S. Commerce Department data, the electric utility industry reached a peak in



new installations in the U.S. around 1973-74. In those two years, the U.S.A. added about power GVA of 185 transformers. Figure #2 depicts the total transformer additions in the U.S.A. each year. Today, these transformers are about 30 years old. With today's capital spending on new or replacement transformers at its lowest level in decades, (less than 50GVA /yr) the average age of the entire world transformer fleet continues to rise.

A risk model of future transformer failures, based on aging, was developed by HSB and published in 2000,<sup>111</sup>. The model is based on mortality models that were first proposed in the 19<sup>th</sup> century.

The most influential parametric mortality model in published actuarial literature is that proposed by Benjamin Gompertz in 1825, who recognized that an exponential pattern in age captured the behavior of human mortality. He proposed the failure function:  $f_{(0)} = \alpha e^{\beta t}$ where  $f_{0}$  is the instantaneous failure rate,  $\alpha$  is a constant;  $\beta$  is a time constant; and t = time (in years).

HSB's first publication on transformer failure predictions used the Gompertz model. In 1860, W.M. Makeham modified the Gompertz equation because it failed to capture the behavior of mortality due to accidental death, by adding a constant term in order to correct for this deficiency. The constant can be thought of as representing the risk of failure by causes that are independent of age (or random events such as lightning, vandalism etc.).

Makcham's formula:  $f_m = A + \alpha e^{\beta i}$ 

Subsequent publications by HSB <sup>[2,3]</sup> have adopted the Makeham formula.

The Gompertz curve was further modified by W. Perks, R.E. Beard and others. In 1932 Perks proposed modifications to the Gompertz formula to allow the curve to more closely approximate the slower rate of increase in mortality at older ages.

Perks' formula: 
$$f_{\mu\nu} = \frac{A + \alpha e^{\mu\nu}}{1 + \mu e^{\mu\nu}}$$

Thus, a more accurate model for transformer failures can be represented by Perk's formula and is included – for the first time -in this paper. The instantaneous failure rate for transformers in a given year is the probability of failure per unit time for the population of transformers that has survived up until time "t". To include the frequency of random events (e.g. lightning, collisions, vandalism) *separate* from the aging component, the constant "A" is set at 0.005 (which represents ½ of 1%). Figure 3 is the corresponding exponential curve for a 50% failure rate at the age of 50.

Admittedly, correlation the between calendar age and insulation deterioration is subject to some uncertainty. (Not all transformers were created equal.) This prediction is a simple statistical model and does not take into consideration manufacturing differences or loading history. This failure rate model is based only on the calendar age of the transformer, and does not address material and design defects, (i.e. "infant mortality").

With a failure rate model and population estimate for each





vintage, future failures can be predicted for the entire of transformers, by multiplying the failure rate times the population of the vintage:

Number of failures (in GVA) at year "t", =|Failure rate| x [population that is still surviving]

Using the population profile from Figure #2, the predicted failures can be plotted for all U.S. utility transformers, built between 1964 and 1992. The prediction is simply intended to illustrate the magnitude of the problem facing the utility industry and the insurance industry. Figure #4 is the failure distribution. The X-axis is the year of predicted failures. The Y-axis is the population of the failures (expressed in GVA). It should be noted that the graph is a failure rate of those that survived, until time "t". In this graph, a vertical line depicts each vintage. By

- 7 -



1975, each year has a cluster of six different vintages, ('64, '66, '68, '70, '72, and '74); and after 1992, each cluster is 15 vintages.

Figure 4 - Failure Distribution of all vintages 1964-1992

In our next chart, we take a closer look at predicted failures over the next six years (2003 to 2008). Due to the increased installations, the failures of 1972- vintage transformers will overtake the failures of the 1964-vintage in the year 2006; and by 2008, the number of 1974-vintage transformers will easily exceed the failures of the 1964- vintage transformers. This prediction ignores rebuilds and rewinds of previous failures.



In order to examine the total predicted transformer failures in any given year, we can take the sum of the individual vintages, for each year. Figure 6 illustrates such a prediction.

- 8 -

JJA-42 Attachment 2 Page 10 of 13

Although we have not yet seen an alarming increase in end of life failures, such a rise must be expected eventually. The most difficult task for the utility engineer is to predict the future reliability of the transformer fleet, and to replace each one the day before it fails. Meeting the growing demand of the grid and at the same time maintaining system reliability with this aging fleet will require significant changes in the way the utility operates and cares for its transformers.



Figure 6 Failure Distribution - all vintages

### ACTION PLAN

One conservative strategy suggests that the industry start a massive capital replacement program that duplicates the construction profile of the 60's and 70's. But this would cause many transformers to be replaced needlessly and cost the utility industry billions of US dollars.

The ideal strategy is a life assessment or life cycle management program, that sets loading priorities, and provides direction to identify: a) transformer defects that can be corrected; b) transformers that can be modified or refurbished; c) transformers that should be re-located and d) transformers that should be retired. The insurance industry should be aware that both IEEE and CIGRE are developing guidelines for aging transformers.  $^{(5,6)}$ 

JJA-42 Attachment 2 Page 11 of 13

#### Electric Utilities and the Transformer Industry

The deregulation of wholesale electricity supply around the world has led to a number of changes and new challenges for the electric utility industry and its suppliers. In the last few years, many electric utilities have merged to form larger international utilities, and others have sold off their generating assets. All of this is being done in an attempt to enhance revenue streams, reduce the incremental cost per MW or react to spot market opportunities.

Years ago, utilities knew the needs of their native markets and built an infrastructure to keep pace with those needs, with associated construction costs being passed back to the ratepayers. Starting in the 1980's, utilities in the US had to contend with regulatory mandates to utilize independent power producers to satisfy supply and meet demand. They were not able to plan projects for their native load projections. In this environment, it was possible that the utility's capital projects may not be afforded a favorable rate structure from the local Utility Commission in an openly competitive market. Therefore, many utilities understandably halted most of their capital spending, due to this regulatory uncertainty. This significantly limited the activity taking place in terms of expanding the industry's infrastructure, including their transmission and distribution assets. In the 1990's capital spending on new and replacement transformers was at its lowest level in decades. Many of the major manufacturers (General Electric, Westinghouse, Allis Chalmers, McGraw Edison and others ) exited the power transformer business. Many of the remaining manufacturers have undertaken cost-cutting measures to survive.

Then in 1999 –2000, the transformer market experienced a brief upswing in activity primarily due to a rush to build gas-turbine generating plants. The demand for generator step-up transformers in the US almost doubled during these peak months. At that time, there were predictions that 750 Gigawatts of new generating capacity would be installed worldwide, between 2000 and 2010. But, the rush to build power plants in the U.S. has subsided; many of the energy companies are now drowning in debt. Many developers and investors had to sell their interests in existing plants in order to finance the completion of new plants. In 2001, projects worth 91 GW of generating capacity in the US, were cancelled (out of 500 GW). And in the first quarter of 2002, orders for 57 GW of capacity were cancelled.

Capital spending in the utility industry sharply declined, again. According to Dennis Boman, Director of Marketing for Power Transformers, ABB North America, "the decline has far exceeded anyone's prediction to levels that post-dated the increase. Within a short six-month period the power transformer market dropped by over 50%." According to Mr. Joe Durante, Vice President, Commercial Operations, North America, Elin /VATech, "...the boom of the late nineties and early two thousand is over, and most likely won't be seen for another 30 years. Replacement opportunities will continue to remain flat and customer spending will continue only when necessary."

Based on HSB claims experience, new transformer prices are significantly lower than they were a few years ago. It is truly a buyer's market. New power transformers are being sold at a price less than the cost of a rewind, and the manufacturers are now providing 3-year and 5-year warranties.

The prognosis, according to Mr. Peter Fuchs, Vice President Sales & Marketing, Siemens Transformers, is "...a stagnant market, on average, for the US, Europe, and the Far East".

JJA-42 Attachment 2 Page 12 of 13

<However>, "in other parts of the world, economic growth and business development are proceeding at high levels, including a resurgence in Asia. The need for power in this area already exists, and as international funding becomes available, we expect to see increased activity in this region."

Today, many of the transformer manufacturing plants and repair facilities have very little activity. Is this "slump" in the market due solely to government regulation (or deregulation)? The major three manufacturers point to a number of different problems. According to Bowman (ABB) "... we have seen a shift in focus to 'First Cost' buying with little regard for any long term impact on buy decisions." Many buyers (our insureds) are choosing the lowest bidder, with little regard to quality, reliability or factory service. According to Fuchs (Siemens) "...in addition to the price-driven decision, there is very little technical evaluation, and 'price-dumping' continues to go unpunished." Durante (Elin /VA Tech) confirms that the major obstacle is "ongoing deregulation uncertainty which is hindering capital investment".

According to Durante, the next growth opportunity in the North American utility market is the transmission segment. This includes inter-tic transformers, phase-shifter transformers, and autotransformers. "However, this market is heavily influenced by government regulations and decisions", says Durante. In the U.S., the Federal Energy Regulatory Commission (FERC) has mandated that all generators have equal access to transmission systems and required integrated utilities to turn over their transmission systems to independent entities. Some utilities have decided to sell their transmission assets and purchase transmission service. Other utilities are joining together and rolling their transmission assets into limited liability companies. But many utilities first want to understand exactly how transmission will be regulated. In other words, utility investors want to know whether the federal government or the state government will regulate the transmission assets. Until this is clear, overall capital spending will be deferred.

#### Summary

Electricity is much more than just another commodity. It is the life-blood of the economy and our quality of life. Failure to meet the expectations of society for universally available low-cost power is simply not an option. As the world moves into the digital age, our dependency on power quality will grow accordingly. The infrastructure of our power delivery system and the strategies and policies of our insureds must keep pace with escalating demand. Unfortunately, with the regulators driving toward retail competition, the utility business priority is competitiveness (and related cost-cutting) and not reliability.

#### REFERENCES

- [1] William H. Bartley, HSB, Analysis of Transformer Failures, Proceedings of the Sixty-Seventh Annual International Doble Client Conference, Boston MA, 2000,
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- [3] William H. Bartley, HSB, *Transformers Fuilures*, presented as Keynote Address at the annual ABB Technical Conference, Alamo, TN, 2003.

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- [4] Tim Higgins, Mathematical Models Of Mortality, presented at the Workshop on Mortality Modeling and Forecasting, Australian National University, February 2003
- [5] IEEE C57,140, Draft 9 March, 2003, IEEE Guide for the Evaluation and Reconditioning of Liquid Immersed Power Transformers, Rowland James & William Bartley Co- Chair
- [6] CIGRE 12-20 Guide on Economics of Transformer Management (draft 23.7.02)

#### THE AUTHOR:

William Bartley, P.F. is the Principal Electrical Engineer in the Engineering Department of The Hartford Steam Boiler Inspection and Insurance Co. Mr. Bartley earned a B.S. degree in Electrical Engineering from University of Missouri at Rolla, and has been employed by Hartford Steam Boiler since 1971. He is responsible for developing standards, OEM relations, fleet problems, large failure investigations, repair procedure development, and new monitoring and testing technologies. He is a registered Professional Engineer in Connecticut, and a Senior Member of IEEE, serving on both the Transformer Committee and Rotating Machinery Committee. He has authored numerous papers on transformer failures.

JJA-42 Attachment 3

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802 Gardenville	Rebuild 115KV Station	WD Locke	down			30-Apr-10 16:4
Activity ID	Activity Name	Ong Dur	Rem Dur	Stan	Finish	
C05156	Lin B02 Gardenville - Rebuild 115KV Statio	n 2670.0d	26.,.	10-Mar-09	30-Jun-16	
C05156	Lin 1 NG - SUMMARY SCHEDULE	2670.0d	26	10-Mar-09	30-Jun-16	
C05156 L	in.1.1 STEP 1 - PROJECT INITIATION	108,0d	10	10-Mar-09	26-Jun-09	
C05156 L	in.1.2A STEP 2A - PRELIMINARY ENGINEERING, ETC	980.0d	98	10-Mar-09	15-Nov-11	
C05156 L	IN.1.28 STEP 28 - FINAL ENGINEERING	718.0d	71	14-Nov-11	01 Nov-13	
C05156 L	In.1.3 STEP 3 - CONSTRUCTION	791.0d	79	01-Nov-13	31-Dec-15	
C05156 Li	in.1.5 STEP 5 - PROJECT CLOSURE	182.0d	18	01-Jan-16	30-Jun-16	

	Page 1 of 1	TASK filter All Activities	
·			(c) Primavera Systems, Inc

Date of Request: April 26, 2010 Due Date: May 6, 2010

#### Request No. DAG-38 NMPC Req. No. NM 673 DPS-438

#### NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Denise Gerbsch

TO: Revenue Requirement Panel

Request:

Pensions / OPEBs.

1. Please provide the breakdown by Company, as per Hewitt, for the following National Grid USA pension plan components shown on Schedule 19, Workpaper 5, page 8 of 53, in Book 17 of Exhibit

(RRP-10); see workpaper #117 for example of breakdown by component:

(a) Estimated FAS 87 Pension Expense for 4/2010 – 3/2011 of \$71,185,000

(b) Estimated FAS 88 Termination Benefits for 4/2010 - 3/2011 of \$3,900,000

(c) Estimated Regulatory Expense for 4/2010 – 3/2011 of (\$18,491,000)

(d) Estimated FAS 87 Pension Expense for 4/2011 - 3/2012 of \$74,376,000

(e) Estimated Regulatory Expense for 4/2011 - 3/2012 of (\$18,491,000)

2. Please provide the breakdown by Company, as per Hewitt, for the following National Grid USA Non-union OPEBs plan components shown on Schedule 19, Workpaper 5, page 12 of 53, in Book 17 of Exhibit (RRP-10):

(a) Estimated FAS 106 OPEBs Expense for 4/2010 – 3/2011 of \$35,398,000

(b) Estimated FAS 106 Termination Benefits for 4/2010 - 3/2011 of \$62,000

(c) Estimated Regulatory Expense for 4/2010 - 3/2011 of \$5,479,000

(d) Estimated FAS 106 OPEBs Expense for 4/2011 – 3/2012 of \$36,470,000

(e) Estimated Regulatory Expense for 4/2011 – 3/2012 of \$5,476,000

3. Please provide the breakdown by Company, as per Hewitt, for the following National Grid USA Union OPEBs plan components shown on Schedule 19, Workpaper 5, page 16 of 53 in Book 17 of Exhibit (RRP-10):

(a) Estimated FAS 106 OPEBs Expense for 4/2010 – 3/2011 of \$29,808,000

(b) Estimated Regulatory Expense for 4/2010 - 3/2011 of \$1,559,000

(c) Estimated FAS 106 OPEBs Expense for 4/2011 – 3/2012 of \$30,875,000

(d) Estimated Regulatory Expense for 4/2011 – 3/2012 of \$1,559,000

4. Included in the Company's rate year forecasts for both pensions and OPEBs, expense is a component for KeySpan Service Company with a forecasted allocation to Niagara Mohawk of KeySpan pension / OPEBs plan costs of 3.91%. Please provide:

(a) Hewitt's actuary valuation supporting the KeySpan TME 9/2011 pension cost forecast of \$72,076,521 with all pension cost components broken out;

(b) Hewitt's actuary valuation supporting the KeySpan TME 9/2012 pension cost forecast of \$70,000,672 with all pension cost components broken out;

(c) Hewitt's actuary valuation supporting the KeySpan TME 9/2011 OPEBs cost forecast of \$40,264,119 with all OPEBs cost components broken out;

(d) Hewitt's actuary valuation supporting the KeySpan TME 9/2012 OPEBs cost forecast of \$41,010,880 with all OPEBs cost components broken out;

(e) A detailed explanation of why Niagara Mohawk should be allocated any of the KeySpan Service Company costs.

5. In its rate year forecasts, the Company is allocating 3.91% of the KeySpan Service Co. pensions and OPEBs costs to Niagara Mohawk (see Exhibit \_\_\_\_(RRP-2) Schedules 19 and 24, Sheet 8). Please provide the allocated breakdown to all of National Grid's affiliates of 100% of the KeySpan Service Co. pensions and OPEBs costs, with supporting documentation and calculations (amounts used in the calculations should be identified by source).

6. Exhibit (RRP-2) Schedules 19 and 24, Sheet 8, shows the 3.91% used in the pension and OPEBs expense calculation. For lines 3 and 15-24 on sheet 8 of each schedule, please identify and provide copies of the source of these amounts.

7. For the historic test year, please provide the (a) allocated %, (b) amounts, and (c) supporting documentation and calculations of Niagara Mohawk's pension and OPEBs plan costs being allocated to KeySpan and the Keyspan Service Co. If no Niagara Mohawk pension and OPEBs plan costs have been allocated, please explain why not.

8. For the historic test year, please provide the (a) allocated %, (b) amounts, and (c) supporting documentation and calculations of National Grid USA Service Co.'s pension and OPEBs plan costs being allocated to KeySpan and the Keyspan Service Co. If no National Grid USA Service Co. pension and OPEBs plan costs have been allocated, please explain why not.

9. What does the Company propose to do with any amounts provided for and recovered in Niagara Mohawk's electric and/or gas rates for KeySpan Service Co. pension and OPEBs plan costs? For example, will the Company deposit any amounts recovered directly into the pension and OPEBs plan funds? Please explain your answer.

10. What does the Company currently do with any amounts provided for and recovered in Niagara Mohawk's electric and/or gas rates for National Grid USA Service Co. pension and OPEBs plan costs, and why?

#### Response:

1. (a)-(e) Please refer to Attachment 1a, Sheet 1 for a breakdown by Company for each of the National Grid USA pension plan components requested.

2. (a)-(e) Please refer to Attachment 1a, Sheet 2 for a breakdown by Company for each of the National Grid USA Non-union OPEBs plan components requested.

3. (a)-(d) Please refer to Attachment 1a, Sheet 3 for a breakdown by Company for each of the National Grid USA Union OPEBs plan components requested.

Attachment 1b provides the actuary information supporting each breakdown for parts 1, 2 and 3.

4. The 3.91% reference on Exhibit\_(RRP-2) Schedules 19 and 24, Sheet 8 was not the % allocated to Niagara Mohawk from Keyspan service Company. 4.08% shown on line 6 of the same schedules was the % allocated.

(a)-(d) Attachment 2 provides 1/09/09 Hewitt actuary information for Keyspan Service Company. Pages 47 - 49 show the components which support the pension and OPEB forecast as requested.

(e) Keyspan Service Company costs for pension and OPEB should be allocated to Niagara Mohawk because services are provided by these companies. In referring to Attachment 2, all of Keyspan costs are not included in the base pension/OPEB costs allocated from Keyspan Service Co. Only the appropriate companies are included and the allocation factor is based on labor charged from Keyspan Service companies (431, 432, and 433) to Niagara Mohawk.

5. The Company assumed the same allocation as used in the test year for the rate years. For purposes of this rate filing the company forecasted the amount of rate year pensions and OPEBs costs charged from Keyspan Service Company to Niagara Mohawk only and did not forecast the amount of rate year service company pension and OPEBs charged to all of National Grid's affiliates. The Keyspan Service Company allocation to Niagara Mohawk is 4.00% as shown on Exhibit\_(RRP-10), Workpapers to RRP-2, Schedule 31, Workpaper 12.

6. The 3.91% reference on Exhibit\_(RRP-2) Schedules 19 and 24, Sheet 8 was not the % allocated to Niagara Mohawk from Keyspan service Company. 4.08% shown on line 6 of the same schedules was the % allocated. However, the allocation rate that should have been used was 4.00% for which the support can be found on Exhibit\_(RRP-10), Workpapers to Exhibit\_RRP-2, Schedule 31, Workpaper 12.

7. Refer to Attachment 3 for pension and OPEBs plan costs being allocated from Niagara Mohawk to all affiliated companies including Keyspan and Keyspan Service Companies.

8. Refer to Attachment 4 for a breakdown of National Grid USA Service Company pension and OPEBs plan costs being allocated to all affiliated companies including Keyspan and Keyspan Service Company.

9. The Company currently deposits all amounts recovered through Niagara Mohawk's electric and/or gas rates for pension & OPEB expense directly into the Niagara Mohawk plans. Amounts provided for and recovered for KeySpan Service Co. pension and OPEB plan costs will be treated similar to that of costs recovered for National Grid USA Service Co., whereas rate allowance amounts are deposited only to the Niagara Mohawk plans at this point in time. In the future, rate recoveries for KeySpan Service Co. pension and OPEB plan costs may be directed to the specific plan in which the expense was incurred. The Company anticipates that its funding practice will continue to clearly demonstrate to Commission that funding obligations have been met.

10. Currently, the Company contributes all amounts recovered through Niagara Mohawk's electric and/or gas rates related to National Grid USA Service Co. pension & OPEB costs directly into the Niagara Mohawk plans. This funding practice allows the Company to track cost recoveries and demonstrate to Commission that funding obligations have been met. In the future, rate recoveries for

National Grid USA Service Co. pension and OPEB plan costs may be directed to the specific plan in which the expense was incurred. The Company anticipates that its funding practice will continue to clearly demonstrate to Commission that funding obligations have been met.

Name of Respondent: James Molloy Date of Reply: May 7, 2010

#### Niagar Mohawk Power Corporation <u>d/b/a National grid</u> <u>Caes 10-E-0050</u> <u>Attachment 1a to DAG-38</u>

Sheet 1 of 3

71,185,000

3,900,000

(18,491,000)

74,376,000 (18,491,000)

Part 1

(a) Estimated FAS 87 Pension expense for 4/2010 - 3/2011

(b) Estimated FAS 88 Termination Benefits for 4/2010 - 3/2011

(c) Estimated Regulatory Expense for 4/2010 - 3/2011

			_	56,594,000
	(a)	(b)	(c) –	
Granite State	831,752		(292,000)	539,752
Mass Electric	22,136,408		(6,648,000)	15,488,408
Nantucket Electric	295,999		(38,000)	257,999
Narragansett Electric	9,677,186		(3,767,000)	5,910,186
NE Gas	4,318,522	256,000	4,065,000	8,639,522
NE Power	3,952,676		(2,467,000)	1,485,676
NGUSCO	29,972,457	3,644,000	(9,344,000)	24,272,457
	71,185,000	3,900,000	(18,491,000)	56,594,000

### (d) Estimated FAS 87 Pension expense for 4/2011 - 3/2012

(e) Estimated Regulatory Expense for 4/2011 - 3/2012

		_	55,885,000
	(d)	• (e) =	
Granite State	862,924	(292,000)	570,924
Mass Electric	22,961,912	(6,648,000)	16,313,912
Nantucket Electric	306,984	(38,000)	268,984
Narragansett Electric	10,039,105	(3,767,000)	6,272,105
NE Gas	5,007,234	4,065,000	9,072,234
NE Power	4,104,183	(2,467,000)	1,637,183
NGUSCO	31,093,658	(9,344,000)	21,749,658
	74,376,000	(18,491,000)	55,885,000

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Mari Z National Grid USA - OPEB Non-Union				
(a) Estimated FAS 106 OPEBs Expense for 4/2010 - 3/2011				35.398.000
(b) Estimated FAS 106 Termination Benefits for 4/2010 - 3/2011				62.000
(c) Estimated Regulatory Expense for 4/2010 - 3/2011				5.479.000
			-	40,939,000
			=	<u>_</u>
	(a)	(b)	(c)	
Granite State	432,933	-	97,000	529,933
Mass Electric	7,594,762		3,244,000	10,838,762
Nantucket Electric	69,555		13,000	82,555
Narragansett Electric	3,859,392		1,424,000	5,283,392
NE Gas	3,120,879	5,000	1,074,000	4,199,879
NE Power	1,259,360		(1,282,000)	(22,640)
NGUSCO	19,061,119	57,000	909,000	20,027,119
	35,398,000	62,000	5,479,000	40,939,000
(d) Estimated FAS 106 OPEBs Expense for 4/2011 - 3/2012				36,470,000
(e) Estimated Regulatory Expense for 4/2011 - 3/2012				5,476,000
			-	41,946,000
		( 4 )	( - )	
Cranita State		(0)	(e) 07.000	E 4 4 400
Granile Stale		447,492	97,000	344,492
Mass Electric		7,047,003	3,243,000	11,090,003
		2 090 571	1 424 000	63,390 E 404 E74
		3,900,571	1,424,000	0,404,071 4 201 142
		3,221,142	(1 282 000)	4,301,142
		10 569 970	007 000	40,924
NGUGUU		36 470 000	5 476 000	41 946 000
			5,470,000	41,940,000

Niagar Mohawk Power Corporation
d/b/a National grid
Caes 10-E-0050
Attachment 1a to DAG-38
Sheet 3 of 3

- - .

Part 3

National Grid USA - OPEB Union

<ul> <li>(a) Estimated FAS 106 OPEBs Expense for 4/2010 - 3/2011</li> <li>(b) Estimated Regulatory Expense for 4/2010 - 3/2011</li> </ul>		_	29,808,000 1,559,000 31,367,000
	(a)	(b)	
Granite State	440,845	19,000	459,845
Mass Electric	14,852,932	620,000	15,472,932
Nantucket Electric	60,241	3,000	63,241
Narragansett Electric	7,184,214	273,000	7,457,214
NE Gas	1,730,616	715,000	2,445,616
NE Power	1,075,415	(245,000)	830,415
NGUSCO	4,463,737	174,000	4,637,737
	29,808,000	1,559,000	31,367,000
(d) Estimated FAS 87 Pension expense for 4/2011 - 3/2012			30,875,000
(e) Estimated FAS 88 Termination Benefits for 4/2011 - 3/2012			1,559,000
		_	32,434,000

	(c)	(d)	
Granite State	457,052	19,000	476,052
Mass Electric	15,346,472	621,000	15,967,472
Nantucket Electric	61,288	3,000	64,288
Narragansett Electric	7,404,517	273,000	7,677,517
NE Gas	1,830,473	715,000	2,545,473
NE Power	1,137,380	(246,000)	891,380
NGUSCO	4,637,818	174,000	4,811,818
	30,875,000	1.559.000	32,434,000

# National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - Granite State

	Actual		Estimated			Estimated	Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011	4/2011-3/2012 		4/2012-3/2013
Reconciliation of Funded Status, 4/1									
Projected Benefit Obligation	\$	(17,229,678)	\$	(16,102,439)	\$	(18,567,959)	\$ (18,895,911)	\$	(19,590,349)
Fair Value of Assets		16,806,187		11,894,191		13,575,146	14,182,071		14,837,560
Funded Status	. \$	(423,491)	\$	(4,208,248)	\$	(4,992,813)	\$ (4,713,840)	\$	(4,752,789)
Net Periodic Pension Cost									
Service Cost	\$	265,852	\$	230,315	\$	282,257	\$ 292,136	\$	310,784
Interest Cost		1,086,129		1,131,484		1,115,286	1,135,623		1,140,645
Expected Return on Assets		(1,402,931)		(1,145,673)		(1,155,531)	(1,158,433)		(1,154,598)
Amortization of:									
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0	0		0
Prior Service Cost		23,462		23,462		23,462	23,462		23,462
<ul> <li>Net (Gain) or Loss</li> </ul>		199,565		395,561		566,278	570,136	_	609,452
FAS 87 Pension Expense/(Income)	\$	172,077	\$	635,149	\$	831,752	\$ 862,924	\$	929,745
FAS 88 Special Termination Benefits	\$	0	\$	0	\$	0	\$ 0	\$	0
FAS 88 Curtailment Expense	\$	0	\$	0	\$	0	\$ 0	\$	0
Regulatory Expense/(Income)	\$	(292,225)	\$	(292,000)	\$	(292,000)	\$ (292,000)	\$	(292,000)
Total Pension Expense/(Income)	\$	(120,148)	\$	343,149	\$	539,752	\$ 570,924	\$	637,745
Assumptions:									
Discount Rate		6.50%		7.30%		6.20%	6.20%		6.00%
Expected Return on Assets		8.00%		8.00%		8.00%	8.00%		8.00%
Salary Scale									
Nonunion		4.00%		3.50%		3.50%	3,50%		3.50%
Union		3.50%		3.50%		3.50%	3.50%		3.50%
Mortality Table for Union		RP2000CH		RP2000CH	1	RP2000CH_10	RP2000CH_10	F	RP2000CH_10
Mortality Table for Nonunion	F	RP2000CH_15		RP2000CH_15	1	RP2000CH_20	RP2000CH_20	F	RP2000CH_20

### National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - Mass Electric

8/17/2009

	Actual	 Estimated		Estimated	Estimated	Estimated	Estimated	 Estimated
	4/2008-3/2009	4/2009-3/2010		4/2010-3/2011	4/2011-3/2012	4/2012-3/2013	4/2013-3/2014	 4/2014-3/2015
Reconciliation of Funded Status, 4/1								
Projected Benefit Obligation	\$ (434,649,098)	\$ (406,212,512)	\$	(468,409,609)	\$ (476,682,780)	\$ (494,201,207)	\$ (502,794,823)	\$ (512,214,391)
Fair Value of Assets	423,965,799	300,052,009		342,457,060	357,767,816	374,303,701	392,162,327	411,449,737
Funded Status	\$ (10,683,299)	\$ (106,160,503)	\$	(125,952,549)	\$ (118,914,964)	\$ (119,897,506)	\$ (110,632,496)	\$ (100,764,654)
Net Periodic Pension Cost								
Service Cost	\$ 7,759,510	\$ 6,722,274	\$	8,238,308	\$ 8,526,652	\$ 9,070,938	\$ 9,388,413	\$ 9,716,887
Interest Cost	27,358,441	28,518,952		28,140,752	28,653,813	28,780,480	29,295,671	29,861,219
Expected Return on Assets Amortization of:	(35,391,410)	(28,901,627)		(29,150,313)	(29,223,525)	(29,126,781)	(29,626,477)	(32,421,872)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>	0	0		0	0	0	0	0
Prior Service Cost	622,295	622,295	•	622,295	622,295	622,295	622,295	308,382
<ul> <li>Net (Gain) or Loss</li> </ul>	5,034,375	9,978,719		14,285,366	14,382,677	 15,374,502	14,928,774	 12,222,766
FAS 87 Pension Expense/(Income)	\$ 5,383,211	\$ 16,940,613	\$	22,136,408	\$ 22,961,912	\$ 24,721,434	\$ 24,608,676	\$ 19,687,382
FAS 88 Special Termination Benefits	\$ 1,378,364	\$ 34,000	\$	0	\$ 0	\$ 0	\$ 0	\$ 0
FAS 88 Curtailment Expense	\$ 0	\$ 0	\$	0	\$ · 0	\$ 0	\$ 0	\$ 0
Regulatory Expense/(Income)	\$ (6,648,000)	\$ (6,648,000)	\$	(6,648,000)	\$ (6,648,000)	\$ (6,648,000)	\$ (5,533,000)	\$ (3,858,000)
Total Pension Expense/(Income)	\$ 113,575	\$ 10,326,613	\$	15,488,408	\$ 16,313,912 ——	\$ 18,073,434	\$ 19,075,676	\$ 15,829,382
Assumptions:					·			
Discount Rate	6.50%	7.30%		6.20%	6.20%	6.00%	6.00%	6.00%
Expected Return on Assets	8.00%	8.00%		8.00%	8.00%	8.00%	8.00%	8.00%
Salary Scale								
Nonunion	• 4.00%	3.50%		3.50%	3.50%	3.50%	3.50%	3.50%
Union	3.50%	3.50%		3.50%	3.50%	3.50%	3.50%	3.50%
Mortality Table for Union	RP2000CH	RP2000CH		RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10
Mortality Table for Nonunion	RP2000CH 15	RP2000CH 15		RP2000CH 20	RP2000CH 20	RP2000CH 20	RP2000CH 20	RP2000CH 20

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#### Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 1b to DAG-38 Page 3 of 21

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### National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - Nantucket Electric

8/17/2009

		Actual	Estimated	Estimated	Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009	 4/2009-3/2010	4/2010-3/2011	4/2011-3/2012		4/2012-3/2013		4/2013-3/2014		4/2014-3/2015
Reconciliation of Funded Status, 4/1											
Projected Benefit Obligation	\$	(4,442,463)	\$ (4,151,818)	\$ (4,787,522)	\$ (4,872,080)	\$	(5,051,132)	\$	(5,138,966)	\$	(5,235,242)
Fair Value of Assets		4,333,271	3,066,772	3,500,186	3,656,674		3,825,683		4,008,213		4,205,346
Funded Status	\$	(109,192)	\$ (1,085,046)	\$ (1,287,336)	\$ (1,215,406)	\$	(1,225,449)	\$	(1,130,753)	\$	(1,029,896)
Net Periodic Pension Cost											
Service Cost	\$	147,884	\$ 128,116	\$ 157,009	\$ 162,504	\$	172,877	\$	178,928	\$	185,188
Interest Cost		284,860	293,747	287,222	292,466		293,760		299,030		305,206
Expected Return on Assets		(361,729)	(295,398)	(297,940)	(298,688)		(297,699)		(302,806)		(331,378)
Amortization of:			_	_	-		_				
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0	0	0	0		• 0		0		0
Prior Service Cost		3,700	3,700	3,700	3,700		3,700		3,700		1,834
<ul> <li>Net (Gain) or Loss</li> </ul>		51,455	 101,991	 146,008	 147,002		157,140		152,584		123,347
FAS 87 Pension Expense/(Income)	\$	126,170	\$ 232,156	\$ 295,999	\$ 306,984	\$	329,778	\$	331,436	\$	284,197
FAS 88 Special Termination Benefits	\$	0	\$ 0	\$ 0	\$ 0	\$	0	\$	0	\$	0
FAS 88 Curtailment Expense	\$	0	\$ 0	\$ 0	\$ 0	\$	0	\$	0	\$	0
Regulatory Expense/(Income)	\$	(38,400)	\$ (38,000)	\$ (38,000)	\$ (38,000)	\$	(38,000)	\$	(38,000)	\$	(37,000)
Total Pension Expense/(Income)	\$	87,770	\$ 194,156	\$ 257,999	\$ 268,984	\$	291,778	\$	293,436	\$	247,197
Assumptions:											
Discount Rate		6.50%	7.30%	6.20%	6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		8.00%	8.00%	8.00%	8.00%		8.00%		8.00%		8.00%
Salary Scale											
Nonunion		4.00%	3.50%	3.50%	3.50%		3.50%		3.50%		3.50%
Union		3.50%	3.50%	3.50%	3.50%		3.50%		3.50%		3.50%
Mortality Table for Union		RP2000CH	RP2000CH	RP2000CH_10	RP2000CH_10	1	RP2000CH_10	I	RP2000CH_10	F	RP2000CH_10
Mortality Table for Nonunion	F	RP2000CH_15	RP2000CH_15	RP2000CH_20	RP2000CH_20	I	RP2000CH_20	ſ	RP2000CH_20	F	RP2000CH_20

# National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - Narragansett Electric

		Actual 4/2008-3/2009	Estimated 4/2009-3/2010	_	Estimated 4/2010-3/2011	Estimated 4/2011-3/2012	Estimated 4/2012-3/2013	Estimated 4/2013-3/2014	Estimated 4/2014-3/2015
Reconciliation of Funded Status, 4/1					<u> </u>				
Projected Benefit Obligation	\$	(203,608,728)	\$ (190,287,782)	\$	(219,423,634)	\$ (223,299,151)	\$ (231,505,551)	\$ (235,531,178)	\$ (239,943,717)
Fair Value of Assets		198,604,202	140,557,540		160,421,928	167,594,159	175,340,293	183,706,058	192,741,128
Funded Status	\$	(5,004,526)	\$ (49,730,242)	\$	(59,001,706)	\$ (55,704,992)	\$ (56,165,258)	\$ (51,825,120)	\$ (47,202,589)
Net Periodic Pension Cost									
Service Cost	\$	2,967,961	\$ 2,571,225	\$	3,151,098	\$ 3,261,388	\$ 3,469,574	\$ 3,591,006	\$ 3,716,645
Interest Cost		12,760,717	13,344,471		13,182,638	13,422,977	13,482,315	13,723,724	13,988,306
Expected Return on Assets		(16,578,891)	(13,538,792)		(13,655,287)	(13,689,582)	(13,644,264)	(13,878,343)	(15,187,829)
Amortization of:									
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0	0		0	0	0	0	0
Prior Service Cost		306,844	306,844		306,844	306,844	306,844	306,844	152,059
<ul> <li>Net (Gain) or Loss</li> </ul>		2,358,323	4,674,470		6,691,893	6,737,478	7,202,092	6,993,293	5,733,516
FAS 87 Pension Expense/(Income)	\$	1,814,954	\$ 7,358,218	\$	9,677,186	\$ 10,039,105	\$ 10,816,561	\$ 10,736,524	\$ 8,402,697
FAS 88 Special Termination Benefits	\$	0	\$ 0	\$	0	\$ 0	\$ 0	\$ 0	\$ 0
FAS 88 Curtailment Expense	\$	0	\$ 0	\$	0	\$ 0	\$ 0	\$ 0	\$ 0
Regulatory Expense/(Income)	\$	(3,766,726)	\$ (3,767,000)	\$	(3,767,000)	\$ (3,767,000)	\$ (3,767,000)	\$ (3,224,000)	\$ (1,998,000)
Total Pension Expense/(Income)	\$	(1,951,772)	\$ 3,591,218	\$	5,910,186	\$ 6,272,105	\$ 7,049,561	\$ 7,512,524	\$ 6,404,697
Assumptions:									
Discount Rate		6.50%	7.30%		6.20%	6.20%	6.00%	6.00%	6.00%
Expected Return on Assets		8.00%	8.00%		8.00%	8.00%	8.00%	8.00%	8.00%
Salary Scale								•	
Nonunion		4.00%	3.50%		3.50%	3.50%	3.50%	3.50%	3.50%
Union		3.50%	3.50%		3.50%	3.50%	3.50%	3.50%	3.50%
Mortality Table for Union		RP2000CH	RP2000CH		RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10
Mortality Table for Nonunion	F	RP2000CH_15	RP2000CH_15		RP2000CH_20	RP2000CH_20	RP2000CH_20	RP2000CH_20	RP2000CH_20

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# National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - NE Power

8/1	7/2009	
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	4	Actual 1/2008-3/2009	Estimated 4/2009-3/2010		Estimated 4/2010-3/2011	Estimated 4/2011-3/2012	Estimated 4/2012-3/2013	Estimated 4/2013-3/2014	Estimated 4/2014-3/2015
Reconciliation of Funded Status, 4/1						 41 - F			
Projected Benefit Obligation Fair Value of Assets	\$	(122,593,929) 119,580,676	\$ (114,573,315) 84,630,464	\$	(132,116,171) 96,590,921	\$ (134,449,641) 100,909,360	\$ (139,390,760) 105,573,351	\$ (141,814,612) 110,610,423	\$ (144,471,426) 116,050,488
Funded Status	\$	(3,013,253)	\$ (29,942,851)	\$	(35,525,250)	\$ (33,540,281)	\$ (33,817,409)	\$ (31,204,189)	\$ (28,420,938)
Net Periodic Pension Cost									
Service Cost Interest Cost Expected Return on Assets Amortization of	\$	0 7,690,730 (9,982,2 <b>4</b> 1)	\$ 0 8,010,765 (8,151,780)	\$	0 7,936,974 (8,221,923)	\$ 0 8,081,684 (8,242,573)	\$ 0 8,117,411 (8,215,286)	\$ 0 8,263,515 (8,356,226)	\$ 0 8,422,436 (9,144,675)
<ul> <li>Net Transition Obligation or (Asset)</li> <li>Prior Service Cost</li> <li>Net (Gain) or Loss</li> </ul>		0 208,400 1,419,959	 0 208,400 2,814,524	_	0 208,400 4,029,225	 0 208,400 4,056,672	 0 208,400 4,336,419	0 208, <b>4</b> 00 4,210,700	0 103,274 3,464,332
FAS 87 Pension Expense/(Income)	\$	(663,152)	\$ 2,881,909	\$	3,952,676	\$ 4,104,183	\$ 4,446,944	\$ 4,326,389	\$ 2,845,367
FAS 88 Special Termination Benefits	\$	0	\$ 0	\$	0	\$ 0	\$ 0	\$ 0	\$ 0
FAS 88 Curtailment Expense	\$	0	\$ 0	\$	0	\$ 0	\$ 0	\$ 0	\$ 0
Regulatory Expense/(Income)	\$	(2,467,200)	\$ (2,467,000)	\$	(2,467,000)	\$ (2,467,000)	\$ (2,467,000)	\$ (1,756,000)	\$ (945,000)
Total Pension Expense/(Income)	\$	(3,130,352)	\$ 414,909	\$	1,485,676	\$ 1,637,183	\$ 1,979,944	\$ 2,570,389	\$ 1,900,367
Assumptions:									
Discount Rate		6,50%	7.30%		6.20%	6.20%	6.00%	6.00%	6.00%
Expected Return on Assets		8.00%	8.00%		8.00%	8.00%	8.00%	8.00%	8.00%
Salary Scale									
Nonunion		4.00%	3.50%		3.50%	3.50%	3.50%	3.50%	3.50%
Union		3.50%	3.50%		3.50%	3.50%	3.50%	3.50%	3.50%
Mortality Table for Union		RP2000CH	RP2000CH		RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10
Mortality Table for Nonunion	R	P2000CH_15	RP2000CH_15		RP2000CH_20	 RP2000CH_20	RP2000CH_20	RP2000CH_20_	RP2000CH_20

Hewitt Associates

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### National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - NGUSCO

		Actual 4/2008-3/2009	Estimated 4/2009-3/2010	Estimated 4/2010-3/2011	Estimated 4/2011-3/2012	Estimated 4/2012-3/2013	Estimated 4/2013-3/2014	Estimated 4/2014-3/2015
Reconciliation of Funded Status, 4/1								·····
Projected Benefit Obligation	\$	(555,308,116)	\$ (518,977,506)	\$ (598,440,578)	\$ (609,010,390)	\$ (631,391,949)	\$ (642,371,162)	\$ (654,405,611)
Fair Value of Assets		541,659,123	383,346,742	437,523,478	457,084,515	478,210,777	501,026,976	525,668,590
Funded Status	\$	(13,648,993)	\$ (135,630,764)	\$ (160,917,100)	\$ (151,925,875)	\$ (153,181,172)	\$ (141,344,186)	\$ (128,737,021)
Net Periodic Pension Cost								
Service Cost	\$	11,719,859	\$ 10,153,232	\$ 12,443,030	\$ 12,878,540	\$ 13,700,622	\$ 14,180,133	\$ 14,676,256
Interest Cost		34,853,203	36,662,447	35,952,538	36,608,026	36,769,856	37,428,432	38,150,722
Expected Return on Assets		(45,216,101)	(36,924,747)	(37,242,469)	(37,336,003)	(37,212,404)	(37,850,819)	(41,422,216)
Amortization of:								
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0	0	0	0	0	0	0
Prior Service Cost		568,704	568,704	568,704	568,704	568,704	568,704	281,824
<ul> <li>Net (Gain) or Loss</li> </ul>		6,431,923	12,748,387	18,250,654	18,374,391	 19,641,863	19,072,797	15,500,765
FAS 87 Pension Expense/(Income)	\$	8,357,588	\$ 23,208,023	\$ 29,972,457	\$ 31,093,658	\$ 33,468,641	\$ 33,399,247	\$ 27,187,351
FAS 88 Special Termination Benefits	\$	23,768,829	\$ 7,722,000	\$ 3,644,000	\$ 0	\$ 0	\$ 0	\$ 0
FAS 88 Curtailment Expense	\$	0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Regulatory Expense/(Income)	\$	(9,344,148)	\$ (9,344,000)	\$ (9,344,000)	\$ (9,344,000)	\$ (9,344,000)	\$ (7,357,000)	\$ (3,014,000)
Total Pension Expense/(Income)	\$	22,782,269	\$ 21,586,023	\$ 24,272,457	\$ 21,749,658	\$ 24,124,641	\$ 26,042,247	\$ 24,173,351
Assumptions:								
Discount Rate		6.50%	7.30%	6.20%	6.20%	6.00%	6.00%	6.00%
Expected Return on Assets		8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Salary Scale								
Nonunion		4.00%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Union		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Mortality Table for Union		RP2000CH	RP2000CH	RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10	RP2000CH_10
Mortality Table for Nonunion	I	RP2000CH_15	RP2000CH_15	RP2000CH_20	RP2000CH_20	RP2000CH_20	RP2000CH_20	RP2000CH_20

8/17/2009

### National Grid USA Final Average Pay Pension Plan Estimated FAS 87 Expense - NE Gas

8/17/2009

		Actual 4/2008-3/2009		Estimated 4/2009-3/2010	Estimated 4/2010-3/2011	Estimated 4/2011-3/2012	<u> </u>	Estimated 4/2012-3/2013		Estimated 4/2013-3/2014	Estimated 4/2014-3/2015
Reconciliation of Funded Status, 4/1					 						
Projected Benefit Obligation	\$	(158,269,275)	\$	(147,914,628)	\$ (170,562,528)	\$ (173,575,047)	\$	(179,954,052)	\$	(183,083,255)	\$ (186,513,213)
Fair Value of Assets		154,379,153		109,258,282	124,699,282	130,274,405		136,295,636		142,798,518	 149,821,664
Funded Status	\$	(3,890,122)	\$	(38,656,346)	\$ (45,863,246)	\$ (43,300,642)	\$	(43,658,416)	\$	(40,284,737)	\$ (36,691,549)
Net Periodic Pension Cost											
Service Cost	\$	3,242,237	\$	2,808,838	\$ 3,442,298	\$ 3,562,780	\$	3,790,205	\$	3,922,859	\$ 4,060,109
Interest Cost		9,962,503		10,457,729	10,247,185	10,434,006		10,480,129		10,667,902	10,873,399
Expected Return on Assets		(12,887,115)		(10,523,983)	(10,614,537)	(10,641,196)		(10,605,968)		(10,787,923)	(11,805,813)
Amortization of:									•		
Net Transition Obligation or (Asset)		0		0	0	0		0		0	0
Prior Service Cost		0		0	0	0		0		` <b>0</b>	0
<ul> <li>Net (Gain) or Loss</li> </ul>		193,840		834,348	1,243,576	1,651,644		2,145,532		2,458,069	 2,363,509
FAS 87 Pension Expense/(Income)	\$	511,465	\$	3,576,932	\$ 4.318.522	\$ 5,007,234	\$	5,809,898	\$	6,260,907	\$ 5,491,204
FAS 88 Special Termination Benefits	Ŝ	4,114,895	\$	544,000	\$ 256,000	\$ 0	\$	0	\$	0	\$ 0
FAS 88 Curtailment Expense	\$	0	S	0	\$ 0	\$ 0	\$	0	\$	0	\$ 0
Regulatory Expense/(Income)	\$	4,065,260	\$	4,065,000	\$ 4,065,000	\$ 4,065,000	\$	4,065,000	\$	4,065,000	\$ 4,065,000
Total Pension Expense/(Income)	\$	8,691,620	\$	8,185,932	\$ 8,639,522	\$ 9,072,234	\$	9,874,898	\$	10,325,907	\$ 9,556,204
Assumptions:											
Discount Rate		6.50%		7.30%	6.20%	6.20%		6.00%		6.00%	6.00%
Expected Return on Assets		8.00%		8.00%	8.00%	8.00%		8.00%		8.00%	8.00%
Salary Scale											
Nonunion		4.00%		3.50%	3.50%	3.50%		3.50%		3.50%	3.50%
Union		3.50%		3.50%	3.50%	3.50%		3.50%		3.50%	3.50%
Mortality Table for Union		RP2000CH		RP2000CH	RP2000CH_10	RP2000CH_10		RP2000CH_10		RP2000CH_10	RP2000CH_10
Mortality Table for Nonunion	F	RP2000CH_15		RP2000CH_15	RP2000CH_20	RP2000CH_20		RP2000CH_20		RP2000CH_20	RP2000CH_20

### **National Grid USA** Nonunion Retiree Welfare Plan Estimated FAS 106 Expense - Granite State

8/17/2009

	4	Actual /2008-3/2009	4	Estimated /2009-3/2010	mated Estimated Estimated 3/2010 4/2010-3/2011 4/2011-3/2012		4	Estimated /2012-3/2013	4	Estimated /2013-3/2014	4	Estimated 2014-3/2015		
Reconciliation of Funded Status, 4/1		······································												
Accumulated Postret. Ben. Obligation Fair Value of Assets	\$	(6,250,213) 3,305,430	\$	(6,053,961) 2,227,198	\$	(7,140,392) 2,365,193	\$	(7,266,971) 2,336,464	\$	(7,574,060) 2,290,856	\$	(7,700,769) 2,227,227	\$	(7,823,764) 2,142,875
Funded Status	\$	(2,944,783)	\$	(3,826,763)	\$	(4,775,199)	\$	(4,930,507)	\$	(5,283,204)	\$	(5,473,542)	\$	(5,680,889)
Net Periodic Cost														
Service Cost Interest Cost Expected Return on Assets Amortization of	\$	43,612 393,166 (244,987)	\$	39,663 428,697 (221,414)	\$	54,161 430,994 (214,722)	\$	56,676 438,438 (203,921)	\$	62,009 442,630 (190,609)	\$	64,803 449,380 (178,829)	\$	67,717 455,998 (176,924)
<ul> <li>Net Transition Obligation or (Asset)</li> <li>Prior Service Cost</li> <li>Net (Gain) or Loss</li> </ul>		0 (13,387) 111,406		0 (13,387) 111,970		0 (13,387) 175,887		0 (13,387) 169,686		0 (13,387) 176,649		0 (13,387) 167,543		0 (11,058) 148,519
FAS 106 Expense	\$	289,810	\$	345,529	\$	432,933	\$	447,492	\$	477,292	\$	489,510	\$	484,252
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	97,157	\$	97,000	\$	97,000	\$	97,000	\$	47,000	\$	(132,000)	\$	(123,000)
Total RW Expense	\$	386,967	\$	442,529	\$	529,933	\$	544,492	\$	524,292	\$	357,510	\$	361,252
Assumptions:													•	
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		6.75%		6.75%		6.75%		6.75%		6.75%		6.75%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	R	P2000CH_15	R	P2000CH_15	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20

# National Grid USA Nonunion Retiree Welfare Plan Estimated FAS 106 Expense - Mass Electric

	4,	Actual /2008-3/2009	4	Estimated /2009-3/2010	4	Estimated /2010-3/2011	4	Estimated /2011-3/2012	4	Estimated /2012-3/2013	4	Estimated /2013-3/2014	4	Estimated 2014-3/2015
Reconciliation of Funded Status, 4/1						******				<u>_</u>				
Accumulated Postret. Ben. Obligation	\$(	103,825,113)	\$(	100,565,079)	\$(	118,612,267)	\$(	120,714,920)	\$(	125,816,115)	\$(	127,920,928)	\$(	129,964,047)
Fair Value of Assets		53,496,787		36,996,987		39,289,284		38,812,053		38,054,435		36,997,467		35,596,259
Funded Status	\$	(50,328,326)	\$	(63,568,092)	\$	(79,322,983)	\$	(81,902,867)	\$	(87,761,680)	\$	(90,923,461)	\$	(94,367,788)
Net Periodic Cost														
Service Cost	\$	977,970	\$	889,417	\$	1,214,534	\$	1,270,928	\$	1,390,519	\$	1,453,179	\$	1,518,525
Interest Cost		6,540,990		7,118,889		7,157,058		7,280,687		7,345,740		7,464,767		7,579,225
Expected Return on Assets Amortization of:		(4,066,690)		(3,583,473)		(3,475,180)		(3,300,355)		(3,084,920)		(2,894,255)		(2,863,437)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0
Prior Service Cost		(240,571)		(240,571)		(240,571)		(240,571)		(240,571)		(240,571)		(198,720)
<ul> <li>Net (Gain) or Loss</li> </ul>		1,484,235		1,878,169		2,938,921		2,836,914		2,952,578		2,801,311		2,474,704
FAS 106 Expense	\$	4,695,934	\$	6,062,431	\$	7,594,762	\$	7,847,603	\$	8,363,346	\$	8,584,431	\$	8,510,297
FAS 106 Special Termination Benefits	\$	16,780	\$	6,000	\$	0	\$	0	\$	0	\$	. 0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	- 0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	3,243,240	\$	3,243,000	\$	3,244,000	\$	3,243,000	\$	1,565,000	\$	(3,576,000)	\$	(3,576,000)
Total RW Expense	\$	7,955,954	\$	9,311,431	\$	10,838,762	\$	11,090,603	\$	9,928,346	\$	5,008,431	\$	4,934,297
Assumptions:														
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		6.75%		6.75%		6.75%		6.75%		6.75%		6.75%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	R	P2000CH_15	R	P2000CH_15	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20
Hewitt Associates	1.11	200001_10	. \	. 200001, 10			. \							

# National Grid USA **Nonunion Retiree Welfare Plan**

Estimated FAS 106 Expense - Nantucket Electric \_

	4/:	Actual 2008-3/2009	Estimated Estima 4/2009-3/2010 4/2010-3/2		Estimated 2010-3/2011	Estimated 4/2011-3/2012		4/:	Estimated 2012-3/2013	4/:	Estimated 2013-3/2014	Estimate 4/2014-3/201		
Reconciliation of Funded Status, 4/1														
Accumulated Postret. Ben. Obligation Fair Value of Assets	\$	(566, <b>4</b> 26) 0	\$	(5 <b>4</b> 8,641) 201,840	\$	(647,099) 21 <b>4</b> ,346	\$	(658,570) 211,742	\$	(686,400) 207,609	\$	(697,883) 201,843	\$	(709,029) 194,198
Funded Status	\$	(566,426)	\$	(346,801)	\$	(432,753)	\$	(446,828)	\$	(478,791)	\$	(496,040)	\$	(514,831)
Net Periodic Cost														
Service Cost	\$	12,634	\$	11,490	\$	15,690	\$	16,419	\$	17,964	\$	18,774	\$	19,618
Interest Cost		36,298		38,930		39,138		39,813		40,170		40,816		41,441
Expected Return on Assets Amortization of:		608		0		0		0		0		0		0
Net Transition Obligation or (Asset)		0		0		0		0		0		0		0
Prior Service Cost		(2.038)		(2.038)		(2.038)		(2.038)		(2.038)		(2.038)		(1.683)
Net (Gain) or Loss		15,061		10,973		16,765		16,202		16,834		16,008		14,099
FAS 106 Expense	\$	62,563	\$	59,355	\$	69,555	\$	70,396	\$	72,930	\$	73,560	\$	73,475
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	13,094	\$	13,000	\$	13,000	\$	13,000	\$	13,000	\$	13,000	\$	13,000
Total RW Expense	\$	75,657	\$	72,355	\$	82,555	\$	83,396	\$	85,930	\$	86,560	\$	86,475
Assumptions:														· ,
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		6.75%		6.75%		6.75%		6.75%		6.75%		6.75%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	RP	2000CH_15	RP	2000CH_15	RP	2000CH_20	<u>Ř</u> P	2000CH_20	RP	2000CH_20	RF	2000CH_20	RP	2000CH_20

Hewitt Associates

### National Grid USA Nonunion Retiree Welfare Plan Estimated FAS 106 Expense - Narragansett Electric

Estimated Actual Estimated Estimated Estimated Estimated Estimated 4/2013-3/2014 4/2008-3/2009 4/2009-3/2010 4/2010-3/2011 4/2011-3/2012 4/2012-3/2013 4/2014-3/2015 **Reconciliation of Funded Status, 4/1** \$ (64,656,531) \$ (65,738,188) \$ (66,788,141) Accumulated Postret, Ben, Obligation \$ (53,355,420) \$ (51,680,098) \$ (60,954,495) \$ (62.035.042) Fair Value of Assets 26,507,925 19.012.643 20.190.648 19,945,400 19.556.062 19.012.889 18,292,813 Funded Status \$ (26,847,495) \$ (32,667,455) \$ (45,100,469) \$ (46,725,299) \$ (48,495,328) \$ (40.763.847) \$ (42,089,642) **Net Periodic Cost** 415,419 590.661 617.278 \$ 645.035 Service Cost \$ \$ 377.804 \$ 515,906 S 539.861 \$ \$ Interest Cost 3,354,157 3,657,644 3,678,259 3,741,791 3.774.808 3.836.065 3.894.893 Expected Return on Assets (2.008.960)(1,775,629)(1,721,969)(1.635.342)(1,528,593)(1,434,118)(1,418,848)Amortization of: ٥ 0 0 0 Net Transition Obligation or (Asset) 0 0 0 Prior Service Cost (83,964) (83, 964)(69, 357)(83.964)(83.964)(83.964)(83.964)· Net (Gain) or Loss 1,069,312 925,529 1,471,160 1,418,225 1,477,663 1,399,928 1,238,978 \$ \$ \$ S 4,290,701 FAS 106 Expense \$ 2,745,964 \$ 3,101,384 3,859,392 3.980.571 \$ 4.230.575 4.335.189 FAS 106 Special Termination Benefits \$ ٥ \$ ٥ \$ 0 \$ ٥ \$ ٥ \$ ٥ \$ 0 FAS 106 Curtailment Expense \$ \$ \$ \$ ٥ \$ Δ \$ 0 0 0 ٥ \$ ٥ **Regulatory Expense** \$ 1,424,385 \$ 1,425,000 \$ 1,424,000 \$ 1,424,000 \$ 439,000 \$ (2,325,000)\$ (2,325,000)**Total RW Expense** 4,526,384 5,283,392 5,404,571 4,669,575 \$ 2,010,189 1.965.701 \$ 4,170,349 \$ \$ \$ \$ S Assumptions: 6.00% 6.00% 6.00% **Discount Rate** 6.50% 7.30% 6.20% 6.20% 6.75% 6.75% 6.75% 6.75% 6.75% 6.75% 6.75% Expected Return on Assets Initial Trend - Pre-65 9.00% 8.50% 7.85% 7.20% 6.55% 5.90% 5.25% Initial Trend - Post-65 10.00% 9,50% 8.85% 8.20% 7.55% 6.90% 6.25% 5.00% Ultimate Trend 5.00% 5.00% 5.00% 5.00% 5.00% 5.00% RP2000CH 15 RP2000CH 15 RP2000CH 20 RP2000CH 20 RP2000CH 20 RP2000CH 20 Mortality Table RP2000CH 20

Hewitt Associates

### National Grid USA Nonunion Retiree Welfare Plan Estimated FAS 106 Expense - NE Power

Estimated FAS 106 Exper	nse	- NE Pow	er											8/17/2009
	4	Actual /2008-3/2009	4	Estimated /2009-3/2010	4	Estimated //2010-3/2011	4,	Estimated /2011-3/2012	4	Estimated /2012-3/2013	4	Estimated /2013-3/2014	4	Estimated 2014-3/2015
Reconciliation of Funded Status, 4/1														
Accumulated Postret, Ben. Obligation	\$	(26,521,724)	\$	(25,688,961)	\$	(30,299,045)	\$	(30,836,159)	\$	(32,139,240)	\$	(32,676,906)	\$	(33,198,813)
Fair Value of Assets		19,368,710		9,450,737		10,036,296		9,914,389		9,720,858		9,450,860		9,092,927
Funded Status	\$	(7,153,014)	\$	(16,238,224)	\$	(20,262,749)	\$	(20,921,770)	\$	(22,418,382)	\$	(23,226,046)	\$	(24,105,886)
Net Periodic Cost														
Service Cost	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Interest Cost		1,650,883		1,818,265		1,828,015		1,859,596		1,876,336		1,906,568		1,935,814
Expected Return on Assets		(1,439,992)		(1,297,410)		(1,258,202)		(1,194,906)		(1,116,907)		(1,047,876)		(1,036,718)
Amortization of:														
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0
Prior Service Cost		(18,157)		(18,157)		(18,157)		(18,157)		(18,157)		(18,157)		(14,998)
Net (Gain) or Loss		175,449		436,484		707,704		681,391		710,937_		672,296		596,389
FAS 106 Expense	\$	368,183	\$	939,182	\$	1,259,360	\$	1,327,924	\$	1,452,209	\$	1,512,831	\$	1,480,487
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	(1,282,165)	\$	(1,282,000)	\$	(1,282,000)	\$	(1,282,000)	\$	(1,282,000)	\$	(1,282,000)	\$	(1,282,000)
Total RW Expense	\$	(913,982)	\$	(342,818)	\$	(22,640)	\$	45,924	\$	170,209	\$	230,831	\$	198,487
Assumptions:														
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		6.75%	·	6.75%		6.75%		6.75%		6.75%		6.75%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	R	P2000CH_15	R	P2000CH_15	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20	R	P2000CH_20

### National Grid USA Nonunion Retiree Welfare Plan Estimated FAS 106 Expense - NGUSCO

Estimated FAS 106 Expen	nse - NGUSC	0					8/17/2009
	Actual 4/2008-3/2009	Estimated 4/2009-3/2010	Estimated 4/2010-3/2011	Estimated 4/2011-3/2012	Estimated 4/2012-3/2013	Estimated 4/2013-3/2014	Estimated 4/2014-3/2015
Reconciliation of Funded Status, 4/1	····			·· •			
Accumulated Postret. Ben. Obligation	\$(205,232,015)	\$(198,787,875)	\$(234,461,702)	\$(238,618,338)	\$(248,701,654)	\$(252,862,326)	\$(256,901,206)
Fair Value of Assets	77,588,556	73,132,269	77,663,404	76,720,156	75,222,486	73,133,191	70,363,475
Funded Status	\$(127,643,459)	\$(125,655,606)	\$(156,798,298)	\$(161,898,182)	\$(173,479,168)	\$(179,729,135)	\$(186,537,731)
Net Periodic Cost							
Service Cost	\$ 3,718,762	\$ 3,382,039	\$ 4,618,308	\$ 4,832,748	\$ 5,287,499	\$ 5,525,766	\$ 5,774,245
Interest Cost	13,035,718	14,072,013	14,147,356	14,390,683	14,521,110	14,754,309	14,980,861
Expected Return on Assets Amortization of:	(5,835,734)	(5,197,255)	(5,040,193)	(4,786,638)	(4,474,186)	(4,197,654)	(4,152,960)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>	0	0	0	0	0	0	0
Prior Service Cost	(390,036)	(390,036)	(390,036)	(390,036)	(390,036)	(390,036)	(322,184)
<ul> <li>Net (Gain) or Loss</li> </ul>	4,174,535	3,626,513	5,725,684	5,522,115	5,750,820	5,451,783	4,820,575
FAS 106 Expense	\$ 14,703,245	\$ 15,493,274	\$ 19,061,119	\$ 19,568,872	\$ 20,695,207	\$ 21,144,168	\$ 21,100,537
FAS 106 Special Termination Benefits	\$ 437,383	\$ 176,000	\$ 57,000	\$ 0	\$0	\$0	\$0
FAS 106 Curtailment Expense	\$0	\$0	\$0	\$0	\$0	\$0	<b>\$</b> 0
Regulatory Expense	\$ 915,435	\$ 909,000	\$ 909,000	\$ 907,000	\$ 301,000	\$ (1,805,000)	\$ (1,805,000)
Total RW Expense	\$ 16,056,063	\$ 16,578,274	\$ 20,027,119	\$ 20,475,872	\$ 20,996,207	\$ 19,339,168	\$ 19,295,537
Assumptions:							
Discount Rate	6.50%	7.30%	6.20%	6.20%	6.00%	6.00%	6.00%
Expected Return on Assets	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%
Initial Trend - Pre-65	9.00%	8.50%	7.85%	7.20%	6.55%	5.90%	5.25%
Initial Trend - Post-65	10.00%	9.50%	8.85%	8.20%	7.55%	6.90%	6.25%
Ultimate Trend	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Mortality Table	RP2000CH_15	RP2000CH_15	RP2000CH_20	RP2000CH_20	RP2000CH_20	RP2000CH_20	RP2000CH_20

#### Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 1b to DAG-38 Page 14 of 21

### National Grid USA Nonunion Retiree Welfare Plan Estimated FAS 106 Expense - NE Gas

8/17/2009

		Actual	_	Estimated		Estimated		Estimated		Estimated		Estimated		Estimated				
	4/	2008-3/2009	4	/2009-3/2010	4/	2010-3/2011	4/	2011-3/2012	4	2012-3/2013	4/	2013-3/2014	4/	2014-3/2013				
Reconciliation of Funded Status, 4/1																		
Accumulated Postret. Ben. Obligation	\$	\$ (36,752,384)		\$ (36,752,384)		(36,752,384)		(35,598,385)	\$	(41,987,000)	\$	(42,731,000)	\$ (44,537,000)		\$	(45,282,000)	\$	(46,005,000)
Fair Value of Assets	_	5,476,151	_	13,096,325		13,907,829	_	13,738,797		13,470,694		13,096,523	•	12,600,453				
Funded Status	\$	(31,276,233)	\$	(22,502,060)	\$	(28,079,171)	\$	(28,992,203)	\$	(31,066,306)	2	(32,185,477)	Þ	(33,404,547)				
Net Periodic Cost																		
Service Cost	\$	294,229	\$	267,587	\$	365,401	\$	382,368	\$	418,348	\$	437,200	\$	456,860				
Interest Cost		2,326,017		2,519,715		2,532,333		2,577,145		2,600,359		2,642,248		2,682,768				
Expected Return on Assets		(452,838)		(366,819)		(355,734)		(337,838)		(315,785)		(296,268)		(293,113)				
Amortization of:																		
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0				
<ul> <li>Prior Service Cost</li> </ul>		0		0		0		0		0		0		0				
<ul> <li>Net (Gain) or Loss</li> </ul>		179,271		341,362		578,879		605,467		686,519		698,131		666,736				
FAS 106 Expense	\$	2,346,679	\$	2,761,845	\$	3,120,879	\$	3,227,142	\$	3,389,441	\$	3,481,311	\$	3,513,251				
FAS 106 Special Termination Benefits	\$	51,093	\$	6,000	\$	5,000	\$	0	\$	0	\$	0	\$	0				
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0				
Regulatory Expense	\$	1,073,838	\$	1,074,000	\$	1,074,000	\$	1,074,000	\$	1,074,000	\$	1,074,000	\$	1,074,000				
Total RW Expense	\$	3,471,610	\$	3,841,845	\$	4,199,879	\$	4,301,142	\$	4,463,441	\$	4,555,311	\$	4,587,251				
Assumptions																		
Discount Rate		6 50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%				
Expected Return on Assets		6.75%		6.75%		6.75%		6.75%		6.75%		6,75%		6.75%				
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%				
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%				
Ultimate Trend		5.00%		5.00%	•	5.00%		5.00%		5.00%		5.00%		5.00%				
Mortality Table	RF	2000CH_15	R	P2000CH_15	RF	2000CH_20	R	2000CH_20	RI	2000CH_20	RF	2000CH_20	R	2000CH_20				
# National Grid USA Union Retiree Welfare Plan Estimated FAS 106 Expense - Granite State

8/17/2009

	4	Actual /2008-3/2009	4	Estimated /2009-3/2010	4	Estimated /2010-3/2011	. 4	Estimated /2011-3/2012	4	Estimated 2012-3/2013	4	Estimated /2013-3/2014	4,	Estimated /2014-3/2015
Reconciliation of Funded Status, 4/1														
Accumulated Postret. Ben. Obligation	\$	(5,495,581) 3 799 952	\$	(5,251,434) 2 274 174	\$	(6,302,608) 2 486 403	\$	(6,433,102) 2 546 678	\$	(6,724,411) 2 597 306	\$	(6,853,993) 2,636,025	\$	(6,979,853) 2,661,851
Funded Status	\$	(1,695,629)	\$	(2,977,260)	\$	(3,816,205)	\$	(3,886,424)	\$	(4,127,105)	\$	(4,217,968)	\$	(4,318,002)
Net Periodic Cost														
Service Cost	\$	93,723	\$	86,471	\$	117,422	\$	122,882	\$	133,974	\$	140,010	\$	146,316
Interest Cost		350,290		373,085		381,379		389,074		394,130		401,112		407,941
Expected Return on Assets Amortization of:		(337,994)		(239,170)		(238,389)		(231,447)		(220,147)		(214,392)		(233,715)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0
Prior Service Cost		(8,091)		(8,091)		(8,091)		(8,091)		(8,091)		(8,091)		(8,086)
<ul> <li>Net (Gain) or Loss</li> </ul>		79,588		132,808		188,524		184,634		192,867		184,483		155,964
FAS 106 Expense	\$	177,516	\$	345,103	\$	440,845	\$	457,052	\$	492,733	\$	503,122	\$	468,420
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	18,597	\$	18,600	\$	19,000	\$	19,000	\$	9,000	\$	(25,000)	\$	(23,000)
Total RW Expense	\$	196,113	\$	363,703	\$	459,845	\$	476,052	\$	501,733	\$	478,122	\$	445,420
Assumptions:														
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		8.25%		8.25%		8.25%		8.25%		8.25%		8.25%		8.25%
Initial Trend - Pre-65		<b>9</b> .00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table		RP2000CH		RP2000CH	R	P2000CH_10	R	P2000CH_10	R	2000CH_10	R	P2000CH_10	R	P2000CH_10

# National Grid USA **Union Retiree Welfare Plan** Estimated FAS 106 Expense - Mass Electric

8/17/2009

	4/20	Actual 008-3/2009	4	Estimated /2009-3/2010	4	Estimated /2010-3/2011	4	Estimated /2011-3/2012	4,	Estimated /2012-3/2013	. 4	Estimated /2013-3/2014	4.	Estimated /2014-3/2015
Reconciliation of Funded Status, 4/1														
Accumulated Postret. Ben. Obligation	\$(18	8,189,576)	\$(	179,829,041)	\$(	215,825,243)	\$(	220,293,870)	\$(	230,269,411)	\$(	234,706,778)	\$(	239,016,704)
Fair Value of Assets	11	9,905,893		77,876,352		85,143,882		87,207,953		88,941,638		90,267,509		91,151,905
Funded Status	\$ (6	8,283,683)	\$(	101,952,689)	\$(	130,681,361)	\$(	133,085,917)	\$(	141,327,773)	\$(	144,439,269)	\$(	147,864,799)
Net Periodic Cost														
Service Cost	\$ .	2,491,923	\$	2,299,107	\$	3,122,042	\$	3,267,206	\$	3,562,134	\$	3,722,632	\$	3,890,286
Interest Cost	1	1,913,237		12,758,793		13,057,278		13,319,816		13,477,312		13,726,950		13,969,330
Expected Return on Assets Amortization of:	(1	0,545,851)		(7,546,907)		(7,522,252)		(7,303,198)		(6,946,644)		(6,765,048)		(7,374,794)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0
Prior Service Cost		(259,924)		(259,924)		(259,924)		(259,924)		(259,924)		(259,924)		(259,924)
<ul> <li>Net (Gain) or Loss</li> </ul>		2,393,075		4,547,853		6,455,788		6,322,572		6,604,493		6,317,403		5,340,800
FAS 106 Expense	\$	5,992,460	\$	11,798,922	\$	14,852,932	\$	15,346,472	\$	16,437,371	\$	16,742,013	\$	15,565,698
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	620,760	\$	620,800	\$	620,000	\$	621,000	\$	299,000	\$	(684,000)	\$	(684,000)
Total RW Expense	\$	6,613,220	\$	12,419,722	\$	15,472,932	\$	15,967,472	\$	16,736,371	\$	16,058,013	\$	14,881,698
Assumptions:														
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		8.25%		8.25%		8.25%		8.25%		8.25%		8.25%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	RP2	000CH_15		RP2000CH	R	P2000CH_10								

Hewitt Associates

# National Grid USA Union Retiree Welfare Plan Estimated FAS 106 Expense - Narragansett Electric

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8/17/2009

	4	Actual /2008-3/2009	4	Estimated /2009-3/2010	4,	Estimated /2010-3/2011	4,	Estimated /2011-3/2012	4	Estimated 2012-3/2013	4,	Estimated 2013-3/2014	4/	Estimated 2014-3/2015
Reconciliation of Funded Status, 4/1														
Accumulated Postret. Ben. Obligation	\$	(89,490,048)	\$	(85,514,351)	\$(	102,631,674)	\$(	104,756,646)	\$(	109,500,329)	\$(	111,610,436)	\$(*	13,659,941)
Fair Value of Assets		52,690,296		37,032,649		40,488,587		41,470,117		42,294,539	_	42,925,033		43,345,590
Funded Status	\$	(36,799,752)	\$	(48,481,702)	\$	(62,143,087)	\$	(63,286,529)	\$	(67,205,790)	\$	(68,685,403)	\$	(70,314,351)
Net Periodic Cost														
Service Cost	\$	1,065,547	\$	983,099	\$	1,334,986	\$	1,397,058	\$	1,523,169	\$	1,591,798	\$	1,663,487
Interest Cost		5,650,421		6,051,430		6,192,589		6,317,910		6,392,801		6,511,986		6,627,245
Expected Return on Assets Amortization of:		(4,656,962)		(3,316,340)		(3,305,506)		(3,209,247)		(3,052,567)		(2,972,768)		(3,240,709)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0
Prior Service Cost		(107,785)		(107,785)		(107,785)		(107,785)		(107,785)		(107,785)		(107,785)
<ul> <li>Net (Gain) or Loss</li> </ul>		1,424,838		2,162,647		3,069,930		3,006,581		3,140,644		3,004,123		2,539,718
FAS 106 Expense	\$	3,376,059	\$	5,773,051	\$	7,184,214	\$	7,404,517	\$	7,896,262	\$	8,027,354	\$	7,481,956
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	272,636	\$	272,600	\$	273,000	\$	273,000	\$	84,000	\$	(445,000)	\$	(445,000)
Total RW Expense	\$	3,648,695	\$	6,045,651	\$	7,457,214	\$	7,677,517	\$	7,980,262	\$	7,582,354	\$	7,036,956
Assumptions:														
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		8.25%		8.25%		8.25%		8.25%		8.25%		8.25%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	RI	P2000CH_15		RP2000CH	R	P2000CH_10	RI	P2000CH_10	R	2000CH_10	RI	2000CH_10	R	2000CH_10
Hewitt Associates														

# National Grid USA Union Retiree Welfare Plan Estimated FAS 106 Expense - NE Power

8/17/2009

	4,	Actual /2008-3/2009	4/	Estimated 2009-3/2010	4	Estimated /2010-3/2011	4/	Estimated 2011-3/2012	4	Estimated /2012-3/2013	4	Estimated /2013-3/2014	4/	Estimated 2014-3/2015
Reconciliation of Funded Status, 4/1				<u></u>										
Accumulated Postret. Ben. Obligation	\$	(25,137,136)	\$	(24,020,390)	\$	(28,828,528)	\$	(29,425,418)	\$	(30,757,886)	\$	(31,350,601)	\$	(31,926,293)
Fair Value of Assets		23,842,553		10,402,215		11,372,964		11,648,669		11,880,244		12,057,345		12,175,477
Funded Status	\$	(1,294,583)	\$	(13,618,175)	\$	(17,455,564)	\$	(17,776,749)	\$	(18,877,642)	\$	(19,293,256)	\$	(19,750,816)
Net Periodic Cost														
Service Cost	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	· 0
Interest Cost		1,566,411		1,676,425		1,715,788		1,751,989		1,771,931		1,829,405		1,861,780
Expected Return on Assets Amortization of:		(1,987,815)		(1,500,656)		(1,495,754)		(1,452,196)		(1,381,298)		(1,369,195)		(1,489,439)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		0
Prior Service Cost		(6,941)		(6,941)		(6,941)		(6, <del>94</del> 1)		(6,941)		(6,941)		(6,941)
Net (Gain) or Loss		628,783		607,472		862,322		844,528		882,185		843,837		713,389
FAS 106 Expense	\$	200,438	\$	776,300	\$	1,075,415	\$	1,137,380	\$	1,265,877	\$	1,297,106	\$	1,078,789
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	(245,435)	\$	(245,400)	\$	(245,000)	\$	(246,000)	\$	(245,000)	\$	(245,000)	\$	(246,000)
Total RW Expense	\$	(44,997)	\$	530,900	\$	830,415	\$	891,380	\$	1,020,877	\$	1,052,106	\$	832,789
Assumptions:														
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		8.25%		8.25%		8.25%		8.25%		8.25%		8.25%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.5 <u></u> 5%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	R	P2000CH_15		RP2000CH	R	P2000CH_10	RF	2000CH_10	R	P2000CH_10	R	P2000CH_10	R	2000CH_10
Hewitt Associates														

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# National Grid USA Union Retiree Welfare Plan Estimated FAS 106 Expense - NGUSCO

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8/17/2009

		Actual	4	Estimated	4	Estimated		Estimated	A	Estimated	А	Estimated	A	Estimated
			-	/2009-5/2010		/2010-3/2011		2011-3/2012	-	2012-3/2013		/2013-3/2014		
Reconciliation of Funded Status, 4/1														
Accumulated Postret. Ben. Obligation	\$	(58,449,050)	\$	(55,852,385)	\$	(67,032,302)	\$	(68,420,195)	\$	(71,518,458)	\$	(72,896,642)	\$	(74,235,245)
Fair Value of Assets		43,020,605		24,187,306		26,444,499		27,085,570		27,624,028		28,035,826		28,310,507
Funded Status	\$	(15,428,445)	\$	(31,665,079)	\$	(40,587,803)	\$	(41,334,625)	\$	(43,894,430)	\$	(44,860,816)	\$	(45,924,738)
Net Periodic Cost														
Service Cost	\$	944,309	\$	871,242	\$	1,183,092	\$	1,238,102	\$	1,349,864	\$	1,410,684	\$	1,474,216
Interest Cost		3,715,696		3,974,622		4,067,077		4,148,929		4,197,089		4,276,120		4,350,643
Expected Return on Assets Amortization of:		(3,776,880)		(2,707,728)		(2,698,882)		(2,620,288)		(2,492,362)		(2,427,207)		(2,645,976)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0		.0
Prior Service Cost		(92,627)		(92,627)		(92,627)		(92,627)		(92,627)		(92,627)		(92,627)
<ul> <li>Net (Gain) or Loss</li> </ul>		645,658		1,412,499		2,005,077		1,963,702		2,051,263		1,962,097		1,658,778
FAS 106 Expense	\$	1,436,156	\$	3,458,008	\$	4,463,737	\$	4,637,818	\$	5,013,227	\$	5,129,067	\$	4,745,034
FAS 106 Special Termination Benefits	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	175,221	\$	174,000	\$	174,000	\$	174,000	\$	58,000	\$	(346,000)	\$	(346,000)
Total RW Expense	\$	1,611,377	\$	3,632,008	\$	4,637,737	\$	4,811,818	\$	5,071,227	\$	4,783,067	\$	4,399,034
Assumptions														
Discount Rate		6.50%		7 30%		6 20%		6 20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		8.25%		8 25%		8.25%		8 25%		8.25%		8 25%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	R	P2000CH 15		RP2000CH	RI	P2000CH 10	R	2000CH 10	R	P2000CH 10	R	P2000CH 10	R	2000CH 10
Hewitt Associates		<b>*</b>		1.1.1.1		a na ar ar an an Atta								

# National Grid USA Union Retiree Welfare Plan Estimated FAS 106 Expense - Nantucket Electric

8/17/2009

	<b>A</b> /	Actual	 Estimated		Estimated	A/2	Estimated		Estimated		Estimated	4/:	Estimated
		2000-012003	 2003-0/2010								2010-0/2014		
Reconciliation of Funded Status, 4/1			 										
Accumulated Postret. Ben. Obligation Fair Value of Assets	\$	(437,041) 0	\$ (417,625) 180,856	\$	(501,221) 197,734	\$	(511,599) 202,527	\$	(534,766) 206,554	\$	(545,071) 209,633	\$	(555,080) 211,686
Funded Status	\$	(437,041)	\$ (236,769)	\$	(303,487)	\$	(309,072)	\$	(328,212)	\$	(335,438)	\$	(343,394)
Net Periodic Cost													
Service Cost	\$	12,790	\$ 11,800	\$	16,024	\$	16,769	\$	18,283	\$	19,107	\$	19,968
Interest Cost		28,083	28,985		29,176		29,788		30,152		30,734		31,296
Expected Return on Assets Amortization of:		454	0		0		0		0		0		0
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0	0		0		· 0		0		0		0
Prior Service Cost		48	48		48		48		48		48		48
<ul> <li>Net (Gain) or Loss</li> </ul>		(1,508)	10,562		14,993		14,683		15,338		14,671		12,403
FAS 106 Expense	\$	39,867	\$ 51,395	\$	60,241	\$	61,288	\$	63,821	\$	64,560	\$	63,715
FAS 106 Special Termination Benefits	\$	0	\$ 0	\$	0	\$	0	\$	0	\$	0	\$	0
FAS 106 Curtailment Expense	\$	0	\$ 0	\$	0	\$	0	\$	0	\$	0	\$	0
Regulatory Expense	\$	2,506	\$ 2,500	\$	3,000	\$	3,000 -	\$	3,000	\$	3,000	\$	3,000
Total RW Expense	\$	42,373	\$ 53,895	\$	63,241	\$	64,288	\$	66,821	\$	67,560	\$	66,715
				·····									
Assumptions:													
Discount Rate		6.50%	7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%	8.25%		8.25%		8.25%		8.25%		8.25%		8.25%
Initial Trend - Pre-65		9.00%	8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%	9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%	5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	RP	2000CH_15	RP2000CH	RP	2000CH_10	RP	2000CH_10	RP	2000CH_10	RP	2000CH_10	RP	2000CH_10

# National Grid USA Union Retiree Welfare Plan Estimated FAS 106 Expense - NE Gas

8/17/2009

	4/:	Actual 2008-3/2009	4/	Estimated 2009-3/2010	4/	Estimated 2010-3/2011	4,	Estimated /2011-3/2012	4/	Estimated 2012-3/2013	4/	Estimated 2013-3/2014	4/	Estimated 2014-3/2015
Reconciliation of Funded Status, 4/1				- <u></u>			<u></u>							
Accumulated Postret. Ben. Obligation Fair Value of Assets	\$ (	(24,120,347) 9,631,334	\$	(23,048,773) 9,981,449	\$	(27,662,423) 10,912,931	\$	(28,235,169) 11,177,484	\$	(29,513,739) 11,399,692	\$	(30,082,478) 11,569,629	\$	(30,634,883) <u>11,682,982</u>
Funded Status	<b>\$</b> (	(14,489,013)	Þ	(13,067,324)	\$	(16,749,492)	2	(17,057,685)	\$	(18,114,047)	Ð.	(18,512,849)	Э	(18,951,901)
Net Periodic Cost														
Service Cost Interest Cost Expected Return on Assets	\$	266,936 1,527,165 (905,320)	\$	246,281 1,601,980 (606,199)	\$	334,434 1,641,035 (604,218)	\$	349,984 1,674,813 (586,623)	\$	381,577 1,694,906 (557,983)	\$	398,770 1,727,019 (543,396)	\$	416,729 1,758,086 (592,374)
Net Transition Obligation or (Asset)     Prior Service Cost     Net (Gain) or Loss		0 0 124,960		0 0 253,159		0 0 359,365		0 0 392,299		0 0 452,209		0 0 473,385	a.	0 0 434,947
FAS 106 Expense	\$	1,013,741	\$	1,495,221	\$	1,730,616	\$	1,830,473	\$	1,970,709	\$	2,055,778	\$	2,017,388
FAS 106 Special Termination Benefits FAS 106 Curtailment Expense Regulatory Expense	ֆ Տ Տ	0 715,892	3 \$ \$	0 0 715,900	5 \$ \$	0 0 715,000	5 \$ \$	0 0 715,000	5 \$ \$	0 715,000	5 \$ \$	0 0 715,000	ֆ \$ \$	0 715,000
Total RW Expense	\$	1,729,633	\$	2,211,121	\$	2,445,616	\$	2,545,473	\$	2,685,709	\$	2,770,778	\$	2,732,388
Assumptions:										·				
Discount Rate		6.50%		7.30%		6.20%		6.20%		6.00%		6.00%		6.00%
Expected Return on Assets		6.75%		8.25%		8.25%		8.25%		8.25%		8.25%		8.25%
Initial Trend - Pre-65		9.00%		8.50%		7.85%		7.20%		6.55%		5.90%		5.25%
Initial Trend - Post-65		10.00%		9.50%		8.85%		8.20%		7.55%		6.90%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table	RP	2000CH_15		RP2000CH	RF	2000CH_10	R	2000CH_10	RF	2000CH_10	RF	2000CH_10	RF	2000CH_10

### National Grid USA Estimated US GAAP Expense Under FAS 87/106 Current and 5 Year Projection

		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Estimated FAS 87/106 Ongoing Expense												
KeySpan Retirement Plan (NY & NE)	S	16,772,525	\$	79,944,000	s	77,833,000	\$	75,266,000	\$	72,362,000	s	69,256,000
Retirement Income Plan (LI)		30,611,913		87,248,000		82,041,000		80,298,000		78,250,000		76,060,000
NonQualified Pension Plans		10,547,055		10,185,000		9,761,000		9,545,000		9,291,000		8,997,000
Subtotal KeySpan Pension Plans	S	\$7,931,493	\$	177,377,000	\$	169,635,000	\$	165,109,000	S	159,903,000	S	154,313,000
KeySpan Medical (NY Union)	s	7,279,883	s	10,546,000	s	9,274,000	\$	7,910,000	s	6,446,000	\$	4,876,000
KeySpan Medical (NY Management)		8,467,215		10,602,000		10,482,000		10,292,000		10,090,000		9,882,000
KeySpan Medical (NY Unfunded)		660,980		663,000		664,000		662,000		657,000		650,000
KeySpan Medical (LI Union)		28,170,462		39,664,000		41,836,000		44,211,000		46,805,000		49,634,000
KeySpan Medical (L1 Management)		16,719,236		20,743,000		21,451,000		22,265,000		23,136,000		24,075,000
KeySpan Medical (L1 Unfunded)		419,829		424,000		426,000		428,000		429,000		428,000
KeySpan Medical (Boston Gas Union)		5,126,507		5,140,000		4,909,000		4,665,000		4,405,000		4,130,000
KeySpan Medical (All Others)		4,459,236		4,536,000		4,551,000		4,552,000		4,545,000		4,535,000
Subtotal KeySpan Medical Plans	S	71,303,348	\$	92,318,000	S	93,593,000	S	94,985,000	\$	96,513,000	\$	9 <b>8,210,00</b> 0
KeySpan Life (NY Union)	s	334,012	\$	1,397,000	\$	1,456,000	\$	1,519,000	\$	1,589,000	\$	1,664,000
KeySpan Life (NY Management)		405,027		969,000		1,014,000		1,064,000		1,117,000		1,174,000
KeySpan Life (NY Unfunded)		715,410		718,000		717,000		714,000		708,000		701,000
KeySpan Life (L1 Union)		(411,917)		3,542,000		3,614,000		3,694,000		3,783,000		3,881,000
KeySpan Life (LI Management)		1,035,165		2,092,000		2,209,000		2,336,000		2,476,000		2,627,000
KeySpan Life (LI Unfunded)		1,087,440		1,120,000		1,153,000		1,186,000		1,219,000		1,253,000
Subtotal KeySpan Life Plans	s	3,165,137	s	9,838,000	\$	10,163,000	\$	10,513,000	S	10,892,000	S	11,300,000
Estimated One-time FAS 88 Expense - Pension	\$	21,613,000	\$	15,624,000	\$	5,208,000	\$	0	\$	0	\$	0
Estimated One-time FAS 106 Expense - Medical	S	537,000	\$	493,000	\$	165,000	\$	0	\$	0	\$	0
Estimated One-time FAS 106 Expense - Life	\$	0	\$	0	\$	0	\$	0	S	0	\$	0
Total Expense for Pension	s	79,544,493	s	193,001,000	s	174,843,000	s	165,109,000	S	159,903,000	\$	154,313,000
Total Expense for Medical	S	71,840,348	S	92,811,000	S	93,758,000	S	94,985,000	\$	96,513,000	\$	<b>98,210,</b> 000
Total Expense for Life	S	3,165,137	\$	9,838,000	\$	10,163,000	\$	10,513,000	S	10,892,000	\$	11,300,000
Grand Total FAS Expense	S .	154,549,978	s	295,650,000	S	278,764,000	s	270,607,000	\$	267,308,000	\$	263,823,000
Howiti Associates				279,533,000	<u>s</u>	273,391,000	s	270,607,000	\$	267,308,000	s	263,823,000

#### National Grid USA Estimated US GAAP Expense Under FAS 87/106 **Current and 5 Year Projection**

01/09/2009

			Actual		Estimated		Estimated		Estimated		Estimated		Estimated
			4/2008-3/2009	4/	2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Estimated FAS 87/106 Expense - Busine	ss Unit Allocatio	005											
KeySpan Energy Delivery NY	BUG	S	11,055,654	\$	39,232,154	\$	37,529,713	. \$	35,605,747	S	33,490,821	\$	31,228,519
KeySpan Energy Delivery Ll	BUL		11,233,709		23,435,519		23,156,151		23,429,058		23,706,079		24,015,821
KeySpan Electric Services LLC	ESV		18,606,973		37,260,827		36,761,474		37,176,083		37,592,933		38,057,545
KeySpan Energy Trading Services LLC	TEG		196,830	•	453,556		439,162		434,689		429,297		423,676
KeySpan Generation LLC	GEN		7,019,311		14,049,952		13,888,445		14,064,935		14,244,784		14,444,942
KeySpan Corporate Services LLC*	CSV		47,464,271	1	118,197,626		105,219,044		98,912,071		97,782,921		96,577,909
KeySpan Utility Services LLC	USV		4,324,494		11,734,941		11,395,199		11,142,424		10,856,414		10,553,208
KeySpan Engineering and Survey	KEC		12,613,794		20,876,663		20,753,730		21,071,604		21,392,717		21,739,005
KeySpan Energy Management Inc	KEM		191,751		345,967		339,107		331,114		322,046		312,368
KeySpan Energy Services Inc.	KES		11,246		68,880		65,833		62,191		58,193		53,962
KeySpan Energy Solutions Inc.	KSL		1,959,283		3,637,511		3,564,273		3,489,052		3,403,849		3,312,413
KeySpan Energy Supply LLC	KSP		(1,124)		· 107,001		106,200		106,983		107,676		108,391
KeySpan Communications	KCM		193,780		304,100		299,270		300,888		302,226		303,648
KeySpan Services, Inc.	KSI		198,641		519,642		516,900		515,618		513,239		510,427
KS Plumbing & Heating Solutions LLC	PHL		74,037		62,219		63,246		64,188		65,072		65,943
KS Plumbing & Heating Services Inc.	PHV		39,670		62,372		62,499		63,384		64,245		65,129
KeySpan Plumbing Solutions Inc.	PSL		134,798		109,846		109,880		109,678		109,306		108,832
KeySpan Home Energy Services NE	KHS		30,740		149,530		145,637		140,872		135,478		129,710
KeySpan Corporate Services LLC (KSI)	KSCSV		93,274		169,104		168,888		168,139		167,080		165,886
KeySpan Ravenswood Services Corp	RAV		2,074,251		0		0		0		0		0
KeySpan Northeast Ventures	KNEV		38,786		35,320		33,598		32,656		31,566		30,319
Seneca	SEN		45,634		67,959		68,619		69,161		69,634		70,092
Boston Gas	BGC		10,651,981		16,734,066		16,251,828		15,725,356		15,138,078		14,508,120
Colonial Gas (excluding Transgas)	COL		2,162,574		4,592,822		4,453,168		4,298,802		4,123,989		3,936,294
Transgas	TG		240,747		463,348		458,031		453,010		446,777		439,802
Algonquin	ALG		34,446		66,472		65,868		64,998		63,948		62,801
EnergyNorth	ENH		1,019,049		1,859,557		1,806,142		1,746,034		1,677,989		1,604,845
Essex Gas	ESX		691,378		1,053,046	_	1,042,095		1,028,265		1,011,643	<u>·</u>	993,393
Total Expense		\$	132,399,978 **	<b>s</b> 2	295,650,000	s	278,764,000	\$	270,607,000	\$	267,308,000	\$	263,823,000

\* Includes FAS 88 special termination benefit charges

\*\* Excludes FAS 88 special termination benefit charges

Hewitt Associates

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#### National Grid USA Estimated US GAAP Expense Under FAS 87/106 **Current and 5 Year Projection**

		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Assumptions:												
Discount Rate		6.50%		6.50%		6.50%		6.50%		6,50%		6.50%
Salary Scale												
Union Participants		4.00%		4.00%		4.00%		4.00%		4.00%		4,00%
Nonunion Participants		4.00%		4,00%		4,00%		4.00%		4.00%		4.00%
Expected Return on Assets												
Pension Plans	•	8.00%		8,00%		8.00%		8.00%		8.00%		8.00%
Retiree Welfare Life		8.00%		8.00%		8,00%		8,00%		8,00%		8.00%
Retiree Welfare Medical Non-Union		6.00%		6.00%		6.00%		6.00%		6.00%		6.00%
Retiree Welfare Medical Union		8.00%		8.00%		8.00%		8,00%		8.00%		8.00%
Actual Return on Assets for Projection							-					
Pension Plans		-22.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Retiree Welfare Life		-25.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Retiree Welfare Medical Non-Union		-27,00%		6.00%		6,00%		6.00%		6.00%		6.00%
Retiree Welfare Medical Union		-22.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Initial Trend												
Pre-65 Medical		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Post-65 Medical		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table												
Union Participants		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Nonunion Participants		RP2000CH 15		RP2000CH 15		RP2000CH 15		RP2000CH 15		RP2000CH 15		RP2000CH 15
Expected Contribution to the Trusts		-		-		-		-				-
KeySpan Retirement Plan (NY & NE)	\$	105,902,107 •	\$	68,600,000	\$	68,400,000	\$	68,400,000	\$	68,400,000	\$	68,400,000
Retirement Income Plan (L1)	\$	88,767,648 **	\$	175,900,000	\$	70,000,000	\$	70,000,000	\$	70,000,000	\$	70,000,000
KeySpan Medical (NY Union)	\$	18,000,000	\$	24,000,000	\$	24,000,000	\$	24,000,000	\$	24,000,000	S	24,000,000
KeySpan Medical (NY Management)	\$	5,000,000	\$	12,000,000	\$	14,000,000	\$	14,000,000	\$	14,000,000	S	14,000,000
KeySpan Medical (LI Union)	\$	0	S	10,000,000	\$	10,000,000	S	10,000,000	\$	10,000,000	s	10,000,000
KeySpan Medical (LI Management)	\$	5,000,000	\$	12,000,000	S	10,000,000	S	10,000,000	S	10,000,000	\$	10,000,000
KeySpan Medical (Boston Gas Union)	\$	8,600,000	\$	8,600,000	\$	8,600,000	\$	8,600,000	<u>s</u>	8,600,000	<u>s</u>	8,600,000
Total	\$	231,269,755	s	311,100,000	\$	205,000,000	\$	205,000,000	5	205,000,000	\$	205,000,000
Expected Payments from Corporate Assets	\$	18,553,000	s	27,794,000	\$	20,575,000	\$	21,294,000	s	21,891,000	\$	22,432,000
Expected Medicare Part D Subsidy	S	3,810,000	\$	4,127,000	\$	4,439,000	\$	4,744,000	\$	5,038,000	\$	5,316,000

\* Includes an additional \$22.5 million contribution which is the amount that was spun-off as a result of the Ravenswood sale.

\*\* Includes an additional \$3.8 million contribution which is the amount that was spun-off as a result of the Ravenswood sale.

Hewitt Associates

01/09/2009

Summary - (3)

#### National Grid USA Estimated Expense Excluding Medicare Part D Subsidy Current and 5 Year Projection

01/09/2009

		Actual		Estimated								
· · · · · · · · · · · · · · · · · · ·		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Estimated Ongoing Expense												
KeySpan Retirement Plan (NY & NE)	s	16,772,525	\$	79,944,000	\$	77,833,000	s	75,266,000	\$	72,362,000	\$	69,256,000
Retirement Income Plan (LI)		30,611,913		87,248,000		82,041,000		80,298,000		78,250,000		76,060,000
NonQualified Pension Plans		10,547,055		10,185,000		9,761,000		9,545,000		9,291,000		8,997,000
Subtotal KeySpan Pension Plans	\$	57,931,493	\$	177,377,000	\$	169,635,000	S	165,109,000	5	159,903,000	\$	154,313,000
KeySpan Medical (NY Union)	\$	8,607,312	s	11,946,000	\$	10,751,000	\$	9,466,000	\$	8,086,000	\$	6,602,000
KeySpan Medical (NY Management)		9,210,507		11,382,000		11,301,000		11,150,000		10,988,000		10,822,000
KeySpan Medical (NY Unfunded)		690,562		694,000		695,000		694,000		689,000		684,000
KeySpan Medical (LI Union)		32,552,638		44,265,000		46,662,000		49,269,000		52,105,000		55,183,000
KeySpan Medical (LI Management)		18,742,081		22,846,000		23,634,000		24,528,000		25,480,000		26,500,000
KeySpan Medical (LI Unfunded)		455,147		459,000		463,000		465,000		465,000		465,000
KeySpan Medical (Boston Gas Union)		5,218,348		5,239,000		5,017,000		4,783,000		4,537,000		4,277,000
KeySpan Medical (All Others)		4,570,520		4,663,000		4,684,000		4,692,000		4,693,000		4,692,000
Subtotal KeySpan Medical Plans	5	80,047,115	s	101,494,000	S	103,207,000	5	105,047,000	S	107,043,000	s	109,225,000
KeySpan Life (NY Union)	\$	334,012	\$	1,397,000	\$	1,456,000	\$	1,519,000	\$	1,589,000	\$	1,664,000
KeySpan Life (NY Management)		405,027		969,000		1,014,000		1,064,000		1,117,000		1,174,000
KeySpan Life (NY Unfunded)		715,410		718,000		717,000		714,000		708,000		701,000
KeySpan Life (LI Union)		(411,917)		3,542,000		3,614,000		3,694,000		3,783,000		3,881,000
KeySpan Life (LI Management)		1,035,165		2,092,000		2,209,000		2,336,000		2,476,000		2,627,000
KeySpan Life (LI Unfunded)		1,087,440	_	1,120,000		1,153,000		1,186,000		1,219,000		1,253,000
Subtotal KeySpan Life Plans	5	3,165,137	s	9,838,000	\$	· 10,163,000	s	10,513,000	\$	10,892,000	\$	11,300,000
Estimated One-time FAS 88 Expense - Pension	\$	21,613,000	\$	15,624,000	s	5,208,000	\$	0	\$	0	\$	0
Estimated One-time FAS 106 Expense - Medical	\$	537,000	\$	493,000	\$	165,000	\$	0	S	0	\$	0
Estimated One-time FAS 106 Expense - Life	\$	0	\$	0	\$	0	S	0	\$	0	\$	0
Total Expense for Pension	s	79,544,493	5	193,001,000	s	174,843,000	s	165,109,000	s	159,903,000	s	154,313,000
Total Expense for Medical	5	80,584,115	S	101,987,000	S	103,372,000	\$	105,047,000	5	107,043,000	\$	109,225,000
Total Expense for Life	5	3,165,137	s	9,838,000	s	10,163,000	S	10,513,000	S	10,892,000	\$	11,300,000
Grand Total FAS Expense	\$	163,293,745	S	304,826,000	\$	288,378,000	S	280,669,000	s	277,838,000	s	274,838,000

#### National Grid USA Estimated Expense Excluding Medicare Part D Subsidy Current and 5 Year Projection

01/09/2009

			Actual	Estimated		Estimated	Estimated	Estimated		Estimated
			4/2008-3/2009	 4/2009-3/2010		4/2010-3/2011	 4/2011-3/2012	4/2012-3/2013		4/2013-3/2014
Estimated FAS 87/106 Expense - Busine	ss Unit Alloc	ations								
KeySpan Energy Delivery NY	BUG	\$	12,246,684	\$ 40,487,075	s	38,851,922	\$ 36,997,002	\$ 34,954,588	\$	32,767,188
KeySpan Energy Delivery LI	BUL		12,290,808	24,554,643		24,327,585	24,654,092	24,986,750		25,353,601
KeySpan Electric Services LLC	ESV		20,260,334	38,943,923		38,522,262	39,016,240	39,515,316		40,064,179
KeySpan Energy Trading Services LLC	TEG		208,688	466,329		452,459	448,514	443,658		438,580
KeySpan Generation LLC	GEN		7,681,903	14,733,356		14,602,758	14,810,812	15,023,368		15,256,888
KeySpan Corporate Services LLC*	CSV		50,203,349	121,153,393		108,314,887	102,149,979	101,167,545		100,116,295
KeySpan Utility Services LLC	USV		4,670,169	12,069,998		11,745,763	11,508,704	11,238,861		10,952,284
KeySpan Engineering and Survey	KEC		13,394,795	21,703,524		21,618,879	21,976,045	22,337,876		22,725,990
KeySpan Energy Management Inc	KEM		192,417	351,008		344,395	336,651	327,834		318,420
KeySpan Energy Services Inc.	KES		12,345	70,482		67,515	63,954	60,036		55,890
KeySpan Energy Solutions Inc.	KSL		2,060,613	3,743,914		3,676,188	3,606,597	3,527,328		3,441,992
KeySpan Energy Supply LLC	KSP		(1,124)	109,883		109,205	110,115	110,936		111,781
KeySpan Communications	КСМ		202,978	312,772		308,293	310,266	311,964		313,749
KeySpan Services, Inc.	KSI		199,969	521,643		518,969	517,779	515,473		512,759
KS Plumbing & Heating Solutions LLC	PHL		74,974	62,865		63,892	64,848	65,731		66,676
KS Plumbing & Heating Services Inc.	PHV		40,550	62,929		63,077	63,982	64,865		65,770
KeySpan Plumbing Solutions Inc.	PSL		135,399	111,389		111,507	111,391	111,109		110,729
KeySpan Home Energy Services NE	KHS		30,742	150,502		146,692	142,021	136,733		131,078
KeySpan Corporate Services LLC (KSI)	KSCSV		95,332	170,789		170,657	169,992	169,023		167,921
KeySpan Ravenswood Services Corp	RAV		2,064,170	0		0	0	0		0
KeySpan Northeast Ventures	KNEV		38,818	35,320		33,598	32,656	31,566		30,319
Seneca	SEN		45,634	67,959		68,619	69,161	69,634		70,092
Boston Gas	BGC		10,811,650	16,862,200		16,387,024	15,868,552	15,292,597		14,675,100
Colonial Gas (excluding Transgas)	COL		2,152,831	4,615,382		4,476,662	4,323,388	4,149,850		3,963,628
Transgas	ΤG		239,321	465,362 -		460,155	455,262	449,17 <b>4</b>		442,359
Algonquin	ALG		34,448	67,082		66,517	65,691	64,691		63,598
EnergyNorth	ENH		1,020,758	1,867,032		1,813,554	1,753,398	1,685,320		1,612,208
Essex Gas	ESX		735,190	 1.065.246		1,054,966	 1.041.908	 1,026,174	<del>.</del>	1.008.926
Total Expense		\$	141,143,745 **	\$ 304,826,000	\$	288,378,000	\$ 280,669,000	\$ 277,838,000	\$	274,838,000
* Includes FAS 88 special termination ben	efit charges									
** Excludes FAS 88 special termination be	enefit charges			 			 			

#### National Grid USA Estimated Expense Excluding Medicare Part D Subsidy Current and 5 Year Projection

01/09/20	<b>09</b>
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		Actual	Estimated		Estim ated	Estimated		Estimated	 Estimated
		4/2008-3/2009	 4/2009-3/2010		4/2010-3/2011	 4/2011-3/2012	_	4/2012-3/2013	 4/2013-3/2014
Assumptions									
Discount Rate		6 50%	6 50%		6 50%	6 50%		6 50%	6 50%
Salary Scale	•	0.5074	0.5074		0.5076	0.5074		0.3070	0.007
Union Participants		4.00%	4.00%		4 00%	4.00%		4.00%	4 00%
Nonunion Participants		4.00%	4 00%		4 00%	4 00%		4 00%	4 00%
Expected Return on Assets						.,			
Pension Plans		8.00%	8.00%		8.00%	8.00%		8.00%	8.00%
Retiree Welfare Life		8.00%	8.00%		8.00%	8.00%		8.00%	8.00%
Retiree Welfare Medical Non-Union		6.00%	6.00%		6.00%	6.00%		6.00%	6.00%
Retiree Welfare Medical Union		8.00%	8.00%		8.00%	8.00%		8.00%	8.00%
Actual Return on Assets for Projection						•			
Pension Plans		-22,00%	8.00%		8.00%	8.00%		8.00%	8.00%
Retiree Welfare Life		-25.00%	8.00%		8.00%	8.00%		8.00%	8.00%
Retiree Welfare Medical Non-Union		-27.00%	6.00%		6.00%	6.00%		6.00%	6.00%
Retiree Welfare Medical Union		-22.00%	8.00%		8.00%	8.00%		8.00%	8.00%
Initial Trend									
Pre-65 Medical		9.00%	8.25%		7.50%	6.75%		6.00%	5.25%
Post-65 Medical		10.00%	9.25%		8.50%	7.75%		7.00%	6.25%
Ultimate Trend		5.00%	5.00%		5.00%	5.00%		5.00%	5.00%
Mortality Table									
Union Participants		RP2000CH	RP2000CH		RP2000CH	RP2000CH		RP2000CH	RP2000CH
Nonunion Participants		RP2000CH 15	RP2000CH_15		RP2000CH 15	RP2000CH_15		RP2000CH_15	RP2000CH_15
Expected Contribution to the Trusts		-	-		-	—			-
KeySpan Retirement Plan (NY & NE)	\$	105,902,107 *	\$ 68,600,000	\$	68,400,000	\$ 68,400,000	\$	68,400,000	\$ 68,400,000
Retirement Income Plan (LI)	\$	88,767,648 **	\$ 1,75,900,000	s	70,000,000	\$ 70,000,000	5	70,000,000	\$ 70,000,000
KeySpan Medical (NY Union)	\$	18,000,000	\$ 24,000,000	\$	24,000,000	\$ 24,000,000	\$	24,000,000	\$ 24,000,000
KeySpan Medical (NY Management)	\$	5,000,000	\$ 12,000,000	\$	14,000,000	\$ 14,000,000	\$	14,000,000	\$ 14,000,000
KeySpan Medical (LI Union)	S	0	\$ 10,000,000	\$	10,000,000	\$ 10,000,000	\$	10,000,000	\$ 10,000,000
KeySpan Medical (LI Management)	\$	5,000,000	\$ 12,000,000	\$	10,000,000	\$ 10,000,000	\$	10,000,000	\$ 10,000,000
KeySpan Medical (Boston Gas Union)	\$	8,600,000	\$ 8,600,000	\$	8,600,000	\$ 8,600,000	5	8,600,000	\$ 8,600,000
Total	\$	231,269,755	\$ 311,100,000	\$	205,000,000	\$ 205,000,000	\$	205,000,000	\$ 205,000,000

Includes an additional \$22.5 million contribution which is the amount that was spun-off as a result of the Ravenswood sale.
 Includes an additional \$3.8 million contribution which is the amount that was spun-off as a result of the Ravenswood sale.

#### 01/09/2009

		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
	<u> </u>	4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Estimated IAS 19 P&L Expense												
KeySpan Retirement Plan (NY & NE)	s	7,058,406	\$	30,757,000	s	28,180,000	s	25,457,000	s	22,553,000	\$	19,446,000
Retirement Income Plan (LI)	\$	23,984,109	\$	44,224,000	\$	38,466,000	\$	36,537,000	\$	34,487,000.	S	32,295,000
NonQualified Pension Plans	\$	<u>9.851.452</u>	<u>\$</u>	9,489,000	<u>s_</u>	9,065,000	\$	8,849,000	<u>s</u>	8,595,000	<u>\$</u>	8.301.000
Subtotal KeySpan Pension Plans	\$	40,893,967	\$	84,470,000	\$	75,711,000	\$	70,843,000	\$	65,635,000	\$	60,042,000
KeySpan Medical (NY Union)	\$	6,243,986	\$	7,040,000	\$	5,768,000	\$	4,404,000	\$	2,940,000	s	1,370,000
KeySpan Medical (NY Management)		7,839,762		8,794,000		8,661,000		8,467,000		8,265,000		8,057,000
KeySpan Medical (NY Unfunded)		520,316		522,000		523,000		521,000		516,000		509,000
KeySpan Medical (Ll Union)		26,624,318		33,015,000		35,187,000		37,562,000		40,155,000		42,984,000
KeySpan Medical (LI Management)		15,481,005		17,429,000		18,119,000		18,927,000		19,798,000		20,737,000
KeySpan Medical (LI Unfunded)		328,794	•	333,000		335,000		337,000		338,000		337,000
KeySpan Medical (Boston Gas Union)		5,126,141		5,139,000		4,908,000		4,664,000		4,404,000		4,129,000
KeySpan Medical (All Others)		4,519,211		4,538,000		4,551,000		4,552,000		4,545,000		4,535,000
Subtotal KeySpan Medical Plans	S	66,683,533	S	76,810,000	\$	78,052,000	S	79,434,000	S	80,961,000	S	82,658,000
KeySpan Life (NY Union)	\$	191,091	s	674,000	s	733,000	\$	797,000	\$	866,000	\$	942,000
KeySpan Life (NY Management)		315,651		579,000		624,000		674,000		727,000		784,000
KeySpan Life (NY Unfunded)		877,343		880,000		879,000		876,000		870,000		863,000
KeySpan Life (LI Union)		(1,002,245)		718,000		790,000		870,000		959,000		1,057,000
KeySpan Life (LI Management)		824,058		1,336,000		1,453,000		1,580,000		1,720,000		1,871,000
KeySpan Life (LI Unfunded)		1,096,673		1,129,000		1,162,000		1,195,000		1,228,000		1,262,000
Subtotal KeySpan Life Plans	s	2,302,571	s	5,316,000	s	5,641,000	\$	5,992,000	\$	6,370,000	\$	6,779,000
Total P&L Expense	\$	109,880,071	s	166,596,000	\$	159,404,000	S	156,269,000	s	152,966,000	s	149,479,000
SORIE Expense - Pension	S	743,965,978	\$	0	s	0	s	0	\$	0	\$	0
SORIE Expense - Medical	\$	112,430,000	\$	0	\$	0	S	0	\$	0	\$	0
SORIE Expense - Life	\$	36,594,000	\$	0	\$	0	\$	0	\$	0	\$	0

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KeySpan Life (NY Union)

KeySpan Life (LI Union)

**Total Operating Expense** 

KeySpan Life (NY Union)

KeySpan Life (LI Union)

KeySpan Life (NY Unfunded)

KeySpan Life (Ll Management)

KeySpan Life (LI Unfunded)

**Total Financing Expense** 

S

\$

\$

\$

S

778,128

545,337

865.432

(1,920,392)

30,787,752

S

\$

S

\$

\$

#### National Grid USA **Estimated IFRS Expense Under LAS 19 Current and 5 Year Projection**

01/09/2009

743,000

(60,000)

1,531,000

52,186,000

981,000

#### Actual Estimated Estimated Estimated Estimated Estimated 4/2011-3/2012 4/2012-3/2013 4/2013-3/2014 4/2008-3/2009 4/2009-3/2010 4/2010-3/2011 **Estimated Operating Expense** 27,099,000 \$ S \$ 28,183,000 S 29,310,000 KeySpan Retirement Plan (NY & NE) 24,091,194 25,055,000 \$ 26,057,000 s 36,639,000 38,105,000 39,629,000 Retirement Income Plan (L1) \$ 32,571,770 \$ 33,875,000 s 35,230,000 \$ S \$ NonQualified Pension Plans S 781,669 S 813,000 \$ 846,000 \$ 880,000 \$ 915,000 \$ 952,000 KeySpan Medical (NY Union) S 2.596.954 3,006,000 3,156,000 \$ 3.314.000 S 2,727,000 s 2,863,000 S \$ \$ 1,821,000 1,912,000 \$ 2.008.000 KeySpan Medical (NY Management) 1.572.116 \$ 1,651,000 1,734,000 S s s KeySpan Medical (NY Unfunded) \$ 55,627 S 58,000 s 61,000 \$ 64,000 s 67,000 S 70.000 \$ \$ KeySpan Medical (LI Union) s 9.745.932 10,233,000 s 10,745,000 s 11,282,000 S 11,846,000 12,438,000 \$ \$ \$ 4,414,000 s 4,635,000 s 4.867,000 KeySpan Medical (LI Management) 3,813,228 4,004,000 \$ 4,204,000 \$ 59,000 KeySpan Medical (L1 Unfunded) \$ 45,553 \$ 48,000 \$ 50,000 \$ 53,000 \$ 56,000 KeySpan Medical (Boston Gas Union) \$ 1,128,865 \$ 1.174.000 \$ 1,221,000 \$ 1,270,000 \$ 1,321,000 \$ 1,374,000 KeySpan Medical (All Others) s 766,331 s 797.000 S 829,000 \$ 862,000 s 896,000 s 932,000 309.504 322,000 335,000 s 348,000 362,000 s 376.000 8 2 s s KeySpan Life (NY Management) \$ 86,252 S 90.000 \$ 94,000 s 98,000 \$ 102,000 s 106,000 KeySpan Life (NY Unfunded) s 99,215 S 103.000 s 107.000 s 111.000 \$ 115,000 \$ 120,000 1,033,000 s 1,074,000 S 1,117,000 \$ 918,147 \$ 955,000 s 993,000 \$ KeySpan Life (L1 Management) s 278,721 S 290,000 S 302,000 S 314,000 S 327,000 S 340,000 KeySpan Life (LI Unfunded) 231,241 260.000 270.000 <u>\$</u> 281.000 \$ 240,000 250,000 <u>\$</u> <u>\$</u> \$ \$ 79,092,319 93,342,000 97,293,000 S \$ 82,435,000 S 85,921,000 \$ 89,554,000 S \$ **Estimated Financing Expense** KeySpan Retirement Plan (NY & NE) \$ (17,032,788) s 5,702,000 s 2.123.000 s (1.642.000)s (5.630.000)S (9.864.000) s (7.334.000)Retirement Income Plan (LI) \$ (8,587,661) \$ 10,349,000 \$ 3,236,000 s (102,000)\$ (3,618,000) NonQualified Pension Plans ·\$ 9,069,783 \$ 8,676,000 S 8,219,000 S 7,969,000 \$ 7,680,000 s 7,349,000 KeySpan Medical (NY Union) \$ 3,647,032 \$ 4,313,000 \$ 2,905,000 \$ 1,398,000 \$ (216,000) \$ (1,944,000)\$ 6,646,000 s 6,353,000 \$ 6,049,000 KeySpan Medical (NY Management) 6,267,646 s 7,143,000 \$ 6,927,000 \$ 439,000 KeySpan Medical (NY Unfunded) s 464,689 S 464,000 \$ 462,000 S 457,000 \$ 449,000 \$ 28,309,000 30,546,000 KeySpan Medical (LI Union) \$ 16,878,386 \$ 22,782,000 \$ 24,442,000 \$ 26,280,000 \$ \$ KeySpan Medical (L1 Management) S 11,667,777 S 13,425,000 s 13,915,000 \$ 14,513,000 s 15,163,000 S 15,870,000 s 283,241 285,000 285,000 S 284,000 s 282,000 \$ 278,000 KeySpan Medical (LI Unfunded) s S KeySpan Medical (Boston Gas Union) \$ 3,997,276 \$ 3,965,000 \$ 3,687,000 S 3,394,000 \$ 3,083,000 \$ 2,755,000 s 3,752,880 \$ 3,741,000 \$ 3,722,000 \$ 3,690,000 \$ 3,649,000 \$ 3,603,000 KeySpan Medical (All Others) s 398,000 S 449,000 s 504,000 S 566,000 (118,413) \$ 352,000 \$ KeySpan Life (NY Management) S 229,399 489,000 \$ 530,000 \$ 576,000 \$ 625,000 \$ 678,000 5

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01/09/2009

	Actual		Estimated		Estimated		Estimated	Estimated		Estimated
	4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012	 4/2012-3/2013		4/2013-3/2014
Estimated IAS 19 P&L Expense - Business Unit Allocations										
KeySpan Energy Delivery NY \$	8,231,252	\$	18,593,537	\$	16,726,486	\$	14,748,201	\$ 12,632,590	\$	10,370,619
KeySpan Energy Delivery LI	9,692,704		14,582,067		14,218,268		14,462,698	14,739,226		15,048,672
KeySpan Electric Services LLC	16,058,730		23,281,507		22,646,051		23,014,736	23,430,823		23,894,954
KeySpan Energy Trading Services LLC	160,887		241,805		225,168		219,942	214,542		208,913
KeySpan Generation LLC	6,053,490		8,824,395		8,612,852		8,772,459	8,952,026		9,152,009
KeySpan Corporate Services LLC*	39,927,274		61,973,248		59,356,419		58,294,476	57,164,084		55,958,214
KeySpan Utility Services LLC	3,491,090		6,151,276		5,758,953		5,488,624	5,202,475		4,899,190
KeySpan Engineering and Survey	10,925,565		14,470,448		14,281,712		14,577,389	14,898,156		15,244,216
KeySpan Energy Management Inc	148,684		180,427		172,020		163,513	154,444		144,764
KeySpan Energy Services Inc.	859		25,616		22,163		18,386	14,388		10,158
KeySpan Energy Solutions Inc.	1,574,382		2,126,446		2,040,227		1,960, <b>69</b> 0	1,875,452		1,784,009
KeySpan Energy Supply LLC	(2,820)		74,599		73,443		74,107	74,799		75,514
KeySpan Communications	171,893		198,298		192,307		193,535	194,869		196,287
KeySpan Services, Inc.	136,818		395,078		391,255		389,610	387,231		384,417
KS Plumbing & Heating Solutions LLC	60,434		49,766		50,693		51,601	52,485		53,355
KS Plumbing & Heating Services Inc.	36,377		47,428		47,390		48,220	49,080		49,964
KeySpan Plumbing Solutions Inc.	123,841		79,017		78,788		78,501	78,128		77,655
KeySpan Home Energy Services NE	24,448		68,930		64,258		59,238	53,844		48,075
KeySpan Corporate Services LLC (KSI)	76,781		108,513		107,732		106,792	105,733		104,538
KeySpan Ravenswood Services Corp	355,191		0		0		0	0		0
KeySpan Northeast Ventures	34,503		32,697		30,975		30,033	28,943		27,696
Seneca	43,258		48,888		49,367		49,848	50,322		50,780
Boston Gas	9,245,818		10,785,820		10,247,223		9,702,164	9,114,887		8,484,810
Colonial Gas (excluding Transgas)	1,562,946		2,247,389		2,085,480		1,923,778	1,748,966		1,561,224
Transgas	198,553		321,566		314,926		309,473	303,240		296,263
Algonquin	31,374		43,394		42,563		41,620	40,569		39,423
EnergyNorth	816,762		888,312		825,670		762,518	<b>6</b> 94,473		621,311
Essex Gas	698,977		755,533		741,611		726,848	 710,225		691,970
Total P&L Expense S	109,880,071	S	166,596,000	s	159,404,000	S	156,269,000	\$ 152,966,000	s	149,479,000
<ul> <li>Includes special termination benefit charges (none after FY 2008)</li> </ul>	1									

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#### 01/09/2009

	Actual		Estimated	 Estimated		Estimated		Estimated	Estimated
	4/2008-3/2009		4/2009-3/2010	 4/2010-3/2011		4/2011-3/2012		4/2012-3/2013	 4/2013-3/2014
Estimated IAS 19 Operating Expense - Business Unit Allocations									
KeySpan Energy Delivery NY \$	9,851,470	S	9,948,774	\$ 10,369,962	S	10,808,825	\$	11,266,693	\$ 11,744,126
KeySpan Energy Delivery Ll	6,600,556		6,945,957	7,245,890		7,558,793		7,885,389	8,226,217
KeySpan Electric Services LLC	11,012,089		11,213,751	11,694,777		12,196,534		12,720,168	13,266,420
KeySpan Energy Trading Services LLC	123,440		108,969	113,511		118,241		123,171	128,308
KeySpan Generation LLC	3,801,144		3,913,621	4,082,005		4,257,642		4,440,961	4,632,228
KeySpan Corporate Services LLC*	27,604,029		29,745,277	30,998,060		32,303,485		33,663,821	35,082,924
KeySpan Utility Services LLC	2,894,703		2,905,617	3,027,566		3,154,552		3,286,946	3,424,962
KeySpan Engineering and Survey	8,697,822		9,232,878	9,627,998		10,039,973		10,469,910	10,918,381
KeySpan Energy Management Inc	158,007		107,254	111,587		116,095		120,785	125,665
KeySpan Energy Services Inc.	0		0	0		0		0	0
KeySpan Energy Solutions Inc.	1,598,254		1,491,448	1,554,571		1,620,357		1,688,960	1,760,511
KeySpan Energy Supply LLC	0		55,229	57,579		60,029		62,585	65,251
KeySpan Communications	142,832		123,678	128,877		134,290		139,937	145,824
KeySpan Services, Inc.	106,931		251,259	261,378		271,839		282,659	294,187
KS Plumbing & Heating Solutions LLC	44,829		42,174	43,903		45,693		47,545	49,467
KS Plumbing & Heating Services Inc.	36,300		40,623	42,257		43,956		45,725	47,562
KeySpan Plumbing Solutions Inc.	116,841		72,215	75,168		78,241		81,442	84,775
KeySpan Home Energy Services NE	25,697		32,631	33,937		35,292		36,698	38,167
KeySpan Corporate Services LLC (KS1)	90,610		91,505	95,261		99,170		103,239	107,478
KeySpan Ravenswood Services Corp	137,007		0	- 0		0		0	0
KeySpan Northeast Ventures	0		0	0		0		0	0
Seneca	52,496		46,677	48,544		50,485		52,505	54,604
Boston Gas	4,268,790		4,249,675	4,419,703		4,596,552		4,780,477	4,971,817
Colonial Gas (excluding Transgas)	856,732		912,388	948,895		986,821		1,026,229	1,067,294
Transgas	129,159		177,433	184,555		191,942		199,602	207,606
Algonquin	25,249		23,052	23,975		24,933		25,928	26,965
EnergyNorth	411,965		393,252	408,981		425,333		442,341	460,032
Essex Gas	305,367		309,663	 322,060		334,927		348,284	 362,229
Total Operating Expense \$	79,092,319	\$	82,435,000	\$ 85,921,000	s	89,554,000	S	93,342,000	\$ 97,293,000

Includes special termination benefit charges (none after FY 2008)

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#### 01/09/2009

	Actual		Estimated		Estimated		Estimated		Estimated		Estimated
	4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Estimated IAS 19 Financing Expense - Business Unit Allocations											
KeySpan Energy Delivery NY \$	(1,620,218)	S	8,644,763	S	6,356,525	s	3,939,377	\$	1,365,897	\$	(1,373,507)
KeySpan Energy Delivery LI	3,092,148		7,636,111		6,972,378		6,903,904		6,853,836		6,822,455
KeySpan Electric Services LLC	5,046,641		12,067,757		10,951,275		10,818,202		10,710,655		10,628,533
KeySpan Energy Trading Services LLC	37,447		132,837		111,656		101,702		91,371		80,605
KeySpan Generation LLC	2,252,346		4,910,773		4,530,848		4,514,816		4,511,065		4,519,780
KeySpan Corporate Services LLC*	12,323,245		32,227,969		28,358,355		25,990,986		23,500,265		20,875,300
KeySpan Utility Services LLC	596,387		3,245,659		2,731,387		2,334,072		1,915,531		1,474,229
KeySpan Engineering and Survey	2,227,743		5,237,570		4,653,717		4,537,417		4,428,246		4,325,834
KeySpan Energy Management Inc	(9,323)		73,172		60,433		47,419		33,659		19,097
KeySpan Energy Services Inc.	859		25,616		22,163		18,386		14,388		10,158
KeySpan Energy Solutions Inc.	(23,872)		634,998		485,656		340,333		186,491		23,498
KeySpan Energy Supply LLC	(2,820)		19,370		15,862		14,078		12,215		10,261
KeySpan Communications	29,061		74,621		63,430		59,245		54,931		50,463
KeySpan Services, Inc.	29,887		143,819		129,878		117,771		104,572		90,232
KS Plumbing & Heating Solutions LLC	15,605		7,591		6,790		5,909		4,938		3,889
KS Plumbing & Heating Services Inc.	77		6,805		5,131		4,265		3,356		2,401
KeySpan Plumbing Solutions Inc.	7,000		6,802		3,620		260		(3,314)		(7,120)
KeySpan Home Energy Services NE	(1,249)		36,299		30,321		23,947		17,146		9,906
KeySpan Corporate Services LLC (KSI)	(13,829)		17,009		12,472		7,622		2,494		(2,939)
KeySpan Ravenswood Services Corp	218,184		0		0		0		0		0
KeySpan Northeast Ventures	34,503		32,697		30,975		30,033		28,943		27,696
Seneca	(9,238)		2,211		823		(637)		(2,183)		(3,825)
Boston Gas	4,977,028		6,536,144		5,827,520		5,105,613		4,334,409		3,512,993
Colonial Gas (excluding Transgas)	706,214		1,335,001		1,136,585		936,957		722,736		493,930
Transgas	69,394		144,134		130,370		117,531		103,639		88,655
Algonquin	6,125		20,342		18,588		16,686		14,642		12,457
EnergyNorth	404,797		495,060		416,690		337,185		252,132		161,278
Essex Gas	393,610		445,870		419,552	<b></b>	391,921		361,940		329,741
Total Financing Expense S	30,787,752	S	84,161,000	\$	73,483,000	s	. 66,715,000	S	59,624,000	5	52,186,000

\* Includes special termination benefit charges (none after FY 2008)

#### 01/09/2009

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		Actual		Estimated	 Estimated		Estimated	Estimated	Estimated
		4/2008-3/2009		4/2009-3/2010	 4/2010-3/2011		4/2011-3/2012	 4/2012-3/2013	 4/2013-3/2014
Assumptions									
Discount Bate		6 50%		6 50%	6.50%		6 50%	6.50%	6 50%
Salary Scale		0.0070		0.3070	0.5070		0.5070	0,20,0	0.5070
Union Participants		4 00%		4 00%	4 00%		4 00%	4 00%	4 00%
Nominion Participants		4 00%		4 00%	4 00%		4 00%	4 00%	4 00%
Expected Return on Assets									
Pension Plans		8.00%		8.00%	8.00%		8.00%	8.00%	8.00%
Retiree Welfare Life		8.00%		8.00%	8.00%		8.00%	8.00%	8.00%
Retiree Welfare Medical Non-Union		6.00%		6.00%	6.00%		6.00%	6.00%	6,00%
Retiree Welfare Medical Union		8.00%		8,00%	8.00%		8.00%	8.00%	8.00%
Actual Return on Assets for Projection									
Pension Plans		-22.00%		8.00%	8.00%	•	8.00%	8.00%	8.00%
Retirce Welfare Life		-25.00%		8.00%	8.00%		8.00%	8.00%	8.00%
Retiree Welfare Medical Non-Union		-27.00%		6.00%	6.00%		6.00%	6.00%	6,00%
Retiree Welfare Medical Union		-22.00%		8.00%	8.00%		8.00%	8.00%	8.00%
Initial Trend									
Pre-65 Medical		9.00%		8.25%	7.50%		6.75%	6.00%	5.25%
Post-65 Medical		10.00%		9.25%	8.50%		7.75%	7.00%	6.25%
Ultimate Trend		5.00%		5.00%	5.00%		5.00%	5.00%	5.00%
Mortality Table								•	
Union Participants		RP2000CH		RP2000CH	RP2000CH		RP2000CH	RP2000CH	RP2000CH
Nonunion Participants		RP2000CH_15		RP2000CH_15	RP2000CH_15		RP2000CH_15	RP2000CH_15	RP2000CH_15
Expected Contribution to the Trusts								_	_
KeySpan Retirement Plan (NY & NE)	\$	105,902,107 *	S	68,600,000	\$ 68,400,000	\$	68,400,000	\$ 68,400,000	\$ 68,400,000
Retirement Income Plan (LI)	\$	88,767,648 *	• \$	175,900,000	\$ 70,000,000	\$	70,000,000	\$ 70,000,000	\$ 70,000,000
KeySpan Medical (NY Union)	\$	18,000,000	\$	24,000,000	\$ 24,000,000	\$	24,000,000	\$ 24,000,000	\$ 24,000,000
KeySpan Medical (NY Management)	\$	5,000,000	S	12,000,000	\$ 14,000,000	\$	14,000,000	\$ 14,000,000	\$ 14,000,000
KeySpan Medical (Ll Union)	\$	0	\$	10,000,000	\$ 10,000,000	\$	10,000,000	\$ 10,000,000	\$ 10,000,000
KeySpan Medical (Ll Management)	\$	5,000,000	\$	12,000,000	\$ 10,000,000	\$	10,000,000	\$ 10,000,000	\$ 10,000,000
KeySpan Medical (Boston Gas Union)	<u>\$</u>	8,600,000	<u>\$</u>	8,600,000	\$ 8,600,000	\$	8,600,000	\$ 8,600,000	\$ 8,600,000
Total	\$	231,269,755	\$	311,100,000	\$ 205,000,000	S	205,000,000	\$ 205,000,000	\$ 205,000,000

\* Includes an additional \$22.5 million contribution which is the amount that was spun-off as a result of the Ravenswood sale.

\*\* Includes an additional \$3.8 million contribution which is the amount that was spun-off as a result of the Ravenswood sale.

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### National Grid USA U.S. Pension Schemes - KeySpan Pension Plans Estimated FAS 87 Expense

Actual Estimated Estimated Estimated Estimated	Estimated
4/2000-3/2007 $4/2007-3/2010$ $4/2010-3/2011$ $4/2011-3/2012$ $4/2012-3/2013$ $4/2012-3/2013$	2013-3/2014
Reconciliation of Funded Status, 4/1	
Projected Benefit Obligation \$ (2,777,864,623) \$ (2,879,059,000) \$ (2,970,220,000) \$ (3,062,941,000) \$ (3,154,016,000) \$ (3,264,000) \$ (3,264,000) \$ (3,	48,000,000)
Fair Value of Assets         2,426,123,826         1,929,945,000         2,187,173,000         2,350,404,000         2,522,104,000         2,7	02,312,000
Funded Status \$ (351,740,797) \$ (949,114,000) \$ (783,047,000) \$ (712,537,000) \$ (631,912,000) \$ (51,912,000) \$	45,688,000)
Unrecognized:	
Net Transition Obligation or (Asset)     0     0     0     0     0     0	0
• Prior Service Cost 0 0 0 0 0	0
• Net (Gain) or Loss 198,526,375 922,534,000 828,295,000 734,056,000 639,817,000	45,578,000
(Accrued) / Prepaid Pension Cost \$ (153,214,422) \$ (26,580,000) \$ 45,248,000 \$ 21,519,000 \$ 7,905,000 \$	(110,000)
Net Periodic Pension Cost	
Service Cost         \$ 57,444,633         \$ 59,743,000         \$ 62,133,000         \$ 64,618,000         \$ 67,203,000         \$	69,891,000
Interest Cost 175,582,285 181,746,000 187,786,000 193,656,000 199,400,000 2	05,315,000
Expected Return on Assets (194,948,064) (158,351,000) (174,523,000) (187,404,000) (200,939,000) (2	15,132,000)
Amortization of	
Net Transition Obligation or (Asset)     0     0     0     0     0     0     0	0
• Prior Service Cost 0 0 0 0 0 0	0
• Net (Gain) or Loss 19,852,639 94,239,000 94,239,000 94,239,000 94,239,000	94,239,000
FAS 87 Pension Expense/(Income) \$ 57,931,493 \$ 177,377,000 \$ 169,635,000 \$ 165,109,000 \$ 159,903,000 \$	54,313,000
FAS 88 Special Termination Benefits 21,613,000 15,624,000 5,208,000 0 0	0
FAS 88 Settlement/Curtailment Expense 0 0 0 0 0	0
Total Pension Expense         \$ 79,544,493         \$ 193,001,000         \$ 174,843,000         \$ 165,109,000         \$ 159,903,000         \$ 159,903,000	54,313,000
Expected Benefit Payments - Qualified \$ 141,930,000 \$ 143,623,000 \$ 149,622,000 \$ 154,104,000 \$ 159,151,000 \$ 1	64,718,000
Expected Benefit Payments - Non-Qualified 11,509,000 22,329,000 12,714,000 13,095,000 13,488,000	13,893,000
Expected Benefit Payments - Total \$ 153,445,000 \$ 165,952,000 \$ 162,406,000 \$ 167,199,000 \$ 172,619,000 \$	78,611,000
Expected Cash Contributions (incl NQP benefits) \$ 206,178,755 \$ 264,829,000 \$ 151,114,000 \$ 151,495,000 \$ 151,888,000 \$	52,293,000
Market Related Value of Assets         \$ 2,426,123,826         \$ 1,929,945,000         \$ 2,187,173,000         \$ 2,350,404,000         \$ 2,522,104,000         \$ 2,722,104,000	02,312,000
Assumptions:	
Discount Rate 6.50% 6.50% 6.50% 6.50% 6.50%	6.50%
Expected Return on Assets         8.00%         8.	8.00%
Salary Scale	
Nonunion 4.00% 4.00% 4.00% 4.00% 4.00%	4.00%
Union 4.00% 4.00% 4.00% 4.00% 4.00%	4.00%
Actual Return on Assets for Projection         -22.00%         8.00%         8.00%         8.00%         8.00%	8.00%
Mortality Table for Nonunion         RP2000CH_15         R2000CH_15         R2000CH_15         R2000CH	2000CH_15
Mortality Table for Union RP2000CH RP2000CH RP2000CH RP2000CH RP2000CH RP2000CH	RP2000CH

# National Grid USA U.S. Pension Schemes - KeySpan Pension Plans Estimated FAS 87 Expense

Estimated FAS 87 Expense	se								01/09/2009
			Actual		Estimated	Estimated	Estimated	Estimated	Estimated
			4/2008-3/2009		4/2009-3/2010	 4/2010-3/2011	 4/2011-3/2012	 4/2012-3/2013	 4/2013-3/2014
Net Periodic Benefit Cost									
KeySpan BU Allocation	_								
KeySpan Energy Delivery NY	BUG	\$	2,680,504	\$	26,612,978	\$ 25,805,798	\$ 24,861,823	\$ 23,798,288	\$ 22,661,487
KeySpan Energy Delivery LI	BUL		3,941,259		12,493,624	11,697,866	11,402,483	11,059,809	10,694,170
KeySpan Electric Services LLC	ESV		7,062,312		20,513,763	19,228,922	18,776,348	18,248,592	17,684,764
KeySpan Energy Trading Services LLC	TEG		74,401		305,909	286,656	276,779	265,548	253,591
KeySpan Generation LLC	GEN		2,414,371		7,223,560	6,748,722	6.577.986	6.379.829	6,168,463
KeySpan Corporate Services LLC*	CSV		23,400,131		83,943,771	70.605.784	63,726,607	61.798.041	59.718.656
KeySpan Utility Services LLC	USV		1.265.582		7 728 839	7 383 975	7 129 545	6 841 287	6 533 747
KeySpan Engineering and Survey	KEC		6 320 560		12 612 260	12 104 117	11 999 106	11 862 414	11 713 036
KeySpan Energy Management Inc.	KEM		152 487		273 029	266 865	259.961	252.050	243 560
KeySpan Energy Services Inc.	KES		(6 233)		43 957	41 464	38 574	35 380	31,000
KeySpan Energy Solutions Inc.	KSI		1 001 086		2 562 463	2 514 156	2 466 077	2 400 961	2 240 104
KeySpan Energy Supply LLC	KSL		(1 1 24)		2,303,403	2,514,150	2,400,077	2,409,601	2,343,134
KeySpan Communications	KOM		(1,124)		74,547	12,374	1,082	10,220	70,460
KeySpan Communications	KCM		103,340		204,487	195,800	. 193,121	189,848	180,311
Keyspan Services, inc.	K51		135,955		450,185	440,272	443,980	440,713	430,783
KS Plumbing & Heating Solutions LLC	PHL		60,306		50,420	51,290	52,115	52,922	53,743
KS Plumbing & Heating Services Inc.	PHV		33,838		55,176	55,041	55,630	56,173	56,714
KeySpan Plumbing Solutions Inc.	PSL		130,281		96,054	96,912	97,600	98,185	. 98,744
KeySpan Home Energy Services NE	KHS		5,867		113,370	109,205	104,263	98,740	92,855
KeySpan Corporate Services LLC (KSI)	KSCSV		67,679		146,254	145,848	144,988	143,819	142,500
KeySpan Ravenswood Services Corp	RAV		1,699,991		0	0	0	0	0
KeySpan Northeast Ventures	KNEV		34,041		35,320	33,598	32,656	31,566	30,319
Seneca	SEN		45,634		67,959	68,619	69,161	69,634	70,092
Boston Gas	BGC		4,679,738		10,945,135	10,644,974	10,317,102	9,944,512	9,542,946
Colonial Gas (excluding Transgas)	COL		1,243,890		3,809,254	3,672,179	3,522,952	3,355,345	3,175,545
Transgas	ΤG		157,672		389,995	384,307	379,132	372,853	365,874
Algonquin	ALG		10,934		44,183	43,458	42,530	41,456	40,297
EnergyNorth	ENH		731.384		1.604.086	1.551.204	1.492.587	1.426.582	1.355.772
Essex Gas	ESX		374,509		599,624	587,588	574,006	558,333	541,361
Total Expense/(Income)		\$	57,931,493 **	s	193,001,000	\$ 174,843,000	\$ 165,109,000	\$ 159,903,000	\$ 154,313,000
Assumptions:					·····	 	 	 	 
Discount Rate			6.50%		6.50%	6,50%	6.50%	6.50%	6.50%
Expected Return on Assets			8.00%		8 00%	8 00%	8 00%	8 00%	8.00%
Salary Scale					,		0,00,0	0.0070	0.007
Nonunion			4 00%		4 00%	4 00%	4 00%	4 00%	4 00%
Union			4 00%		4 00%	4 0.0%	4.00%	4.0078 1 AA4	4.007
Mortality Table for Nonunion			RP2000CH 15		RP2000CH 15	PP3000CH 15	PP2000CU 14	5,0076	9.0070 00000001 16
Mortality Table for Union			RP2000CH		RP2000CH	RP2000CH	RP2000CH	RP2000CH	RP2000CH_15
<ul> <li>Includes FAS 88 Special Termination E</li> <li>Excludes FAS 88 Special Termination</li> </ul>	Benefit charges Benefit charg	; ;es							

# National Grid USA U.S. Pension Schemes - KeySpan Pension Plans Estimated IAS 19 Expense

Estimated IAS 19 Expense				·						01/09/2009
	Actual 4/2008-3/2009		Estimated 4/2009-3/2010	Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Reconciliation of Funded Status, 4/1	48 y									
Projected Benefit Obligation	\$ (2,821,622,296)	\$	(2,899,891,000)	\$ (2,975,428,000)	\$	(3,062,941,000)	\$	(3,154,016,000)	\$	(3,248,000,000)
Assets at Bid Value	 2,426,488,023		1,930,233,000	 2,187,483,000		2,350,738,000		2,522,465,000		2,702,702,000
Funded Status	\$ (395,134,273)	\$	(969,658,000)	\$ (787,945,000)	\$	(712,203,000)	\$	(631,551,000)	\$	(545,298,000)
Prior Service Costs	 0	_	0	 0	_	0	-	0		0
(Accrued) / Prepaid Pension Cost	\$ (395,134,273)	\$	(969,658,000)	\$ (787,945,000)	\$	(712,203,000)	\$	(631,551,000)	3	(545,298,000)
P&L Expense										
Operating Expense										
Service Cost	\$ 57,444,633	\$	59,743,000	\$ 62,133,000	\$	64,618,000	\$	67,203,000	\$	69,891,000
Exceptional Costs (STBs)	0		0	0		0		0		0
Prior Service Costs	0		0	0		0		0		0
Settlement Costs	0		0.	0		0		0		0
Curtailment Costs	 0		0	 0		00		0		0
Total Operating Expense	\$ 57,444,633	\$	59,743,000	\$ 62,133,000	\$	64,618,000	\$	67,203,000	\$	<b>69,891,000</b>
Financing Expense										
Interest Cost	178,426,534		183,100,000	188,125,000		193,656,000		199,400,000		205,315,000
Expected Return on Assets	 (194,977,200)		(158,373,000)	 (174,547,000)	_	(187,431,000)	·	(200,968,000)		(215,164,000)
Total Financing Expense	\$ (16,550,666)	\$	24,727,000	\$ 13,578,000	\$	6,225,000	\$	(1,568,000)	\$	(9,849,000)
Total P&L Expense	\$ <b>40,893,96</b> 7	\$	84,470,000	\$ 75,711,000	\$	70,843,000	\$	65,635,000	\$	60,042,000
Estimated SORIE Expense										
Expected less Actual Return on Assets	\$ 743,965,978	\$	0	\$ 0	\$	0	\$	0	\$	0
Change in Assumptions	0		0	0		0		0		0
Experience Losses from Liabilities	 0		0	 0		0		0		0
Total SORIE Expense	\$ 743,965,978	\$	0	\$ 0	\$	0	\$	0	\$	0
Expected Benefit Payments - Qualified	\$ 141,936,000	\$	145,623,000	\$ 149,692,000	\$	154,104,000	\$	159,131,000	\$	164,718,000
Expected Benefit Payments - Non-Qualified	11,509,000		20,329,000	12,714,000		13,095,000		13,488,000		13,893,000
Expected Benefit Payments - Total	\$ 153,445,000	\$	165,952,000	\$ 162,406,000	\$	167,199,000	\$	172,619,000	\$	178,611,000
Expected Cash Contributions (incl NQP benefits)	\$ 206,178,755	\$	264,829,000	\$ 151,114,000	\$	151,495,000	\$	151,888,000	\$	152,293,000
Assumptions:		•								
Discount Rate	6.50%		6.50%	6.50%		6.50%		6.50%		6.50%
Expected Return on Assets	8.00%		8.00%	8.00%		8.00%		8.00%		8.00%
Salary Scale										
Nonunion	4.00%		4.00%	4.00%		4.00%		4.00%		4.00%
Union	4.00%		4.00%	4.00%		4.00%		4.00%		4.00%
Mortality Table for Nonunion	RP2000CH_15		RP2000CH_15	RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15
Mortality Table for Union	 RP2000CH		RP2000CH	RP2000CH		RP2000CH		RP2000CH		RP2000CH
Hewitt Associates	 									

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### National Grid USA U.S. Pension Schemes - KeySpan Pension Plans Estimated IAS 19 Expense

	Actual		Estimated	Estimated	Estimated	Estimated	Estimated
	4/2008-3/2009	_	4/2009-3/2010	 4/2010-3/2011	 4/2011-3/2012	4/2012-3/2013	 4/2013-3/2014
Total P&L Expense		•					
KeySpan BU Allocation							
KeySpan Energy Delivery NY	\$ 882,871	s	9,702,416	\$ 8,734,846	\$ 7,737,174	\$ 6,673,633	\$ 5,536,484
KeySpan Energy Delivery LI	2,985,740		5,984,112	5,105,976	4,782,794	4,439,827	4,073,892
KeySpan Electric Services LLC	5,459,739		10,142,204	8,724,949	8,227,678	7,699,441	7,135,131
KeySpan Energy Trading Services LLC	48,205		123,065	101,668	91,070	79,833	67,869
KeySpan Generation LLC	1,840,896		3,468,046	2,945,110	2,758,138	2,559,805	2,348,264
KeySpan Corporate Services LLC*	17,629,366		34,553,431	31,263,528	29,468,609	27,539,320	25,458,839
KeySpan Utility Services LLC	677,256		2,990,489	2,595,738	2,324,554	2,036,226	1,728,550
KeySpan Engineering and Survey	5,046,788		7,596,217	7,024,112	6,897,513	6,760,591	6,610,982
KeySpan Energy Management Inc	112,112		120,914	113,285	105,891	97,980	89,487
KeySpan Energy Services Inc.	(15,405)		4,566	1,700	(1,315)	(4,509)	(7,899)
KeySpan Energy Solutions Inc.	775,722		1,278,743	1,216,805	1,164,493	1,108,271	1,047,574
KeySpan Energy Supply LLC	(2,820)		45,359	43,049	42,444	41,780	41,046
KeySpan Communications	87,567		114,619	104,836	101,781	98,503	94,963
KeySpan Services, Inc.	96,065		329,310	324,332	321,688	318,414	314,483
KS Plumbing & Heating Solutions LLC	48,729		39,798	40,567	41,358	42,165	42,986
KS Plumbing & Heating Services Inc.	31,021		41,390	41,095	41,631	42,172	42,714
KeySpan Plumbing Solutions Inc.	119,660		68,450	69,046	69,647	70,232	70,791
KeySpan Home Energy Services NE	(425)		32,756	27,826	22,629	17,106	11,220
KeySpan Corporate Services LLC (KSI)	52,282		88,296	87,342	86,298	85,129	83,809
KeySpan Ravenswood Services Corp	46,811		0	0	0	0	0
KeySpan Northeast Ventures	30,154		32,697	30,975	30,033	28,943	27,696
Seneca	43,258		48,888	49,367	49,848	50,322	50,780
Boston Gas	3,271,051		4,996,833	4,641,154	4,294,695	3,922,106	3,520,421
Colonial Gas (excluding Transgas)	654,865		1,463,481	1,304,499	1,147,937	980,331	800,483
Transgas	116,904		248,182	241,202	235,595	229,316	222,335
Algonquin	7,862		21,096	20,153	19,152	18,077	16,919
EnergyNorth	528,502		632,711	570,732	509,071	443,066	372,238
Essex Gas	319,191		301,931	287,108	272,594	256,920	239,943
Total Expense/(Income)	\$ 40,893,967	S	84,470,000	\$ 75,711,000	\$ 70,843,000	\$ 65,635,000	\$ 60,042,000
Assumptions:	 						
Discount Rate	6.50%		6.50%	6.50%	6.50%	6.50%	6.50%
Expected Return on Assets	8.00%		8.00%	8.00%	8.00%	8.00%	8.00%
Salary Scale							
Nonunion	4.00%		4.00%	4.00%	4.00%	4.00%	4.00%
Union	4.00%		4.00%	4.00%	4.00%	4.00%	4.00%
Mortality Table for Nonunion	RP2000CH_15		RP2000CH_15	RP2000CH_15	RP2000CH_15	RP2000CH_15	RP2000CH_15
Mortality Table for Union	RP2000CH		RP2000CH	RP2000CH	RP2000CH	<b>RP2000CH</b>	RP2000CH

\* Includes Special Termination Benefit charges

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# National Grid USA U.S. Pension Schemes - KeySpan Pension Plans Estimated IAS 19 Operating Expense

		Actual		Estimated								
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Total P&L Operating Expense										•		,
KeySpan BU Allocation												
KeySpan Energy Delivery NV	\$	7 341 848	\$	7 350 494	¢	7 644 458	ç	7 950 155	\$	8 268 175	ç	8 598 810
KeySpan Energy Delivery IVI	Ψ	1 705 383	ų.	1,537,126	φ	4 718 600	Φ	4 907 325	Ψ	5 103 674		5 307 797
KeySpan Electric Services LLC		7 432 152		7 637 630		7 943 139		8 260 820		8 591 349		8 934 962
KeySpan Energy Trading Services LLC		97.636		88 083		91.606		95 270		99 081		103 044
KeySpan Generation LLC		2 580 891		2 614 126		2 718 692		2 827 424		2 940 555		3 058 161
KeySpan Corporate Services LLC*		2,580,871		2,014,120		2,710,092		2,027,424		2,940,999		25 989 548
KeySpan Utility Services LLC		20,008,851		22,215,590		23,104,550		24,020,074		24,505,810		2 654 957
KeySpan Utility Scivices LEC		6.038.816		6 385 244		6 640 665		6 906 257		7 182 584		7 469 858
KeySpan Engineering and Survey		153 307		107 478		106 576		110 838		115 272		110 881
KeySpan Energy Management Inc		155,507		102,478		- 100,570		110,858		115,272		117,001
KeySpan Energy Selvices Inc.		1 210 485		1 114 050		1 159 541		1 205 011		1 254 152		1 304 306
KeySpan Energy Solutions Inc.		1,219,465		1,114,950		1,159,541		1,203,911		1,234,152		1,304,300
KeySpan Energy Supply LLC		100.087		39,903		41,501		43,224		107 760		117 070
KeySpan Communications		109,987		93,800		22,038		105,825		241.021		750.602
KeySpan Services, Inc.		88,930		214,230		40,100		41 712		42 281		250,092
KS Plumbing & Heating Solutions LLC		40,408		28,200		40,109		41,713		43,301		45,110
KS Plumbing & Heating Services Inc.		35,101		38,807		40,421		42,038		45,720		45,408
KeySpan Plumbing Solutions Inc.		113,024		05,245		07,854		70,567		75,590		70,323
KeySpan Home Energy Services NE		18,220		23,411		24,347		25,320		20,333		27,380
KeySpan Corporate Services LLC (KSI)		80,482		81,578		84,840		88,233		91,762		95,432
KeySpan Ravenswood Services Corp		99,681		0		0		0		0		0
KeySpan Northeast Ventures		0		0		0		0		0		0
Seneca		52,496		46,677		48,544		50,485		52,505		54,604
Boston Gas		3,257,517		3,217,158		3,345,833		3,479,636		3,618,821		3,763,544
Colonial Gas (excluding Transgas)		731,624		779,617		810,795		843,218		876,948		912,016
Transgas		111,278		163,514		170,078		176,888		183,954		191,330
Algonquin		20,082		18,420		19,157		19,923		20,720		21,548
EnergyNorth		394,166		381,470		396,726		412,590		429,095		446,254
Essex Gas		226,182		223,230		232,158		241,441		251,099		261,141
Total Operating Expense/(Income)	\$	57,444,633	\$	59,743,000	\$	62,133,000	\$	64,618,000	\$	67,203,000	\$	69,891,000
Assumptions:												
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets		8.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Salary Scale												
Nonunion		4.00%		4.00%		4.00%		4.00%		4.00%		4.00%
Union		4.00%		4.00%		4.00%		4.00%		4.00%		4.00%
Mortality Table for Nonunion		RP2000CH 15										
Mortality Table for Union		RP2000CH										

\* Includes Special Termination Benefit charges

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01/09/2009

# National Grid USA U.S. Pension Schemes - KeySpan Pension Plans Estimated IAS 19 Financing Expense

Sec. 2		Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011	Estimated 4/2011-3/2012	Estimated 4/2012-3/2013	Estimated 4/2013-3/2014
Total P&L Financing Expense							 		
KeySpan BU Allocation									
KeySpan Energy Delivery NY	\$	(6.458.977)	\$	2.351.922	\$	1.090.388	\$ (212,981)	\$ (1,594,543)	\$ (3,062,326)
KeySpan Energy Delivery LI		(1.309.643)	•	1.446.987	•	387.367	(124,532)	(663,847)	(1,233,901)
KeySpan Electric Services LLC		(1.972.413)		2,504,574		781.810	(33,142)	(891,908)	(1,799,831)
KeySpan Energy Trading Services LLC		(49,431)		34,983		10,062	(4,199)	(19,248)	(35,175)
KeySpan Generation LLC		(739,995)		853.920		226,419	(69,286)	(380,750)	(709,898)
KevSpan Corporate Services LLC*		(3,039,485)		12,337,832		8,158,990	5,439,932	2,549,501	(530,701)
KeySpan Utility Services LLC		(1.559,170)		720,994		235,472	(130,102)	(516,632)	(926,402)
KeySpan Engineering and Survey		(992.028)		1.210.973		383,448	(8,743)	(421,993)	(858,877)
KeySpan Energy Management Inc		(41,195)		18.436		6.709	(4.947)	(17,291)	(30,395)
KeySpan Energy Services Inc		(15,405)		4,566		1.700	(1.315)	(4,509)	(7,899)
KeySpan Energy Solutions Inc		(443,763)		163.793		57.264	(41,418)	(145.881)	(256,731)
KeySpan Energy Supply LLC		(2.820)		5 396		1 487	(780)	(3.172)	(5,706)
KeySpan Communications		(22,420)		18 813		5,198	(1.842)	(9,266)	(17,116)
KeySpan Services Inc		7.135		115.054		101.482	89.917	77.383	63,792
KS Plumbing & Heating Solutions LLC		8.321		1.231		458	(355)	(1.216)	(2,130)
KS Plumbing & Heating Services Inc		(4,140)		2 524		673	(406)	(1.547)	(2,754)
KeySpan Plumbing Solutions Inc.		6.036		3.206		1.192	(920)	(3,158)	(5,534)
KeySpan Home Energy Services NE		(18.645)		9.345		3,479	(2.691)	(9,227)	(16,167)
KeySpan Corporate Services LLC (KSI)		(28,200)		6.719		2,502	(1.935)	(6,634)	(11,623)
KevSpan Ravenswood Services Corp		(52,870)		0		-, -	Ó	Ó	Ó
KeySpan Northeast Ventures		30,154		32.697		30,975	30.033	28,943	27,696
Seneca		(9,238)		2,211		823	(637)	(2,183)	(3,825)
Boston Gas		13,534		1.779.674		1,295,321	815.060	303,285	(243,124)
Colonial Gas (excluding Transgas)		(76,759)		683,864		493,704	304,719	103,382	(111,533)
Transgas		5,626		84,668		71,123	58,707	45,362	31,004
Algonquin		(12,220)		2,676		996	(771)	(2,642)	(4,630)
EnergyNorth		134,336		251,241		174,007	96,481	13,971	(74,016)
Essex Gas		93,009		78,701		54,951	31,153	5,820	(21,198)
Total Financing Expense/(Income)	\$	(16,550,666)	\$	24,727,000	\$	13,578,000	\$ 6,225,000	\$ (1,568,000)	\$ (9,849,000)
Assumptions:		·····		* ·, · · · · · · · · · · · · · · · · · ·			 		
Discount Rate		6.50%		6.50%		6.50%	6.50%	6.50%	6.50%
Expected Return on Assets		8.00%		8.00%		8.00%	8.00%	8.00%	8.00%
Salary Scale									
Nonunion		4.00%		4.00%		4.00%	4.00%	4.00%	4.00%
Union		4.00%		4.00%		4.00%	4.00%	4.00%	4.00%
Mortality Table for Nonunion		RP2000CH_15		RP2000CH_15		RP2000CH_15	RP2000CH 15	RP2000CH_15	RP2000CH_15
Mortality Table for Union		RP2000CH		RP2000CH		RP2000CH	RP2000CH	RP2000CH	RP2000CH
* Includes Special Termination Benefit char	ges								

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## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated FAS 106 Expense

<b>Estimated FAS 106 Expense</b>												01/09/2009
		Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Reconciliation of Funded Status, 4/1							_					
Accumulated Postret. Benefit Obligation	\$	(1,166,503,096)	\$	(1,207,963,000)	\$	(1,248,856,000)	\$	(1,288,990,000)	\$	(1,328,787,000)	\$	(1,368,583,000)
Fair Value of Assets		368,363,936		268,505,000		300,386,000		330,563,000		359,135,000		386,024,000
Funded Status	\$	(798,139,160)	\$	(939,458,000)	\$	(948,470,000)	\$	(958,427,000)	\$	(969,652,000)	\$	(982,559,000)
Unrecognized:												
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0
<ul> <li>Prior Service Cost</li> </ul>		0		0		0		0		0		0
Net (Gain) or Loss		42,778,230		150,491,000		134,946,000		119,401,000		103,856,000		88,311,000
(Accrued) / Prepaid Cost	\$	(755,360,930)	\$	(788,967,000)	\$	(813,524,000)	\$	(839,026,000)	\$	(865,796,000)	\$	(894,248,000)
Net Periodic Cost												
Service Cost	\$	19,724,606	\$	20,692,000	\$	21,707,000	\$	22,772,000	\$	23,889,000	\$	25,062,000
Interest Cost		74,110,936		<b>76,667,000</b>		79,197,000		81,684,000		84,153,000		86,636,000
Expected Return on Assets		(27,222,655)		(20,586,000)		(22,856,000)		(25,016,000)		(27,074,000)		(29,033,000)
Amortization of:												
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0
<ul> <li>Prior Service Cost</li> </ul>		0		0		0		0		0		0
• Net (Gain) or Loss		4,690,461		15,545,000		15,545,000		15,545,000		15,545,000		15,545,000
FAS 106 Expense	S	71,303,348	S	92,318,000	\$	93,593,000	S	94,985,000	S	96,513,000	S	98,210,000
FAS 106 Special Termination Benefits		537,000		493,000		165,000		0		0		0
FAS 106 Curtailment Expense		0		0		0		0		0		0
Total Postretirement Medical Expense	\$	71,840,348	\$	92,811,000	S	93,758,000	\$	94,985,000	S	96,513,000	5	98,210,000
		56 722 000	ŕ	61.086.000	 ¢	66 374 000	·			72 284 000		76 746 000
Expected Benefit Payments - Gross	Э	30,723,000	3	61,080,000	3	65,374,000	2	69,403,000	э	/ 5,284,000	2	76,746,000
Functional Para State Designments - Net		53 013 000	•	4,127,000		4,439,000	ſ	4,744,000		5,038,000	-	3,310,000
Expected Benefit Payments - Net	د د	51,915,000	5 C	55 205 000	С	50,933,000	3 (	64,639,000	3 6	66,240,000	с С	71,450,000
Expected Benefit Payments - Plan Assets	3 6	36,600,000	э •	55,505,000	د د	59,279,000	3 r	65,044,000	3 r		3 r	70,107,000
Expected Contributions (Funded Fights)	э с	12 044 000	э с	72 281 000	, ,	73 605 000	3 r	72 050 000	3 r	77,000,000	ъ с	73, 170,000
Market Related Value of Assets	s	368,363,936	s S	268,505,000	\$	300,386,000	5 5	330,563,000	5 5	359,135,000	s S	386,024,000
Assumptions:												
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets - Union		8.00%		8.00%		8.00%		8.00%		8,00%		8.00%
Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%		6 00%
Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8,50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5,00%		5.00%		5.00%		5.00%		5.00%
Actual Return on Assets for Projection		-24.00%		8.00%		8,00%		8.00%		8.00%		8,00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

Hewitt Associates

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01/09/2009

# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated FAS 106 Expense

	-	Actual	Estimated	Estimated		Estimated		Estimated	Estimated
Nat Damiadia Coast		4/2008-3/2009	 4/2009-3/2010	 4/2010-3/2011		4/2011-3/2012		4/2012-3/2013	 4/2013-3/2014
11 S. Retirce Welfare Schemes - KeySnan M	edical Plan	(Total)					•		
Cion Actine Contarte Scaleman Actigopus A	colcul x lun	(10121)							
KeySpan Energy Delivery NY	\$	7,746,727	\$ 11,057,110	\$ 10,105,669	\$	9,065,573	\$	7,949,180	\$ 6,754,366
KeySpan Energy Delivery LI		7,211,213	9,942,640	10,430,842		10,968,342		11,554,172	12,192,712
KeySpan Electric Services LLC		11,279,737	15,016,461	15,748,897		16,558,351		17,439,544	18,399,169
KeySpan Energy Trading Services LLC		110,255	126,429	130,427		134,908		139,750	145,018
KeySpan Generation LLC		4,469,633	6,123,479	6,413,614		6,735,581		7,085,852	7,467,300
KeySpan Corporate Services LLC*		22,693,899	30,890,507	31,136,076		31,586,072		32,254,105	32,987,280
KeySpan Utility Services LLC		2,764,303	3,447,420	3,433,155		3,413,990		3,394,109	3,374,815
KeySpan Engineering and Survey		6,002,141	7,516,687	7,876,546		8,272,390		8,701,082	9,165,566
KeySpan Energy Management Inc		35,533	64,946	64,050		62,751		61,379	59,966
KeySpan Energy Services Inc.		16,903	22,390	21,856		21,133		20,370	19,579
KeySpan Energy Solutions Inc.		826,474	990,926	964,229		934,172		902,057	867,978
KeySpan Energy Supply LLC		0	29,937	31,001		32,165		33,404	34,730
KeySpan Communications		80,889	85,383	88,610		92,250		96,147	100,339
KeySpan Services, Inc.		27,101	32,375	32,444		32,371		32,223	32,037
KS Plumbing & Heating Solutions LLC		13,313	11,523	11,677		11,791	•	11,866	11,913
KS Plumbing & Heating Services Inc.		4,603	5,435	5,618		5,832		6,061	6,310
KeySpan Plumbing Solutions Inc.		4,394	12,841	11,977		11,046		10,043	8,962
KeySpan Home Energy Services NE		24,873	36,160	36,432		36,609		36,738	36,855
KeySpan Corporate Services LLC (KSI)		23,548	21,317	21,458		21,517		21,575	21,645
KeySpan Ravenswood Services Corp		361,077	0	0		0		0	0
KeySpan Northeast Ventures		4,684	0	0		0		0	0
Seneca		0	0	0		0		0	0
Boston Gas		5,972,243	5,788,931	5,606,854		5,408,254		5,193,566	4,965,174
Colonial Gas (excluding Transgas)		918.684	783.568	780,989		775,850		768.644	760,749
Transpas		83.075	73,353	73,724		73,878		73,924	73,928
Algonguin		23,512	22,289	22.410		22,468		22,492	22,504
EnergyNorth		287.665	255,471	254,938		253.447		251,407	249,073
Essex Gas		316,869	453,422	454,507		454,259		453,310	452,032
		.,	,	,		•		,	
Total Expense/(Income)	S	71,303,348 **	\$ 92,811,000	\$ 93,758,000	S	94,985,000	S	96,513,000	\$ 98,210,000
Assumptions:			 						 
Discount Rate		6.50%	6.50%	6.50%		6.50%		6,50%	6.50%
Expected Return on Assets - Union		8.00%	8.00%	8.00%		8.00%		8.00%	8.00%
Expected Return on Assets - Non Union		6.00%	6.00%	6.00%		6.00%		6.00%	6,00%
Initial Trend Pre-65		9.00%	8.25%	7.50%		6.75%		6.00%	5.25%
Initial Trend Post-65		10 00%	9.25%	8.50%		7.75%		7.00%	6.25%
Ultimate Trend		5 00%	5.00%	5.00%		5.00%		5.00%	5.00%
Actual Return on Assets for Projection		-24 00%	8 00%	8.00%		8 00%		8 00%	8.00%
Mortality Table Union		RP2000CH	RP2000CH	RP2000CH		RP2000CH		RP2000CH	RP2000CH
Mortality Table Non-Union		RP2000CH 15	RP2000CH 15	RP2000CH 15		RP2000CH 15		RP2000CH 15	RP2000CH 15
hiorany radio non-onion		10 2000011_15		10.2000011_15		10 2000011_15		10 2000CH_15	10 2000011_15

\* Includes FAS 88 special termination benefit charges

\*\* Excludes FAS 88 special termination benefit charges

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total)

## **Estimated IAS 19 Expense**

Actual         Extinated         E	Estimated IAS 19 Expense												01/09/2009
Reconciliation of Funded Status, 4/1         x			Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Accumulated Potert En: Obligation         \$ (1,75,677,849)         \$ (1,28,879,000)         \$ (1,28,879,000)         \$ (1,28,879,000)         \$ (1,28,879,000)         3 (3,24,27,000)         3 (3,24,27,000)         3 (3,24,27,000)         3 (3,24,27,000)         \$ (3,28,27,000)         3 (3,24,27,000)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)         \$ (3,28,27,200)	Reconciliation of Funded Status, 4/1						·				-		
Funded Shatus         S         (799,246,216)         S         (940,049,000)         S         (948,562,000)         S         (969,567,000)         S         (982,467,000)           Prior Service Costs         S         (799,246,216)         S         (940,049,000)         S         (958,348,000)         S         (969,567,000)         S         (982,467,000)           PAL Expense         Operating Expense         S         19,724,606         S         20,692,000         S         21,077,000         S         23,889,000         S         23,662,000         O	Accumulated Postret. Ben. Obligation Assets at Bid Value	S	(1,167,697,849) 368,451,633	\$	(1,208,621,000) 268,572,000	\$	(1,249,021,000) 300,459,000	\$	(1, <b>288,990,000)</b> 330,642,000	\$	(1,328,787,000) 359,220,000	\$	(1,368,583,000) 386,116,000
Phor Service Casts         0	Funded Status	\$	(799,246,216)	\$	(940,049,000)	\$	(948,562,000)	\$	(958,348,000)	\$	(969,567,000)	\$	(982,467,000)
(Accrued) / Prepaid Cost         \$         (799,246,216)         \$         (940,049,000)         \$         (948,562,000)         \$         (958,348,000)         \$         (959,547,000)         \$         (959,547,000)         \$         (959,547,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (959,348,000)         \$         (950,367,000)         \$         (25,062,000)         \$         21,070,000         \$         22,772,000         \$         23,889,000         \$         25,062,000         \$         21,070,000         \$         22,772,000         \$         23,889,000         \$         25,062,000         \$         22,072,000         \$         23,889,000         \$         25,062,000         \$         20,062,000         \$         22,772,000         \$         23,889,000         \$         25,062,000         \$         22,072,000         \$         23,889,000         \$         23,889,000         \$         23,889,000         \$         23,889,000         \$         23,889,000         \$         20,062,000         \$         21,070,000         \$         23,889,000         \$ <td>Prior Service Costs</td> <td></td> <td>0_</td> <td></td> <td>0</td> <td></td> <td>0</td> <td></td> <td>0</td> <td></td> <td>0</td> <td></td> <td>0</td>	Prior Service Costs		0_		0		0		0		0		0
P&1. Expense         Operating Expense         S         19,724,606         S         20,692,000         S         21,707,000         S         22,772,000         S         23,889,000         S         25,062,000           Exceptional Costs (STBs)         0	(Accrued) / Prepaid Cost	\$	(799,246,216)	\$	(940,049,000)	\$	(948,562,000)	\$	(958,348,000)	\$	(969,567,000)	\$	(982,467,000)
Operating Expense         S         19,724,606         S         20,692,000         S         21,707,000         S         22,772,000         S         23,889,000         S         25,062,000           Every Costs         0 <td>P&amp;L Expense</td> <td></td>	P&L Expense												
Service Cost         S         19,724,606         S         20,692,000         S         21,707,000         S         22,772,000         S         23,889,000         S         20,002,000         0	Operating Expense	_		_									
Exceptional Costs (STBs)         0 <td>Service Cost</td> <td>\$</td> <td>19,724,606</td> <td>\$</td> <td>20,692,000</td> <td>\$</td> <td>21,707,000</td> <td>\$</td> <td>22,772,000</td> <td>5</td> <td>23,889,000</td> <td>2</td> <td>25,062,000</td>	Service Cost	\$	19,724,606	\$	20,692,000	\$	21,707,000	\$	22,772,000	5	23,889,000	2	25,062,000
Prior Service Costs         0	Exceptional Costs (STBs)		0		0		0		0		0		0
Settlement Costs         0	Prior Service Costs		0		0		0		0		0		0
Curailment Costs         0	Settlement Costs		0		0		0		0		0		0
Total Operating Expense         \$         19,724,606         \$         20,692,000         \$         21,707,000         \$         22,772,000         \$         23,889,000         \$         23,002,000           Financing Expense         74,188,595         76,710,000         79,207,000         81,684,000         84,153,000         86,636,000         (27,021,000)         (27,021,000)         (27,081,000)         75,596,000           Total P&L Expense         \$         66,683,533         \$         76,810,000         \$         79,434,000         \$         80,961,000         \$         86,636,000         (27,081,000)         \$         57,576,000         \$         57,596,000         \$         57,596,000         \$         57,072,000         \$         \$         80,961,000         \$         80,961,000         \$         \$         80,961,000         \$         \$         57,596,000           Total P&L Expense         \$         112,430,000         \$         0         \$         0         \$         0         0         \$         0         0         \$         0         0         \$         0         0         \$         0         \$         0         \$         0         \$         0         \$         0         \$	Curtailment Costs		0		0		0		0	_	0	_	0
Financing Expense       74,188,595       76,710,000       79,207,000       81,684,000       84,153,000       86,636,000         Total Financing Expense       74,188,595       76,710,000       79,207,000       81,684,000       84,153,000       86,636,000         Total P&L Expense       5       66,683,533       5       76,710,000       5       56,636,000       (25,022,000)       (27,081,000)       5       56,636,000         Total P&L Expense       5       66,683,533       5       76,710,000       \$       79,434,000       \$       5,70,72,000       \$       \$         Expected less Actual Return on Assets       \$       76,710,000       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$       <	Total Operating Expense	\$	19,724,606	\$	20,692,000	\$	21,707,000	S	22,772,000	\$	23,889,000	\$	25,062,000
Interst Cost       74,188,595       76,710,000       79,207,000       81,684,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       84,153,000       85,646,000       81,684,000       84,153,000       85,646,000       81,684,000       84,153,000       85,646,000       81,684,000       84,153,000       82,658,000         Total Fainancing Expense       5       66,683,533       5       76,810,000       5       78,952,000       5       79,434,000       5       80,961,000       5       82,658,000         Estimated SORIE Expense       5       112,430,000       5       0       5       0       5       0       5       0       5       0	Financing Expense												
Expected Return on Assets         (27,229,668)         (20,592,000)         (22,862,000)         (25,022,000)         (27,081,000)         (29,040,000)           Total Financing Expense         \$         46,958,927         \$         56,118,000         \$         56,642,000         \$         57,772,000         \$         57,596,000           Total P&L Expense         \$         66,683,533         \$         76,810,000         \$         78,052,000         \$         79,434,000         \$         80,961,000         \$         \$         57,596,000           Estimated SORIE Expense         Expected less Actual Return on Assets         \$         112,430,000         \$         0 <td< td=""><td>Interest Cost</td><td></td><td>74,188,595</td><td></td><td>76,710,000</td><td></td><td>79,207,000</td><td></td><td>81,684,000</td><td></td><td>84,153,000</td><td></td><td>86,636,000</td></td<>	Interest Cost		74,188,595		76,710,000		79,207,000		81,684,000		84,153,000		86,636,000
Total Financing Expense         \$         46,958,927         \$         56,118,000         \$         56,345,000         \$         57,072,000         \$         57,072,000         \$         57,396,000           Total P&L Expense         \$         66,683,533         \$         76,810,000         \$         78,052,000         \$         79,434,000         \$         80,961,000         \$         82,658,000           Estimated SORIE Expense         \$         112,430,000         \$         0         \$         0         \$         0         \$         0         \$         0         \$         0         \$         0         \$         0         \$         0<	Expected Return on Assets		(27,229,668)		(20,592,000)		(22,862,000)		(25,022,000)		(27,081,000)		(29,040,000)
Total P&L Expense         S         66,683,533         S         76,810,000         S         78,052,000         S         79,434,000         S         80,961,000         S         82,658,000           Estimated SORIE Expense Expected less Actual Return on Assets         S         112,430,000         S         0         S         0         S         0         S         0.0         0	Total Financing Expense	\$	46,958,927	\$	56,118,000	\$	56,345,000	\$	56,662,000	\$	57,072,000	\$	57,596,000
Estimated SORIE Expense         Expected less Actual Return on Assets         S         112,430,000         S         0         S         0         S         0         S         0         S         0         S         0         S         0         S         0         S         0         S         0         Change in Assumptions         0         <	Total P&L Expense	S	66,683,533	\$	76,810,000	\$	78,052,000	\$	79,434,000	\$	80,961,000	\$	82,658,000
Expected less Actual Return on Assets         S         112,430,000         S         0         S         0         S         0         S         0         Change in Assumptions         0 <th0< td=""><td>Estimated SORIE Expense</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th0<>	Estimated SORIE Expense												
Change in Assumptions         0	Expected less Actual Return on Assets	\$	112,430,000	S	0	\$	0	\$	0	\$	0	\$	0
Experience Losses from Liabilities         0	Change in Assumptions		0		0		0		0		0		- 0
Total SORIE Expense       \$       112,430,000       \$       0 <t< td=""><td>Experience Losses from Liabilities</td><td></td><td>0</td><td></td><td>0</td><td></td><td>0</td><td></td><td>0</td><td></td><td>0</td><td></td><td>0</td></t<>	Experience Losses from Liabilities		0		0		0		0		0		0
Expected Benefit Payments - Gross         \$ 56,723,000         \$ 61,086,000         \$ 65,374,000         \$ 69,403,000         \$ 73,284,000         \$ 76,746,000           Medicare Part D Subsidy         3,810,000         4,127,000         4,439,000         4,744,000         5,038,000         5,316,000           Expected Benefit Payments - Net         \$ 52,913,000         \$ 56,959,000         \$ 60,935,000         \$ 64,659,000         \$ 68,246,000         \$ 71,430,000           Expected Benefit Payments - Plan Assets         \$ 51,279,000         \$ 55,305,000         \$ 63,044,000         \$ 66,785,000         \$ 67,73,099,000         \$ 67,73,099,000         \$ 73,179,000           Expected Contributions         \$ 42,044,000         \$ 72,381,000         \$ 72,695,000         \$ 72,959,000         \$ 73,099,000         \$ 73,179,000           Assumptions:         Discount Rate         6.50%         6.50%         6.50%         6.50%         6.50%         6.50%         8.00%         6.00%         6.00%         6.00% <t< td=""><td>Total SORIE Expense</td><td>\$</td><td>112,430,000</td><td>\$</td><td>0</td><td>\$</td><td>0</td><td>\$</td><td>0</td><td>\$</td><td>0.</td><td>\$</td><td>0</td></t<>	Total SORIE Expense	\$	112,430,000	\$	0	\$	0	\$	0	\$	0.	\$	0
Medicare Part D Subsidy       3,810,000       4,127,000       4,439,000       4,744,000       5,038,000       5,316,000         Expected Benefit Payments - Net       \$ 52,913,000       \$ 56,959,000       \$ 60,935,000       \$ 64,659,000       \$ 68,246,000       \$ 71,430,000         Expected Benefit Payments - Plan Assets       \$ 51,279,000       \$ 55,305,000       \$ 59,279,000       \$ 63,044,000       \$ 66,785,000       \$ 70,167,000         Expected Contributions       \$ 42,044,000       \$ 72,381,000       \$ 72,695,000       \$ 72,959,000       \$ 73,099,000       \$ 73,179,000         Assumptions:       Discount Rate       6.50%       6.50%       6.50%       6.50%       6.50%       6.50%       8.00%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%       5.25%         Discount Rate       6.50%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%       6.00%	Expected Benefit Payments - Gross	\$	56,723,000	\$	61,086,000	\$	65,374,000	\$	69,403,000	\$	73,284,000	\$	76,746,000
Expected Benefit Payments - Net       \$       \$2,913,000       \$       \$66,959,000       \$       \$64,659,000       \$       \$68,246,000       \$       \$71,430,000         Expected Benefit Payments - Plan Assets       \$       \$1,279,000       \$       \$55,305,000       \$       \$92,279,000       \$       \$63,044,000       \$       \$66,785,000       \$       70,167,000         Expected Contributions       \$       \$42,044,000       \$       72,381,000       \$       72,695,000       \$       73,099,000       \$       73,179,000         Assumptions:       Discount Rate       6.50%       6.50%       6.50%       6.50%       6.50%       6.50%       8.00%	Medicare Part D Subsidy		3,810,000	·	4,127,000		4,439,000		4,744,000		5,038,000		5,316,000
Expected Benefit Payments - Plan Assets         \$ 51,279,000         \$ 55,305,000         \$ 59,279,000         \$ 63,044,000         \$ 66,785,000         \$ 70,167,000           Expected Contributions         \$ 42,044,000         \$ 72,381,000         \$ 72,695,000         \$ 72,959,000         \$ 73,099,000         \$ 73,179,000           Assumptions:	Expected Benefit Payments - Net	\$	52,913,000	\$	56,959,000	\$	60,935,000	\$	64,659,000	\$	68,246,000	\$	71,430,000
Expected Contributions         \$ 42,044,000         \$ 72,381,000         \$ 72,695,000         \$ 72,959,000         \$ 73,099,000         \$ 73,179,000           Assumptions:	Expected Benefit Payments - Plan Assets	\$	51,279,000	\$	55,305,000	\$	59,279,000	\$	63,044,000	\$	66,785,000	\$	70,167,000
Assumptions:         Discount Rate         6.50%         6.00%         8.00% </td <td>Expected Contributions</td> <td>\$</td> <td>42,044,000</td> <td>\$</td> <td>72,381,000</td> <td>\$</td> <td>72,695,000</td> <td>\$</td> <td>72,959,000</td> <td>\$</td> <td>73,099,000</td> <td>\$</td> <td>73,179,000</td>	Expected Contributions	\$	42,044,000	\$	72,381,000	\$	72,695,000	\$	72,959,000	\$	73,099,000	\$	73,179,000
Discount Rate         6.50%         8.00%	Assumptions:												
Expected Return on Assets - Union         8.00%	Discount Rate		6.50%		6.50%		6.50%		6.50%		6,50%		6.50%
Expected Return on Assets - Non Union         6.00%	Expected Return on Assets - Union		8.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Initial Trend Pre-65         9.00%         8.25%         7.50%         6.75%         6.00%         5.25%	Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%		6.00%
	Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65         10.00%         9.25%         8.50%         7.75%         7.00%         6.25%	Initial Trend Post-65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend 5.00% 5.00% 5.00% 5.00% 5.00% 5.00% 5.00%	Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Actual Return on Assets for Projection         -24.00%         8.00%	Actual Return on Assets for Projection		-24.00%		8.00%	•	8.00%		8.00%		8.00%		8.00%
Mortality Table Union RP2000CH RP2000CH RP2000CH RP2000CH RP2000CH RP2000CH RP2000CH RP2000CH	Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union         RP2000CH_15         RP2000CH	Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

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## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated IAS 19 Expense

.

		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Net Periodic Cost												
U.S. Retiree Welfare Schemes - KeySpan M	ledical Plan	(Total)										
KeySpan Energy Delivery NY	S	6 787 358	\$	7 913 078	s	6 957 417	ç	5 916 019	s	4 799 627	s	3 604 812
KeySpan Energy Delivery LI	•	6 761 631	·	8 243 321	Ψ	8 729 470	Ŷ	9 266 291	•	9 851 922	÷	10 490 462
KeySpan Electric Services LLC		10.564.076		12.453.123		13.181.871		13,990,097		14.871.008		15.830.634
KeySpan Energy Trading Services LLC		102.096		104,397		108.296		112.745		117,585		122,853
KeySpan Generation LLC		4,167,407		5,059,031		5,347,228		5,668,548		6,018,713		6,400,161
KeySpan Corporate Services LLC*		21,175,470		25,389,270		25,948,505		26,559,041		27,226,791		27,959,965
KeySpan Utility Services LLC		2,536,770		2,766,356		2,749,397		2,729,376		2,709,482		2,690,189
KeySpan Engineering and Survey		5,654,493		6,435,189		6,793,207		7,188,438		7,617,018		8.081.502
KeySpan Energy Management Inc		32,838		52,403		51,426		50,102		48,730		47,317
KeySpan Energy Services Inc.		15,545		17,849		17,283		16,550		15,787		14,996
KeySpan Energy Solutions Inc.		761,894		792,225		765,179		735,015		702,895		668,815
KeySpan Energy Supply LLC		0		26,738		27,784		28,942		30,181		31,507
KeySpan Communications		75,968		73,241		76,409		80,029		83,926		88,118
KeySpan Services, Inc.		24,568		26,857		26,912		26,834		26,687		26,500
KS Plumbing & Heating Solutions LLC		11,245		9,651		9,805		9,919		9,994		10,041
KS Plumbing & Heating Services Inc.		4,191		4,515		4,693		4,904		5,134		5,383
KeySpan Plumbing Solutions Inc.		4,071		9,960		9,096		8,166		7,162		6,082
KeySpan Home Energy Services NE		24,873		36,174		36,432		36,609		36,738		36,855
KeySpan Corporate Services LLC (KSI)		22,368		18,842		18,965		19,018		19,076		19,146
KeySpan Ravenswood Services Corp		296,311		0		0		0		0		0
KeySpan Northeast Ventures		4,305		0		0		0		0		0
Seneca		0		0		0		0		0		0
Boston Gas		5,974,767		5,788,987		5,606,069		5,407,469		5,192,781		4,964,389
Colonial Gas (excluding Transgas)		908,081		783,908		780,981		775,841		768,635		760,741
Transgas		81,649		73,384		73,724		73,878		73,924		73,928
Algonquin		23,512		22,298		22,410		22,468		22,492		22,504
EnergyNorth		288,260		255,601		254,938		253,447		251,407		249,073
Essex Gas		379,786		453,602		454,503		454,254		453,305		452,027
Total Expense/(Income)	S	66,683,533	5	76,810,000	s	78,052,000	s	79,434,000	s	80,961,000	s	82,658,000
Assumptions:							<del></del>					
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets - Union		8.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%		6.00%
Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Actual Return on Assets for Projection		-24.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

\* Includes special termination benefit charges

## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated IAS 19 Operating Expense

Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 2 to DAG-38 Page 23 of 49

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		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
	_	4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/201 <u>1-3/2012</u>		4/2012-3/2013		4/2013-3/2014
Net Periodic Cost												
U.S. Retiree Welfare Schemes - KeySpan M	ledical Plan	(Total)		i.								
KeySpan Energy Delivery NY	s	2.257.153	s	2.334.869	\$	2.451.387	\$	2,573,847	s	2,702,259	\$	2,837,539
KeySpan Energy Delivery LI	•	2 107 643	•	2,200,044	-	2.310.116	•	2,425,569		2.546.837		2,674,135
KeySpan Electric Services LLC		3,246,881		3,236,961		3,398,817		3,568,726		3,747,225		3,934,566
KeySpan Energy Trading Services LLC		22,715		18,084		18,987		19,936		20,934		21,981
KeySpan Generation LLC		1,102,910		1,179,352		1,238,345		1,300,228		1,365,244		1,433,489
KeySpan Corporate Services LLC*		6,306,809		6,888,955		7,226,704		7,581,351		7,953,065		8,343,444
KeySpan Utility Services LLC		581,242		562,658		590,807		620,355		651,372		683,996
KeySpan Engineering and Survey	,	2,400,088		2,563,543		2,691,742		2,826,270		2,967,627		3,116,005
KeySpan Energy Management Inc		4,218		4,300		4,516		4,742		4,978		5,228
KeySpan Energy Services Inc.		0		0		0		0		0		0
KeySpan Energy Solutions Inc.		346,614		345,525		362,802		380,943		399,968		419,993
KeySpan Energy Supply LLC		0		13,970		14,668		15,401		16,172		16,982
KeySpan Communications		29,652		24,838		26,079		27,381		28,752		30,191
KeySpan Services, Inc.		4,990		7,462		7,837		8,230		8,642		9,076
KS Plumbing & Heating Solutions LLC		4,173		3,490		3,671		3,852		4,032		4,213
KS Plumbing & Heating Services Inc.		370		823		864		907		953		1,000
KeySpan Plumbing Solutions Inc.		3,096		6,531		6,857		7,199		7,558		7,937
KeySpan Home Energy Services NE		7,477		9,220		9,590		9,972		10,365		10,781
KeySpan Corporate Services LLC (KSI)		8,973		9,321		9,789		10,279		10,793		11,334
KeySpan Ravenswood Services Corp		33,189		0		0		0		0		0
KeySpan Northeast Ventures		0		0		0		0		0		0
Seneca		0		0		0		0		0		0
Boston Gas		1,011,273		1,032,517		1,073,870		1,116,916		1,161,656		1,208,273
Colonial Gas (excluding Transgas)		125,108		132,771		138,100		143,603		149,281		155,278
Transgas		17,881		13,919		14,477		15,054		15,648	•	16,276
Algonquin		5,167		4,632		4,818		5,010		5,208		5,417
EnergyNorth		17,799		11,782		12,255		12,743		13,246		13,778
Essex Gas		79,185		86,433		89,902		93,486		97,185		101,088
Total Operating Expense/(Income)	s	19,724,606	\$	20,692,000	\$	21,707,000	S	22,772,000	\$	23,889,000	ŝ	25,062,000
Assumptions:								··				
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets - Union		8.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%		6.00%
Initial Trend Pre-65		9.00%		8.25%		7,50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Actual Return on Assets for Projection		-24.00%		8,00%		8.00%		8.00%	•	8.00%		8.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

• Includes special termination benefit charges

### National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated IAS 19 Financing Expense

Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 2 to DAG-38 Page 24 of 49

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<u>_</u>		Actual		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Net Periodic Cost		4/2000-5/2007		4/2009-0/2010				4/2011 0/2012		4/2012 0/2010		
U.S. Retiree Welfare Schemes - KeySpan M	fedical Plan	(Total)						-				
KeySnan Energy Delivery NY	\$	4 530 205	\$	5 578 209	\$	4.506.030	s	3.342.173	s	2.097.368	s	767,273
KeySpan Energy Delivery LI	·	4.653.988	v	6 043 277	•	6.419.354	-	6.840.722	-	7,305,084	-	7,816,328
KeySpan Electric Services LLC		7.317.195		9 2 16 163		9.783.054		10.421.371		11,123,783		11,896,067
KeySpan Energy Trading Services LLC		79,381		86,314		89,309		92,809		96,652		100,872
KeySpan Generation LLC		3,064,497		3,879,678		4,108,883		4,368,320		4,653,469		4,966,672
KeySpan Corporate Services LLC*		14,868,661		18,500,314		18,721,801		18,977,689		19,273,728		19,616,522
KeySpan Utility Services LLC		1,955,528		2,203,698		2,158,590		2,109,021		2,058,111		2,006,193
KeySpan Engineering and Survey		3,254,405		3,871,646		4,101,466		4,362,168		4,649,391		4,965,497
KeySpan Energy Management Inc		28,620		48,102		46,910		45,361		43,751		42,089
KeySpan Energy Services Inc.		15,545		17,849		17,283		16,550		15,787		14,996
KeySpan Energy Solutions Inc.		415,280		446,700		402,377		354,072		302,926		248,822
KeySpan Energy Supply LLC		0		12,768		13,115		13,540		14,009		14,525
KeySpan Communications		46,316		48,403		50,330		52,648		55,173		57,927
KeySpan Services, Inc.		19,578		19,395		19,075		18,604		18,045		17,425
KS Plumbing & Heating Solutions LLC		7,072		6,161		6,134		6,068		5,961		5,829
KS Plumbing & Heating Services Inc.		3,821		3,692		3,828		3,997		4,181		4,382
KeySpan Plumbing Solutions Inc.		975		3,429		2,239		966		(396)		(1,855)
KeySpan Home Energy Services NE		17,396		26,954		26,842		26,638		26,373		26,073
KeySpan Corporate Services LLC (KSI)		13,395		9,521		9,177		8,739		8,284		7,812
KeySpan Ravenswood Services Corp		263,122		0		0		0		0		0
KeySpan Northeast Ventures		4,305		0		0		0		0		0
Seneca		0		0		0		0		0		0
Boston Gas .		4,963,494		4,756,470		4,532,199		4,290,553		4,031,124		3,756,117
Colonial Gas (excluding Transgas)		782,973		651,137		642,881		632,238		619,354		605,463
Transgas		63,768		59,466		59,247		58,824		58,277		57,651
Algonquin		18,345		17,666		17,592		17,457		17,284		17,087
EnergyNorth		270,461		243,819		242,683		240,704		238,161		235,294
Essex Gas		300,601		367,169		364,601		360,768		356,120		350,939
Total Financing Expense/(Income)	S	46,958,927	s	56,118,000	\$	56,345,000	s	56,662,000	s	57,072,000	s	57,596,000
Assumptions:	· · · · · ·									<u> </u>	· · · ·	
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets - Union		8.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%		6.00%
Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5,00%		5.00%
Actual Return on Assets for Projection		-24.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

\* Includes special termination benefit charges

# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated FAS 106 Expense NOT reflecting Medicare Part D Subsidy

<b>Estimated FAS 106 Expense I</b>	NOT re	eflecting Med	icar	e Part D Sub	sidy							01/09/2009
		Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Reconciliation of Funded Status, 4/1												
Accumulated Postret. Ben. Obligation Fair Value of Assets	\$	(1,277,583,831) 368,363,936	\$	(1,324,069,000) 268,505,000	\$	(1,370,093,000) 300,386,000	\$	(1,415,484,000) 330,563,000	s	(1,460,681,000) 359,135,000	\$	(1,506,051,000) 386,024,000
Funded Status	\$	(909,219,895)	\$	(1,055,564,000)	\$	(1,069,707,000)	\$	(1,084,921,000)	\$	(1,101,546,000)	\$	(1,120,027,000)
Unrecognized:												
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0
Prior Service Cost		0		0		0		0		0		0
• Net (Gain) or Loss		41,601,362	·	149,406,000		133,943,000		118,480,000		103,017,000		87,554,000
(Accrued) / Prepaid Cost	\$	(867,618,533)	\$	(906,158,000)	\$	(935,764,000)	\$	(966,441,000)	\$	(998,529,000)	\$	(1,032,473,000)
Net Periodic Cost												
Service Cost	\$	21,464,562	\$	22,538,000	\$	23,666,000	\$	24,849,000	\$	26,091,000	\$	27,396,000
Interest Cost		81,207,924		84,079,000		86,934,000		89,751,000		92,563,000		95,399,000
Expected Return on Assets Amortization of:		(27,222,655)		(20,586,000)		(22,856,000)		(25,016,000)		(27,074,000)		(29,033,000)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0	·	0		0		0
Prior Service Cost		0		0		0		0		0		. 0
<ul> <li>Net (Gain) or Loss</li> </ul>		4,597,284		15,463,000		15,463,000		15,463,000		15,463,000		15,463,000
FAS 106 Expense	S	80,047,115	S	101,494,000	S	103,207,000	S	105,047,000	S	107,043,000	S	109,225,000
FAS 106 Special Termination Benefits		537,000		493,000		165,000		0		0		0
FAS 106 Curtailment Expense		0		0		0		0		0		0
Total Gross Postret Medical Expense	S	80,584,115	S	101,987,000	S	103,372,000	S	105,047,000	S	107,043,000	S	109,225,000
Expected Benefit Payments - Gross	\$	56,723,000	\$	61,086,000	S	65,374,000	s	69,403,000	\$	73,284,000	\$	76,746,000
Expected Benefit Payments - Plan Assets	\$	51,279,000	\$	55,305,000	\$	59,279,000	\$	63,044,000	\$	66,785,000	\$	70,167,000
Expected Contributions (Funded Plans)	S	36,600,000	\$	66,600,000	\$	66,600,000	\$	66,600,000	\$	66,600,000	\$	66,600,000
Expected Contributions (Total)	S	42,044,000	\$	72,381,000	\$	72,695,000	\$	72,959,000	\$	73,099,000	\$	73,179,000
Market Related Value of Assets	S	368,363,936	\$	268,505,000	\$	300,386,000	\$	330,563,000	\$	359,135,000	\$	386,024,000
Assumptions:												
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets - Union		8.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%		6.00%
Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5,00%		5.00%		5.00%		5.00%		5.00%		5.00%
Actual Return on Assets for Projection		-24.00%		8.00%		8.00%		8.00%		8.00%		8.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical Plan (Total) Estimated FAS 106 Expense NOT reflecting Medicare Part D Subsidy

		Actual	Estimated		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009	4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Net Deviedie Cost									•		
HELFERIOUIC COSL H.S. Datiree Welfare Schemer - KeySnan N	fadical Plan	(Total)									
U.S. Retiree wenare Schemes - Reyspan W	Icultar Flan	(10(41)									
KeySpan Energy Delivery NY	\$	8,937,757	\$ 12,312,031	\$	11,427,878	\$	10,456,828	\$	9,412,947	\$	8,293,035
KeySpan Energy Delivery LI		8,268,312	11,061,764		11,602,276		12,193,376		12,834,843		13,530,492
KeySpan Electric Services LLC		12,933,098	16,699,557		17,509,685		18,398,508		19,361,927		20,405,803
KeySpan Energy Trading Services LLC		122,113	139,202		143,724		148,733		154,111		159,922
KeySpan Generation LLC		5,132,225	6,806,883		7,127,927		7,481,458		7,864,436		8,279,246
KeySpan Corporate Services LLC*		25,432,977	33,846,274		34,231,919		34,823,980		35,638,729		36,525,666
KeySpan Utility Services LLC		3,109,978	3,782,477		3,783,719		3,780,270		3,776,556		3,773,891
KeySpan Engineering and Survey		6,783,142	8,343,548		8,741,695		9,176,831		9,646,241		10,152,551
KeySpan Energy Management Inc		36,199	69,987		69,338		68,288		67,167		66,018
KeySpan Energy Services Inc.		18,002	23,992		23,538		22,896		22,213		21,507
KeySpan Energy Solutions Inc.		927,804	1,097,329		1,076,144		1,051,717		1,025,536		997,557
KeySpan Energy Supply LLC		0	32,819		34,006		35,297		36,664		38,120
KeySpan Communications		90,087	94,055		97,633		101,628		105,885		110,440
KeySpan Services, Inc.		28,429	34,376		34,513		34,532		34,457		34,369
KS Plumbing & Heating Solutions LLC		14,250	12,169		12,323		12,451		12,525		12,646
KS Plumbing & Heating Services Inc.		5,483	5,992		6,196		6,430		6,681		6,951
KeySpan Plumbing Solutions Inc.		4,995	14,384		13,604		12,759		11,846		10,859
KeySpan Home Energy Services NE		24,875	37,132		37,487		37,758		37,993		38,223
KeySpan Corporate Services LLC (KSI)		25,606	23,002		23,227		23,370		23,518		23,680
KeySpan Ravenswood Services Corp		350,996	0		0		0		0		0
KeySpan Northeast Ventures		4,716	0		0		0		0		0
Seneca		0	0		0		0		0		0
Boston Gas		6,131,912	5,917,065		5,742,050		5,551,450		5,348,085		5,132,154
Colonial Gas (excluding Transgas)		908.941	806.128		804,483		800,436		794,505		788,083
Transgas		81,649	75,367		75,848		76,130		76,321		76,485
Algonguin		23.514	22,899		23,059		23,161		23,235		23,301
FnerøyNorth		289.374	262.946		262.350		260,811		258,738		256,436
Essex Gas		360,681	465,622		467,378		467,902		467,841		467,565
		· -			,				-		
Total Expense/(Income)	S	80,047,115 **	\$ 101,987,000	\$	103,372,000	S	105,047,000	S	107,043,000	S	109,225,000
Assumptions:			 	<u> </u>					···		
Discount Rate		6.50%	6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets - Union		8.00%	8.00%		8.00%		8.00%		8.00%		8.00%
Expected Return on Assets - Non Union		6.00%	6.00%		6.00%		6,00%		6.00%		6.00%
Initial Trend Pre-65		9.00%	8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%	9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%	5.00%		5.00%		5.00%		5.00%		5.00%
Actual Return on Assets for Projection		-24.00%	8.00%		8.00%		8.00%		8.00%		8.00%
Mortality Table Union		RP2000CH	RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15	RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15	•	RP2000CH_15
-		=	=		-		_		_		_

\* Includes FAS 88 special termination benefit charges

\*\* Excludes FAS 88 special termination benefit charges

# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Life Plan (Total) Estimated FAS 106 Expense

		Actual		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013
Reconciliation of Funded Status, 4/1	·····									
Accumulated Postret, Benefit Obligation	\$	(154,229,882)	\$	(157,367,000)	\$	(160,365,000)	\$	(163, 228, 000)	S	(165,966,000)
Fair Value of Assets		120,534,302		86,384,000		85,747,000		84,732,000		83,316,000
Funded Status	\$	(33,695,580)	\$	(70,983,000)	\$	(74,618,000)	S	(78,496,000)	\$	(82,650,000)
Unrecognized:										
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0
Prior Service Cost		0		0		0		0		0
<ul> <li>Net (Gain) or Loss</li> </ul>		8,602,730		44,325,000		39,806,000		35,287,000		30,768,000
(Accrued) / Prepaid Cost	\$	(25,092,850)	\$	(26,658,000)	\$	(34,812,000)	S	(43,209,000)	\$	(51,882,000)
Net Periodic Cost										
Service Cost	\$	1,923,080	\$	2,000,000	\$	2,081,000	\$	2,164,000	\$	2,250,000
Interest Cost		9,744,197		9,938,000		10,120,000		10,294,000		10,460,000
Expected Return on Assets		(9,362,414)		(6,619,000)		(6,557,000)		(6,464,000)		(6,337,000)
Amortization of:										
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0
<ul> <li>Prior Service Cost</li> </ul>		0		0		0		0		0
<ul> <li>Net (Gain) or Loss</li> </ul>		860,274		4,519,000		4,519,000		4,519,000		4,519,000
FAS 106 Expense	\$	3,165,137	\$	9,838,000	\$	10,163,000	\$	10,513,000	\$	10,892,000
FAS 106 Special Termination Benefits		0		0		0		0		0
FAS 106 Curtailment Expense		0		0		0		0		0
Total Life Insurance Expense	\$	3,165,137	\$	9,838,000	\$	10,163,000	\$	10,513,000	S	10,892,000
Functional Description of the De		<b>9</b> 520 000		8 040 000	¢	0.228.000	e .			10.097.000
Expected Benefit Payments - Gross	3	8,550,000	\$	8,940,000	3	9,558,000	Э	9,720,000	3	10,087,000
Europeted Deposite Dournorte Net	- <u>-</u>	N/A	· ·	N/A	•	0.119.000	¢	0.720.000	6	10.087.000
Expected Benefit Payments - Net	J C	6,330,000	د ۲	7 256 000	e e	7,538,000	s ¢	7,990,000	5	10,087,000 9 193 000
Expected General Payments - Fian Assets	د ۲	1,600,000	s c	1,250,000	s S	1,372,000	s c	1,880,000	s e	1 904 000
Market Related Value of Assets	\$	120,534,302	s S	86,384,000	s	85,747,000	\$	84,732,000	\$	83,316,000
Assumptions:										
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets		8.00%		8.00%		8.00%		8.00%		8,00%
Expected Return on Assets - Non Union		6.00%		6.00%		6.00%		6.00%		6.00%
Salary Scale		4.00%		4.00%		4.00%		4.00%		4.00%
Actual Return on Assets for Projection		-25.00%		8.00%		8.00%		8.00%		8.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

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	01/09/2009
	Estimated
	4/2013-3/2014
\$	(168,589,000)
	81,470,000
\$	(87,119,000)
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	U
	26 240 000
	20,249,000
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	4.00%
	8.00%
	RP2000CH
	RP2000CH 15

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Life Plan (Total) Estimated FAS 106 Expense

		Actual		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013
Net Periodic Cost <u>U.S. Retiree Welfare Schemes - KeySpan L</u> ife Plan (Total)										
KeySpan Energy Delivery NY	\$	628.423	\$	1.562.066	s	1.618.246	s	1.678.351	s	1.743.353
KeySpan Energy Delivery LI		81.237	•	999,255		1.027.443	•	1,058,233	-	1,092,098
KeySpan Electric Services LLC		264,924		1.730,603		1,783,655		1,841,384		1,904,797
KeySpan Energy Trading Services LLC		12,174		21,218		22,079		23,002		23,999
KeySpan Generation LLC		135,307		702,913		726,109		751,368		779,103
KeySpan Corporate Services LLC*		1,370,241		3,363,348		3,477,184		3,599,392		3,730,775
KeySpan Utility Services LLC		294,609		558,682		578,069		598,889		621,018
KeySpan Engineering and Survey		291,093		747,716		773,067		800,108		829,221
KeySpan Energy Management Inc		3,731		7,992		8,192		8,402		8,617
KeySpan Energy Services Inc.		576		2,533		2,513		2,484		2,443
KeySpan Energy Solutions Inc.		40,823		83,122		85,888		88,803		91,931
KeySpan Energy Supply LLC		, 0		2.717		2,825		2,936		3,052
KeySpan Communications		9,351		14,230		14,854		15.517		16,231
KeySpan Services, Inc.		15,587		37,084		38,184		39,261		40,303
KS Plumbing & Heating Solutions LLC		418		276		279		282		284
KS Plumbing & Heating Services Inc.		1,229		1,761		1,840		1,922		2,011
KeySpan Plumbing Solutions Inc.		123		951		991		1,032		1,078
KeySpan Home Energy Services NE		0		0		0		0		0
KeySpan Corporate Services LLC (KSI)		2,047		1,533		1,582		1,634		1,686
KeySpan Ravenswood Services Corp		13,183		0		0		0		0
KeySpan Northeast Ventures		61		0		0		0		0
Seneca		0		0		0		0		0
Boston Gas		0		0		0		0		0
Colonial Gas (excluding Transgas)		ů		0		0		0		0
Transpas		ů		0		0		0		0
Algonauin		ů		0		ů		ů 0		ů
EnergyNorth		ů		0		0		0		0
Essex Gas		Ő		0		ő		ő		0
Total Expense/(Income)	S	3,165,137	\$	9,838,000	\$	10,163,000	s	10,513,000	\$	10,892,000
Assumptions:					_			·		
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%
Expected Return on Assets		8.00%		8.00%		8.00%		8.00%		8.00%
Salary Scale		4.00%		4.00%		4.00%		4.00%		4.00%
Actual Return on Assets for Projection		-25.00%		8 00%		8 00%		8 00%		8 00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15
* Includes FAS 88 special termination benefit char ** Includes FAS 88 settlement and curtailment cha	ges Irges					•				

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	01/09/2009					•
	Estimated					
	4/2013-3/2014					
	1.010.000					
2	1,812,000					
	1,128,939					
	1,973,612					
	25,067					
	809,179					
	3,871,973					
	644,646					
	860,403					
	8,842					
	2,393					
	95,241					
	3,175					
	16,998					
	41,607					
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	2,105					
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	8.UU%					
	KP2000CH					
	KP2000CH_I5					

## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Life Plan (Total) Estimated IAS 19 Expense

	Actual		Estimated		Estimated		Estimated	Estimated
	 4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012	4/2012-3/2013
Reconciliation of Funded Status, 4/1								
Accumulated Postret. Ben. Obligation	\$ (154,229,882)	\$	(157,367,000)	\$ -	(160,365,000)	\$	(163,228,000)	\$ (165,966,000)
Assets at Bid Value	 120,562,946		86,404,000	_	85,770,000		84,758,000	 83,344,000
Funded Status	\$ (33,666,936)	S	(70,963,000)	\$	(74,595,000)	\$	(78,470,000)	\$ (82,622,000)
Prior Service Costs	 0		0		0		0	 0
(Accrued) / Prepaid Cost	\$ (33,666,936)	\$	(70,963,000)	\$	(74,595,000)	\$	(78,470,000)	\$ (82,622,000)
P&L Expense								
Operating Expense								
Service Cost	\$ 1,923,080	S	2,000,000	\$	2,081,000	\$	2,164,000	\$ 2,250,000
Exceptional Costs (STBs)	0		0		0		0	0
Prior Service Costs	0		0		0		0	0
Settlement Costs	0		0		0		0	0
Curtailment Costs	0		0		0		0	0
Total Operating Expense	\$ 1,923,080	\$	2,000,000	\$	2,081,000	\$	2,164,000	\$ 2,250,000
Financing Expense								
Interest Cost	9,744,197		9,938,000		10,120,000		10,294,000	10,460,000
Expected Return on Assets	(9,364,706)		(6,622,000)		(6,560,000)		(6,466,000)	(6,340,000)
Total Financing Expense	\$ 379,491	\$	3,316,000	\$	3,560,000	\$	3,828,000	\$ 4,120,000
Total P&L Expense	\$ 2,302,571	\$	5,316,000	\$	5,641,000	\$	5,992,000	\$ 6,370,000
Estimated SORIE Expense								
Expected less Actual Return on Assets	\$ 36,594,000	\$	0	\$	0	\$	0	\$ 0
Change in Assumptions	0		0		0		0	0
Experience Losses from Liabilities	0		0		0		0	 0
Total SORIE Expense	\$ `36,594,000	\$	0	\$	0	\$	0	\$ 0
Expected Benefit Payments - Gross	\$ 8,530,000	s	8,940,000	\$	9,338,000	\$	9,720,000	\$ 10,087,000
Medicare Part D Subsidy	N/A		N/A		N/A		N/A	N/A
Expected Benefit Payments - Net	\$ 8,530,000	\$	8,940,000	S	9,338,000	\$	9,720,000	\$ 10,087,000
Expected Benefit Payments - Plan Assets	\$ 6,930,000	\$	7,256,000	\$	7,572,000	S	7,880,000	\$ 8,183,000
Expected Contributions	\$ 1,600,000	\$	1,684,000	\$	1,766,000	\$	1,840,000	\$ 1,904,000
Assumptions:								
Discount Rate	6.50%		6.50%		6.50%		6.50%	6.50%
Expected Return on Assets	8.00%		8.00%		8.00%		8.00%	8.00%
Salary Scale	4.00%		4.00%		4.00%		4.00%	4.00%
Actual Return on Assets for Projection	-25.00%		8.00%		8.00%		8.00%	8.00%
Mortality Table Union	RP2000CH		RP2000CH		RP2000CH		RP2000CH	RP2000CH
Mortality Table Non-Union	RP2000CH 15		RP2000CH 15		RP2000CH 15		RP2000CH 15	RP2000CH 15

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	01/09/2009	
	Estimated	
	4/2013-3/2014	
\$	(168,589,000)	
	81,501,000	
\$	(87,088,000)	
	0	
S	(87,088,000)	
\$	2,340,000	
	0	
	0	
	0	
	0	
\$	2,340,000	
	10,620,000	
	(6,181,000)	
\$	4,439,000	
\$	6,779,000	
\$	0	
	0	
	0	
\$	0	
\$	10,420,000	
	N/A	
\$	10,420,000	
\$	8,460,000	
\$	1,960,000	
	6.50%	
	8.00%	
	4.00%	
	8.00%	
	RP2000CH	
	RP2000CH_15	

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Life Plan (Total) Estimated IAS 19 Expense

		Actual		Estimated	Estimated	Estimated	Estimated
		4/2008-3/2009		4/2009-3/2010	4/2010-3/2011	 4/2011-3/2012	 4/2012-3/2013
Net Periodic Cost	• Dl (T	n					
U.S. Retiree weitare Schemes - KeySpan Li	le rian (10ta	1)					
KeySpan Energy Delivery NY	s	561.023	S	978.043	\$ 1.034.223	\$ 1.095.008	\$ 1,159,330
KeySpan Energy Delivery LI		(54,667)		354,634	382,822	413,613	447,477
KeySpan Electric Services LLC		34,915		686,180	739,231	796,961	860,374
KeySpan Energy Trading Services LLC		10,586		14,343	15,204	16,127	17,124
KeySpan Generation LLC		45,187		297,318	320,514	345,773	373,508
KeySpan Corporate Services LLC*		1,122,438		2,030,547	2,144,386	2,266,826	2,397,973
KeySpan Utility Services LLC		277,064		394,431	413,818	434,694	456,767
KeySpan Engineering and Survey		224,284		439,042	464,393	491,438	520,547
KeySpan Energy Management Inc		3,734		7,110	7,309	7,520	. 7,734
KeySpan Energy Services Inc.		719		3,201	3,180	3,151	3,110
KeySpan Energy Solutions Inc.~		36,766		55,478	58,243	61,182	64,286
KeySpan Energy Supply LLC		0		2,502	2,610	2,721	2,838
KeySpan Communications		8,358		10,438	11,062	11,725	12,440
KeySpan Services, Inc.		16,185		38,911	40,011	41,088	42,130
KS Plumbing & Heating Solutions LLC		460		317	321	324	326
KS Plumbing & Heating Services Inc.		1,165		1,523	1,602	1,685	1,774
KeySpan Plumbing Solutions Inc.		110		607	646	688	734
KeySpan Home Energy Services NE		0		0	0	0	0
KeySpan Corporate Services LLC (KSI)		2,131		1,375	1,425	1,476	1,528
KeySpan Ravenswood Services Corp		12,069		0	0	0	0
KeySpan Northeast Ventures		44		0	0	. 0	0
Seneca		0		0	0	0	0
Boston Gas		0		0	0	0	0
Colonial Gas (excluding Transgas)		0		0	0	0	0
Transgas		0		0	0	0	0
Algonquin		0		0	0	0	0
EnergyNorth		0		0	0	0	0
Essex Gas		0		0	0	0	0
Total Expense/(Income)	\$	2,302,571	\$	5,316,000	\$ 5,641,000	\$ 5,992,000	\$ 6,370,000
Assumptions:					 	 	 <u> </u>
Discount Rate		6.50%		6.50%	6.50%	6.50%	6.50%
Expected Return on Assets		8.00%		8.00%	8.00%	8.00%	8.00%
Salary Scale		4.00%		4.00%	4.00%	4.00%	4.00%
Actual Return on Assets for Projection		-25.00%		8.00%	8.00%	8.00%	8.00%
Mortality Table Union		RP2000CH		RP2000CH	RP2000CH	RP2000CH	RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15	RP2000CH_15	RP2000CH_15	RP2000CH_15
* Includes special termination benefit charges							

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Life Plan (Total) Estimated IAS 19 Operating Expense

	Actual Estim		Estimated	Estimated		Estimated	Estimated		
·	<u>.</u>	4/2008-3/2009		4/2009-3/2010	 4/2010-3/2011		4/2011-3/2012		4/2012-3/2013
Net Periodic Cost	<b>D</b> ) (7)	•							
U.S. Retiree Weitare Schemes - KeySpan Life	e Plan (Tota	al)							
KeySpan Energy Delivery NY	\$	252,469	\$	263,411	\$ 274,117	Ś.	284,823	\$	296,259
KeySpan Energy Delivery LI		197,530		208,787	217,165		225,899		234,878
KeySpan Electric Services LLC		333,056		339,160	352,821		366,988		381,594
KeySpan Energy Trading Services LLC		3,089		2,802	2,918		3,035		3,156
KeySpan Generation LLC		117,343		120,143	124,968		129,990		135,162
KeySpan Corporate Services LLC*		628,369		640,726	666,820		693,460		720,938
KeySpan Utility Services LLC		77,035		73,464	76,493		79,541		82,715
KeySpan Engineering and Survey		258,918		284,091	295,591		307,446		319,699
KeySpan Energy Management Inc		482		476	495		515		535
KeySpan Energy Services Inc.		0		0	0		0		0
KeySpan Energy Solutions Inc.		32,155		30,973	32,228		33,503		34,840
KeySpan Energy Supply LLC		0		1,296	1,350		1,404		1,460
KeySpan Communications		3,193		3,034	3,160		3,286		3,416
KeySpan Services, Inc.		13,011		29,541	30,690		31,838		32,986
KS Plumbing & Heating Solutions LLC		248		118	123		128		132
KS Plumbing & Heating Services Inc.		769		933	972		1,011		1,052
KeySpan Plumbing Solutions Inc.		121		439	457		475		494
KeySpan Home Energy Services NE		0		0	0		0		0
KeySpan Corporate Services LLC (KSI)		1,155		606	632		658		684
KeySpan Ravenswood Services Corp		4,137		0	0		0		0
KeySpan Northeast Ventures		0		0	0		0		0
Seneca		0		0	0		0		0
Boston Gas		0		0	0		0		0
Colonial Gas (excluding Transgas)		0		0	0		0		0
Transgas		0		0	0		0		0
Algonquin		0		0	0		0		0
EnergyNorth		0		0	0		0		0
Essex Gas		0		0	0		0		0
Total Operating Expense/(Income)	\$	1,923,080	\$	2,000,000	\$ 2,081,000	\$	2,164,000	\$	2,250,000
Assumptions:					 · · ·				
Discount Rate		6.50%		6.50%	6.50%		6.50%		6.50%
Salary Scale		4.00%		4.00%	4.00%		4.00%		4.00%
Mortality Table Union		RP2000CH		RP2000CH	RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15	RP2000CH_15		RP2000CH_15		RP2000CH_15
* Includes special termination benefit charges									

# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Life Plan (Total) Estimated IAS 19 Financing Expense

		Actual	Estimated		Estimated	Estimated		Estimated
		4/2008-3/2009	 4/2009-3/2010		4/2010-3/2011	 4/2011-3/2012		4/2012-3/2013
Not Dealed's Cont								
Net reriout Cost U.S. Patires Walfare Schemer - KaySpan Life	a Plan (Tota	n						
U.S. Retifte wehate Schemes - Reyspan En	e 1 iau (1 0ta	•)						
KeySpan Energy Delivery NY	\$	308,554	\$ 714,632	\$	760,107	\$ 810,185	\$	863,072
KeySpan Energy Delivery LI		(252,197)	145,847		165,657	187,714		212,599
KeySpan Electric Services LLC		(298,141)	347,020		386,411	429,973		478,780
KeySpan Energy Trading Services LLC		7,497	11,540		12,285	13,092		13,967
KeySpan Generation LLC		(72,156)	177,175		195,546	215,782		238,346
KeySpan Corporate Services LLC*		494,069	1,389,823		1,477,564	1,573,365		1,677,036
KeySpan Utility Services LLC		200,029	320,967		337,325	355,153		374,052
KeySpan Engineering and Survey		(34,634)	154,951		168,803	183,992		200,848
KeySpan Energy Management Inc		3,252	6,634		6,814	7,005		7,199
KeySpan Energy Services Inc.		719	3,201		3,180	3,151		3,110
KeySpan Energy Solutions Inc.		4,611	24,505		26,015	27,679		29,446
KeySpan Energy Supply LLC		0	1,206		1,260	1,318		1,378
KeySpan Communications		5,165	7,405		7,902	8,439		9,024
KeySpan Services, Inc.		3,174	9,370		9,321	9,250		9,144
KS Plumbing & Heating Solutions LLC		212	199		198	196		193
KS Plumbing & Heating Services Inc.		396	589		630	674		722
KeySpan Plumbing Solutions Inc.		(11)	167		189	214		240
KeySpan Home Energy Services NE		0	0		0	0		0
KeySpan Corporate Services LLC (KS1)		976	769		793	818		844
KeySpan Ravenswood Services Corp		7,932	0		0	0		0
KeySpan Northeast Ventures		44	0		0	0		0
Seneca		0	0		0	0		0
Boston Gas		0	0		0	0		0
Colonial Gas (excluding Transgas)		0	0		0	0		0
Transgas		0	0		0	0		0
Algonquin		0	0		0	0		0
EnergyNorth		0	0		0	0		0
Essex Gas		0	0		0	0		0
Total Financing Expense/(Income)	\$	379,491	\$ 3,316,000	S	3,560,000	\$ 3,828,000	S	4,120,000
Assumptions:			 			 ·····		
Discount Rate		6.50%	6.50%		6.50%	6.50%		6.50%
Expected Return on Assets		8.00%	8.00%		8.00%	8.00%		8.00%
Salary Scale		4.00%	4.00%		4.00%	4.00%		4.00%
Actual Return on Assets for Projection		-25.00%	8.00%		8.00%	8.00%		8.00%
Mortality Table Union		RP2000CH	RP2000CH		RP2000CH	RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15	RP2000CH_15		RP2000CH_15	RP2000CH_15		RP2000CH_15
* Includes special termination benefit charges								

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	01/09/2009
	Estimated
	4/2013-3/2014
\$	1,229,323
	484,318
	929,189
	18,191
	2 539 410
	480.451
	551,732
	7,960
	3,061
	67,620
	2,961
	13,206
	43,434
	328
	1,867
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	RP2000CH
	10-2000CH_13

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	01/09/2009
	Estimated
	4/2013-3/2014
¢	307 777
Ð	244.290
	396,892
	3,283
	140,578
	749,932
	86,014
	332,518
	556
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\$	2,340,000
	6.50%
	4.00%
1	RP2000CH
1	KE2000CH_13

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	01/09/2009					
	Estimated					
	4/2013-3/2014					
¢	021 546					
ور	240 028					
	532,297					
	14,908					
	263,006					
	1,789,479					
	394,438				·	
	7 403					
	3,061					
	31,407					
	1,442					
	9,652					
	9,015					
	773					
	269					
	0					
	872					
	0					
	0					
	0					
	0	·				
	0					
	0					
	0					
	0					
s	4.439.000					
2	4403,000			-		
*						
	6.50%					
	8.00%					
	4,00%					
	8.00% RP2000CH					
	RP2000CH 15					

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## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated FAS 106 Expense

Estimated FAS 106 Expense												01/09/2009
		Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Reconciliation of Funded Status, 4/1												
Accumulated Postret. Benefit Obligation	\$	(1,320,732,978)	\$	(1,365,330,000)	S	(1,409,221,000)	\$	(1,452,218,000)	\$	(1,494,753,000)	\$	(1,537,172,000)
Fair Value of Assets		488,898,238		354,889,000		386,133,000		415,295,000		442,451,000		467,494,000
Funded Status	\$	(831,834,740)	\$	(1,010,441,000)	\$	(1,023,088,000)	\$	(1,036,923,000)	\$	(1,052,302,000)	\$	(1,069,678,000)
Unrecognized:												
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0		0		0
<ul> <li>Prior Service Cost</li> </ul>		0		0		0		0		0		. 0
• Net (Gain) or Loss		51,380,960		194,816,000		174,752,000		154,688,000		134,624,000		114,560,000
(Accrued) / Prepaid Cost	\$	(780,453,780)	\$	(815,625,000)	\$	(848,336,000)	\$	(882,235,000)	\$	(917,678,000)	\$	(955,118,000)
Net Periodic Cost												
Service Cost	\$	21,647,686	\$	22,692,000	\$	23,788,000	\$	24,936,000	\$	26,139,000	\$	27,402,000
Interest Cost		83,855,133		86,605,000		89,317,000		91,978,000		94,613,000		97,256,000
Expected Return on Assets Amortization of:		(36,585,069)		(27,205,000)		(29,413,000)		(31,480,000)		(33,411,000)		(35,212,000)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		. 0		0		0		0		0
Prior Service Cost		0		0		0		0		0 0		0
• Net (Gain) or Loss		5.550.735		20.064.000		20.064.000		20 064 000		20.064.000		20 064 000
FAS 106 Expense	S	74.468.485	S	102.156.000	S	103.756.000	S	105.498.000	s	107.405.000	S	109.510.000
FAS 106 Special Termination Benefits		537,000	-	493,000	-	165,000	•	0	•	0	•	0
FAS 106 Curtailment Expense		, 0		0		0		0		0		0
Total Retiree Welfare Expense	S	75,005,485	S	102,649,000	S	103,921,000	8	105,498,000	S	107,405,000	S	109,510,000
Expected Departit Dourments Groce				70.026.000		74 712 000		70 122 000		82 271 000		
Medicare Part D Subsidy	¢.	3 810 000	3	4 127 000	9	/4,/12,000	Э	4 744 000	3	5 039 000	3	5 216 000
Expected Repetit Payments - Net	<u> </u>	61 443 000	5	65 899 000	5	70 273 000	\$	74 379 000	•	78 333 000		91 850 000
Expected Benefit Payments - Plan Assets	·	58 209 000	ŝ	62 561 000	ç	66 851 000	ç	70 974 000	ç	78,555,000	ç	78 637 000
Expected Contributions	ŝ	43 644 000	ŝ	74.065.000	ŝ	74 461 000	ŝ	74 799 000	ç	74,508,000	د د	75,139,000
Market Related Value of Assets	Š	488,898,238	s	354,889,000	\$	386,133,000	\$	415,295,000	\$	442,451,000	\$	467,494,000
Assumptions:												
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Salary Scale		4.00%		4.00%		4.00%		4.00%		4.00%		4,00%
Expected Return on Assets	5	See results by group		See results by group		See results by group		See results by group		See results by group		See results by group
Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8,50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		<b>RP2000CH</b>		· RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

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## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated FAS 106 Expense

		Actual	 Estimated		Estimated		Estimated		Estimated	Estimated
		4/2008-3/2009	 4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013	 4/2013-3/2014
Net Periodic Cost										
U.S. Retiree Welfare Schemes - KeySpan Me	dical and Li	fe Plans						-		
KeySpan Energy Delivery NY	\$	8,375,150	\$ 12,619,176	\$	11,723,915	\$	10,743,924	\$	9,692,533	\$ 8,567,032
KeySpan Energy Delivery Ll		7,292,450	10,941,895		11,458,285		12,026,575		12,646,270	13,321,651
KeySpan Electric Services LLC		11,544,661	16,747,064		17,532,552		18,399,735		19,344,341	20,372,781
KeySpan Energy Trading Services LLC		122,429	147,647		152,506		157,910		163,749	170,085
KeySpan Generation LLC		4,604,940	6,826,392		7,139,723		7,486,949		7,864,955	8,276,479
KeySpan Corporate Services LLC*		24,064,140	34,253,855		34,613,260		35,185,464		35,984,880	36,859,253
KeySpan Utility Services LLC		3,058,912	4,006,102		4,011,224		4,012,879		4,015,127	4,019,461
KeySpan Engineering and Survey		6,293,234	8,264,403		8,649,613		9,072,498		9,530,303	10,025,969
KeySpan Energy Management Inc		39,264	72,938		72,242		71,153		69,996	68,808
KeySpan Energy Services Inc.		17,479	24,923		24,369		23,617		22,813	21,972
KeySpan Energy Solutions Inc.		867,297	1,074,048		1,050,117		1,022,975		993,988	963,219
KeySpan Energy Supply LLC		0	32,654		33,826		35,101		36,456	. 37,905
KeySpan Communications		90,240	99,613 ·		103,464		107,767		112,378	117,337
KeySpan Services, Inc.		42,688	69,459		70,628		71,632		72,526	73,644
KS Plumbing & Heating Solutions LLC		13,731	11,799		11,956		12,073		12,150	12,200
KS Plumbing & Heating Services Inc.		5,832	7,196		7,458		7,754		8,072	8,415
KeySpan Plumbing Solutions Inc.		4,517	13,792		12,968		12,078		11,121	10,088
KeySpan Home Energy Services NE		24,873	36,160		36,432		36,609		36,738	36,855
KeySpan Corporate Services LLC (KSI)		25,595	22,850		23,040		23,151		23,261	23,386
KeySpan Ravenswood Services Corp		374,260	0		0		0		0	0
KeySpan Northeast Ventures		4,745	0		0		0		0	0
Seneca		0	0		0		0		0	0
Boston Gas		5.972.243	5,788,931		5.606.854		5,408,254		5,193,566	4,965,174
Colonial Gas (excluding Transgas)		918 684	783,568		780,989		775.850		768.644	760,749
Transpas		83 075	73 353		73 724		73 878		73 924	73 928
Algonguin		23 512	22 289		22,410		22 468		22.492	22,504
EnergyNorth		287 665	255 471		254 938		253 447		251 407	249 073
Essay Gos		316 869	453 422		454 507		454 259		453 310	452 032
		510,007	455,122				, company			
Total Expense/(Income)	\$	74,468,485	\$ 102,649,000	S	103,921,000	\$	105,498,000	\$	107,405,000	\$ 109,510,000
Assumptions:	<u> </u>	·	 							 
Discount Rate		6.50%	6.50%		6.50%		6.50%		6.50%	6.50%
Salary Scale		4.00%	4.00%		4.00%		4.00%		4.00%	4.00%
Expected Return on Assets	S	See results by group	See results by group		See results by group	5	ee results by group		See results by group	See results by group
Initial Trend Pre 65		9.00%	8.25%		7.50%		6.75%		6.00%	5.25%
Initial Trend Post 65		10.00%	9.25%		8.50%		7.75%		7.00%	6.25%
Ultimate Trend		5.00%	5.00%		5.00%		5.00%		5.00%	5.00%
Mortality Table Union		RP2000CH	RP2000CH		RP2000CH		RP2000CH		RP2000CH	RP2000CH
Mortality Table Non-Union		RP2000CH_15	RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15	RP2000CH_15
* Includes FAS 88 special termination benefit of	harges									

Hewitt Associates

01/09/2009

## National Grid USA

# U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans

# Estimated IAS 10 Europe

Estimated IAS 19 Expense												01/09/2009
		Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012		Estimated 4/2012-3/2013		Estimated 4/2013-3/2014
Reconciliation of Funded Status, 4/1												
Accumulated Postret. Ben. Obligation	· \$	(1,321,927,731)	\$	(1,365,988,000)	\$	(1,409,386,000)	\$	(1,452,218,000)	\$	(1,494,753,000)	\$	(1,537,172,000)
Assets at Bid Value		489,014,579		354,976,000		386,229,000		415,400,000		442,564,000		467,617,000
Funded Status	\$	(832,913,152)	\$	(1,011,012,000)	\$	(1,023,157,000)	\$	(1,036,818,000)	\$	(1,052,189,000)	\$	(1,069,555,000)
Prior Service Costs		0		0		0		0	~	0		0
(Accrued) / Prepaid Cost	\$	(832,913,152)	\$	(1,011,012,000)	\$	(1,023,157,000)	\$	(1,036,818,000)	\$	(1,052,189,000)	\$	(1,069,555,000)
P&L Expense												
Operating Expense												
Service Cost	\$	21,647,686	S	22,692,000	\$	23,788,000	\$	24,936,000	\$	26,139,000	\$	27,402,000
Exceptional Costs (STBs)		0		0		0		0		0		0
Prior Service Costs	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	0		0		0		0		0 -		0
Settlement Costs		0		0		0		0		0		0
Curtailment Costs		0		00		0		0		0		0
Total Operating Expense	\$	21,647,686	\$	22,692,000	\$	23,788,000	\$	24,936,000	\$	26,139,000	\$	27,402,000
Financing Expense												
Interest Cost		83,932,792		86,648,000		89,327,000		91,978,000		94,613,000		97,256,000
Expected Return on Assets		(36,594,374)	-	(27,214,000)		(29,422,000)	-	(31,488,000)		(33,421,000)		(35,221,000)
Total Financing Expense	2	4/,338,418	2	59,434,000	\$	59,905,000	2	60,490,000	3	61,192,000	2	62,035,000
Total P&L Expense	S	68,986,104	\$	82,126,000	\$	83,693,000	\$	85,426,000	\$	87,331,000	S	89 <b>,437,00</b> 0
Estimated SORIE Expense												
Expected less Actual Return on Assets	\$	149,024,000	\$	0	\$	0	\$	0	\$	0	\$	0
Change in Assumptions		0		0		0		0		0		0
Experience Losses from Liabilities		0		0		00		0		0		0
Total SORIE Expense	\$	149,024,000	s	0	\$	. 0	\$	0	\$	0	\$	0
Expected Benefit Payments - Gross	\$	65,253,000	\$	70,026,000	5	74,712,000	\$	79,123,000	\$	83,371,000	\$	87,166,000
Medicare Part D Subsidy		3,810,000	·	4,127,000		4,439,000		4,744,000		5,038,000		5,316,000
Expected Benefit Payments - Net	\$	61,443,000	\$	65,899,000	\$	70,273,000	\$	74,379,000	\$	78,333,000	\$	81,850,000
Expected Benefit Payments - Plan Assets	S	58,209,000	S	62,561,000	\$	66,851,000	S	70,924,000	\$	74,968,000	\$	78,627,000
Expected Contributions	\$	43,644,000	\$	74,065,000	\$	74,461,000	\$	74,799,000	\$	75,003,000	\$	75,139,000
Assumptions:												
Discount Rate		6.50%		6.50%		6.50%		6.50%		6.50%		6.50%
Salary Scale		4.00%		4.00%		4.00%		4.00%		4.00%		4.00%
Expected Return on Assets	1	See results by group		See results by group		See results by group		See results by group		See results by group		See results by group
Initial Trend Pre 65		9.00%		8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post 65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

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## National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated IAS 19 Expense

		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
Net Periodic Cost		4/2008-3/2009		4/2003-3/2010	••••	4/2010-3/2011		4/2011-5/2012		4/2012-3/2013		4/2013-3/2014
IIS Detires Welfare Schemes - KevSnan Me	dical and Life	Plans										
KeySpan Energy Delivery NY	s	7 348 381	s	8 891 121	\$	7 991 640	\$	7 011 027	s	5 958 957	\$	4.834.135
KeySpan Energy Delivery L1	5	6 706 964	Ŷ	8 597 955	Ŷ	9 112 292	Ŷ	9 679 904	÷	10.299.399	•	10,974,780
KeySpan Electric Services LLC		10 598 991		13 139 303		13 921 102		14,787,058		15,731,382		16.759.823
KeySpan Energy Trading Services LLC		112 682		118 740		123.500		128.872		134,709		141.044
KeySpan Generation LLC		4.212.594		5.356.349		5.667.742		6.014.321		6,392,221		6,803,745
KeySpan Corporate Services LLC*		22, 297, 908		27 419 817		28.092.891		28.825.867		29,624,764		30,499,375
KeySpan Utility Services LLC		2.813.834		3,160,787		3,163,215		3,164,070		3,166,249		3,170,640
KeySpan Engineering and Survey		5,878,777		6,874,231		7,257,600		7,679,876		8,137,565		8,633,234
KeySpan Energy Management Inc		36,572		59,513		58,735		57,622		56,464		55,277
KeySpan Energy Services Inc.		16,264		21,050		20,463		19,701		18,897		18,057
KeySpan Energy Solutions Inc.		798,660		847,703		823,422		796,197		767,181		736,435
KeySpan Energy Supply LLC		0		29,240		30,394		31,663		33,019		34,468
KeySpan Communications		84,326		83,679		87,471		91,754		96,366		101,324
KeySpan Services, Inc.		40,753		65,768		66,923		67,922		68,817		69,934
KS Plumbing & Heating Solutions LLC		11,705		9,968		10,126		10,243		10,320		10,369
KS Plumbing & Heating Services Inc.		5,356		6,038		6,295		6,589		6,908		7,250
KeySpan Plumbing Solutions Inc.		4,181		10,567		9,742		8,854		7,896		6,864
KeySpan Home Energy Services NE		24,873		36,174		36,432		36,609		36,738		36,855
KeySpan Corporate Services LLC (KSI)		24,499		20,217		20,390		20,494		20,604		20,729
KeySpan Ravenswood Services Corp		308,380		0		0		0		0		0
KeySpan Northeast Ventures		4,349		0		0		0		0		0
Seneca		0		0		0		0		. 0		0
Boston Gas		5,974,767		5,788,987		5,606,069		5,407,469		5,192,781		4,964,389
Colonial Gas (excluding Transgas)		908,081		783,908		780,981		775,841		768,635		760,741
Transgas		81,649		73,384		73,724		73,878		73,924		73,928
Algonquin		23,512		22,298		22,410		22,468		22,492		22,504
EnergyNorth		288,260		255,601		254,938		253,447		251,407		249,073
Essex Gas		379,786		453,602		454,503		454,254		453,305		452,027
Total Expense/(Income)	s	68,986,104	\$	82,126,000	s	83,693,000	S	85,426,000	s	87,331,000	S	89,437,000
Assumptions:												
Discount Rate		6.50%		6 50%		6,50%		6.50%		6.50%		6.50%
Salary Scale		4.00%		4.00%		4.00%		4.00%		4.00%		4.00%
Expected Return on Assets	Se	ee results by group		See results by group		See results by group		See results by group		See results by group		See results by group
Initial Trend Pre 65		9.00%		8,25%		7.50%		6,75%		6.00%		5.25%
Initial Trend Post 65		10.00%		9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15

\* Includes special termination benefit charges

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01/09/2009

# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated IAS 19 Operating Expense

		Actual		Estimated	Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010	 4/2010-3/2011		4/2011-3/2012		4/2012-3/2013	_	4/2013-3/2014
Net Periodic Cost											
U.S. Retiree Welfare Schemes - KeySpan Me	dical and Life	e Plans					0.050 (80		2 000 510		2 146 216
KeySpan Energy Delivery NY	\$	2,509,622	\$	2,598,280	\$ 2,725,504	5	2,858,670	3	2,998,518	>	3,143,310
KeySpan Energy Delivery Ll		2,305,173		2,408,831	2,527,281		2,651,468		2,781,715		2,918,425
KeySpan Electric Services LLC		3,579,937		3,576,121	3,751,638		3,935,714		4,128,819		4,331,458
KeySpan Energy Trading Services LLC		25,804		20,886	21,905		22,971		24,090		25,264
KeySpan Generation LLC		1,220,253		1,299,495	1,363,313		1,430,218		1,500,406		1,574,067
KeySpan Corporate Services LLC*		6,935,178		7,529,681	7,893,524		8,274,811		8,674,003		9,093,376
KeySpan Utility Services LLC		658,277		636,122	667,300		699,896		734,087		770,010
KeySpan Engineering and Survey		2,659,006		2,847,634	2,987,333		3,133,716		3,287,326		3,448,523
KeySpan Energy Management Inc		4,700		4,776	5,011		5,257		5,513		5,784
KeySpan Energy Services Inc.		0		0	0		. 0		0		0
KeySpan Energy Solutions Inc.		378,769		376,498	395,030		414,446		434,808		456,205
KeySpan Energy Supply LLC		0		15,266	16,018		16,805		17,632		18,500
KeySpan Communications	•	32,845		27,872	29,239		30,667		32,168		33,745
KeySpan Services, Inc.		18,001		37,003	38,527		40,068		41,628		43,495
KS Plumbing & Heating Solutions LLC		4,421		3,608	3,794		3,980		4,164		4,351
KS Plumbing & Heating Services Inc.		1,139		1,756	1,836		1,918		2,005		2,094
KeySpan Plumbing Solutions Inc.		3,217		6,970	7,314		7,674		8,052		8,450
KeySpan Home Energy Services NE		7,477		9,220	9,590		9,972		10,365		10,781
KeySpan Corporate Services LLC (KSI)		10,128		9,927	10,421		10,937		11,477		12,046
KeySpan Ravenswood Services Corp		37,326		0	0		0		0		0
KeySpan Northeast Ventures		0		0	0		0		0		0
Seneca		0		0	0		0		0		0
Boston Gas		1,011,273		1,032,517	1,073,870		1,116,916		1,161,656		1,208,273
Colonial Gas (excluding Transgas)		125,108		132.771	138,100		143,603		149,281		155,278
Transgas		17,881		13,919	14,477		15,054		15,648		16,276
Algonovin		5,167		4,632	4,818		5,010		5,208		5,417
EnergyNorth		17,799		11.782	12,255		12,743		13,246		13,778
Essex Gas		79,185		86.433	89,902		93,486		97,185		101.088
Lister Guy		,		,	,				,		
Total Operating Expense/(Income)	S	21,647,686	S	22,692,000	\$ 23,788,000	S	24,936,000	\$	26,139,000	\$	27,402,000
Assumptions:	<u></u>				 						
Discount Rate		6.50%		6.50%	6.50%		6.50%		6.50%		6.50%
Salary Scale		4.00%		4.00%	4.00%		4.00%		4.00%		4.00%
Expected Return on Assets	Se	e results by group		See results by group	See results by group		See results by group		See results by group		See results by group
Initial Trend Pre 65		9.00%		8,25%	7.50%		6.75%		6,00%		5.25%
Initial Trend Post 65		10.00%		9,25%	8.50%		7.75%		7.00%		6.25%
Ultimate Trend		5.00%		5.00%	5.00%		5.00%		5.00%		5.00%
Mortality Table Union		RP2000CH		RP2000CH	RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union		RP2000CH_15		RP2000CH_15	RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15
* Includes special termination benefit charges								•			

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated IAS 19 Financing Expense

<b>Estimated IAS 19 Financing H</b>	xpense			×						01/09/2009
	Actual	Estimated		Estimated		Estimated		Estimated		Estimated
	4/2008-3/2009	 4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Net Periodic Cost										
U.S. Retiree Welfare Schemes - KeySpan Me	dical and Life Plans	( 000 0.41	~	6.0/( 105		4 1 6 2 2 6 8		2.0(0.440		1 699 910
KeySpan Energy Delivery NY	\$ 4,838,759	\$ 6,292,841	3	5,200,137	э.	4,152,358	3	2,960,440	. 3	1,088,819
KeySpan Energy Delivery LI	4,401,791	6,189,124		0,585,011		7,028,430		/,517,083		10,409,350
KeySpan Electric Services LLC	7,019,054	9,563,183		10,109,405		10,651,544		11,002,503		12,426,504
KeySpan Energy Trading Services LLC	80,878	97,854		101,594		105,901		110,019		5 220 (78
KeySpan Generation LLC	2,992,341	4,056,853		4,304,429		4,584,102		4,891,815		5,229,078
KeySpan Corporate Services LLC*	15,362,730	19,890,137		20,199,365		20,551,054		20,950,764		21,406,001
KeySpan Utility Services LLC	2,155,557	2,524,665		2,495,915		2,464,174		2,432,103		2,400,631
KeySpan Engineering and Survey	3,219,771	4,026,597		4,270,269		4,546,160		4,850,239		5,184,711
KeySpan Energy Management Inc	31,872	54,736		53,724		52,366		50,950		49,492
KeySpan Energy Services Inc.	16,264	21,050		20,463		19,701		18,897		18,057
KeySpan Energy Solutions Inc.	419,891	471,205		428,392		381,751		332,372		280,229
KeySpan Energy Supply LLC	0	13,974		14,375		14,858		15,387		15,967
KeySpan Communications	51,481	55,808		58,232		61,087		64,197		67,579
KeySpan Services, Inc.	22,752	28,765		28,396		27,854		27,189		26,440
KS Plumbing & Heating Solutions LLC	7,284	6,360		6,332		6,264		. 6,154		6,019
KS Plumbing & Heating Services Inc.	4,217	4,281		4,458		4,671		4,903		5,135
KeySpan Plumbing Solutions Inc.	964	3,596		2,428		1,180		(156)		(1,586)
KeySpan Home Energy Services NE	17,396	26,954		26,842		26,638		26,373		26,073
KeySpan Corporate Services LLC (KSI)	14,371	10,290		9,970		9,557		9,128		8,684
KeySpan Ravenswood Services Corp	271,054	0		0		0		0		0
KeySpan Northeast Ventures	4,349	0		. 0		0		0		0
Seneca	0	0		0		0		0		0
Boston Gas	4,963,494	4,756,470		4,532,199		4,290,553		4,031,124		3,756,117
Colonial Gas (excluding Transgas)	782,973	651,137		642,881		632,238		619,354		605,463
Transgas	63.768	59,466		59,247		58,824		58,277		57,651
Algonquin	18.345	17.666		17,592		17,457		17,284		17,087
EnergyNorth	270.461	243,819		242.683		240,704		238,161		235,294
Essex Gas	300.601	367,169		364,601		360,768		356,120		350,939
				,		,		,		,
Total Financing Expense/(Income)	\$ 47,338,418	\$ 59,434,000	\$	59,905,000	S	60,490,000	\$	61,192,000	S	62,035,000
Assumptions:		 								
Discount Rate	6.50%	6.50%		6.50%		6.50%		6,50%		6.50%
Salary Scale	4.00%	4.00%		4.00%		4.00%		4.00%		4.00%
Expected Return on Assets	See results by group	See results by group		See results by group						
Initial Trend Pre 65	9.00%	8.25%		7.50%		6.75%		6.00%		5.25%
Initial Trend Post 65	10.00%	9.25%		8.50%		7.75%		7.00%		6.25%
Ultimate Trend	5.00%	5.00%		5.00%		5.00%		5.00%		5.00%
Mortality Table Union	RP2000CH	RP2000CH		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortality Table Non-Union	RP2000CH_15	RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15		RP2000CH_15
* Includes special termination benefit charges										
** Includes settlement and surfailment sharves										

\*\* Includes settlement and curtailment charges

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# National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated FAS 106 Expense NOT reflecting Medicare Part D Subsidy

		Actual 4/2008-3/2009		Estimated 4/2009-3/2010		Estimated 4/2010-3/2011		Estimated 4/2011-3/2012	 Estimated 4/2012-3/2013	_	Estimated 4/2013-3/2014
Reconciliation of Funded Status, 4/1											
Accumulated Postret. Ben. Obligation	\$	(1,431,813,713)	S	(1,481,436,000)	\$	(1,530,458,000)	S	(1,578,712,000)	\$ (1,626,647,000)	\$	(1,674,640,000)
Fair Value of Assets		488,898,238		354,889,000	_	386,133,000		415,295,000	 442,451,000		467,494,000
Funded Status	5	(942,915,475)	5	(1,126,547,000)	- \$	(1,144,325,000)	3	(1,163,417,000)	\$ (1,184,196,000)	2	(1,207,146,000)
Unrecognized:		^		0		٥		٥	٥		0
Net Transition Obligation of (Asset)     Prior Service Cost		0		0		0		0	0		0
Net (Gain) et Loss		50 204 092		103 731 000		173 749 000		153 767 000	133 785 000		113 803 000
(Accrued) / Prepaid Cost	S	(892,711,383)	\$	(932,816,000)	\$	(970,576,000)	\$	(1,009,650,000)	\$ (1,050,411,000)	\$	(1,093,343,000)
Net Periodic Cost											
Service Cost	\$	23,387,642	\$	24,538,000	\$	25,747,000	\$	27,013,000	\$ 28,341,000	\$	29,736,000
Interest Cost		90,952,121		94,017,000		97,054,000		100,045,000	103,023,000		106,019,000
Expected Return on Assets Amortization of:		(36,585,069)		(27,205,000)		(29,413,000)		(31,480,000)	(33,411,000)		(35,212,000)
<ul> <li>Net Transition Obligation or (Asset)</li> </ul>		0		0		0		0	0		0
<ul> <li>Prior Service Cost</li> </ul>		0		0		. 0		0	0		0
<ul> <li>Net (Gain) or Loss</li> </ul>		5,457,558		19,982,000		19,982,000		19,982,000	 19,982,000		19,982,000
FAS 106 Expense	S	83,212,252	S	111,332,000	S	113,370,000	\$	115,560,000	\$ 117,935,000	S	120,525,000
FAS 106 Special Termination Benefits		537,000		493,000		165,000		0	0		0
FAS 106 Curtailment Expense		0		0		0		. 0	0		0
Total Gross Postretirement Expense	S	83,749,252	S	111,825,000	S	113,535,000	\$	115,560,000	\$ 117,935,000	S	120,525,000
Expected Benefit Payments - Gross	s	65,253,000	s	70,026,000	\$	74,712,000	s	79,123,000	\$ 83,371,000	\$	87,166,000
Expected Benefit Payments - Plan Assets	\$	58,209,000	\$	62,561,000	s	66,851,000	\$	70,924,000	\$ 74,968,000	\$	78,627,000
Expected Contributions (Funded Plans)	\$	36,600,000	\$	66,600,000	\$	66,600,000	\$	66,600,000	\$ 66,600,000	\$	66,600,000
Expected Contributions (Total)	\$	43,644,000	\$	74,065,000	\$	74,461,000	\$	74,799,000	\$ 75,003,000	S	75,139,000
Market Related Value of Assets	\$	488,898,238	\$	354,889,000	\$	386,133,000	\$	415,295,000	\$ 442,451,000	S	467,494,000
Assumptions:											
Discount Rate		6.50%		6.50%		6.50%		6.50%	6.50%		6.50%
Salary Scale		4.00%		4.00%		4.00%		4.00%	4.00%		4.00%
Expected Return on Assets		See results by group		See results by group		See results by group		See results by group	See results by group		See results by group
Initial Trend Pre-65		9.00%		8.25%		7.50%		6.75%	5.00%		5.25%
Initial Trend Post-65		10.00%		9.25%		8.50%		7.75%	7.00%		6.25%
Unmate I rend		5.00%		5.00%		5.00%		5.00%	5.00% . BD2000CU		5.00%
Mortanty Table Union		RP2000CH		RP2000CH		RP2000CH		RP2000CH	RP2000CH		RP2000CH
Monality Table Non-Union		RP2000CH_15		KP2000CH_15		KP2000CH_15		KP2000CH_15	KP2000CH_15		KP2000CH_15

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#### National Grid USA U.S. Retiree Welfare Schemes - KeySpan Medical and Life Plans Estimated FAS 106 Expense NOT reflecting Medicare Part D Subsidy Estimated . . .

		Actual		Estimated		Estimated		Estimated		Estimated		Estimated
		4/2008-3/2009		4/2009-3/2010		4/2010-3/2011		4/2011-3/2012		4/2012-3/2013		4/2013-3/2014
Not David dia Cont												
Net Periodic Cost												
Reyspan Corporate Services LLC												
KeySpan Energy Delivery NY	S	9,566,180	s	13.874.097	\$	13,046,124	\$	12,135,179	\$	11,156,300	\$	10,105,701
KeySpan Energy Delivery Ll		8,349,549		12,061,019		12,629,719		13,251,609		13,926,941		14,659,431
KeySpan Electric Services LLC		13,198,022		18,430,160		19,293,340		20,239,892		21,266,724		22,379,415
KeySpan Energy Trading Services LLC		134,287		160,420		165,803		171,735		178,110		184,989
KeySpan Generation LLC		5,267,532		7,509,796		7,854,036		8,232,826		8,643,539		9,088,425
KevSpan Corporate Services LLC*		26,803,218		37,209,622		37,709,103		38,423,372		39,369,504		40,397,639
KeySpan Utility Services LLC		3,404,587		4,341,159		4,361,788		4,379,159		4,397,574		4,418,537
KeySpan Engineering and Survey		7,074,235		9,091,264		9,514,762		9,976,939		10,475,462		11,012,954
KeySpan Energy Management Inc		39,930		77,979		77,530		76,690		75,784		74,860
KeySpan Energy Services Inc		18,578		26,525		26,051		25,380		24,656		23,900
KeySnan Energy Solutions Inc.		968.627		1,180,451		1,162,032		1,140,520		1,117,467		1,092,798
KeySpan Energy Supply LLC		0		35,536		36.831		38,233		39,716		41,295
KeySpan Communications		99.438		108,285		112,487		117,145		122,116		127,438
KeySpan Services Inc		44.016		71,460		72.697		73,793		74,760		75.976
KS Plumbing & Heating Solutions LLC		14.668		12,445		12.602		12,733		12,809		12,933
KS Plumbing & Heating Services Inc.		6.712		7,753		8,036		8,352		8.692		9,056
KeySpan Plumbing Solutions Inc.		5.118		15,335		14,595		13,791		12.924		11,985
KeySpan Home Energy Services NE		24,875		37,132		37,487		37,758		37,993		38,223
KeySpan Corporate Services LLC (KSI)		27.653		24,535		24,809		25,004		25,204		25,421
KeySpan Bavenswood Services Com		364,179		0		0		0		0		0
KeySpan Northeast Ventures		4,777		0		0		0		0		0
Seneca		0		0		0		0		0		0
Boston Gas		6.131.912		5,917,065		5,742,050		5,551,450		5,348,085		5,132,154
Colonial Gas (excluding Transgas)		908.941		806.128		804.483		800,436		794,505		788,083
Transmas		81 649		75 367		75.848		76 130		76.321		76,485
Algonguin		23 514		27 899		23 059		23 161		23 235		23 301
EnermyNorth		289 374		262,946		262 350		260 811		258 738		256,436
Essex Gas		360,681		465,622		467,378		467,902		467,841		467,565
Total Expense/(Income)	s	83,212,252 **	s	111,825,000	s	113,535,000	s	115,560,000	s	117,935,000	s	120,525,000
Assumptions:		6 50%		6 50%		6 50%		6 50%		6 50%		6 50%
Solary Socia		4 00%		4.00%		4.00%		4.00%		4.00%		4.00%
Salary Scale		4.00 /B		See results by group		See results by group		See results by group		See results by moun		See results by moun
Expected Return on Assets	2	o one		see results by group		7 500/		6 75%		6 0.00%		Sec results by gloup
Initial Trand Dect 65		9,00%		0.4370 0.749/		1.30% 8 50%		7 750/		0.00% 7 AA#/		J.2370 6 359/
Initial Trend Post-00		5 00%		5 000/		5 000/		5.004/		5 0/10/20		0.23% 5.00%
Unimate I rend		5.00% DD1000CH				3.00% BD3000CU		3,00% BB3000CTT		3.0076 DD000011		5.00% BD1000011
Mortainy Table Union		RP2000CH		RP2000CH 15		RP2000CH		RP2000CH		RP2000CH		RP2000CH
Mortainty Table Non-Union		KP2000CH 15		KP2000CH_15		KP2000CH_15		KP2000CH_15		KP2000CH_15		KP2000CH_15

\* Includes FAS 88 special termination benefit charges

\*\* Excludes FAS 88 special termination benefit charges

Hewitt Associates

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#### National Grid USA Current and 5 Year Projection

		Pension Estimated	OPEB (excluding VEBA assets) Estimated	VEBA CREDIT	NET OPEB Estimated	Pension Estimated	OPEB (excluding VEBA assets) Estimated	VEBA CREDIT	NET OPEB Estimated
		4/2009-3/2010	4/2009-3/2010	4/2009-3/2010	4/2009-3/2010	4/2010-3/2011	4/2010-3/2011	4/2010-3/2011	4/2010-3/2011
Estimated FAS 87/106 Expense - Business Unit Allocations									
KeySpan Energy Delivery NY	BUG	26,612,978	12,619,176	0	12,619,176	25,805,798	11,723,915	0	11,723,915
KeySpan Energy Delivery LI	BUL	12,493,624	10,941,895	0	10,941,895	11,697,866	11,458,285	0	11,458,285
KeySpan Electric Services LLC	ESV	20,513,763	16,747,064	0	16,747,064	19,228,922	17,532,552	0	17,532,552
KeySpan Energy Trading Services LLC	TEG	305,909	147,647	0	147,647	286,656	152,506	0	152,506
KeySpan Generation LLC	GEN	7,223,560	6,826,392	0	6.826,392	6,748,722	7,139,723	0	7,139,723
KeySpan Corporate Services LLC*	CSV	68,319,771 t	33,760,855	0	33,760,855 <b>2</b>	65,397,784	34,448,260	0	34,448,260
KeySpan Utility Services LLC	USV	7,728,839 1	4,006,102	0	4,006,102 <b>2</b>	7,383,975	4,011,224	0	4,011,224
KeySpan Engineering and Survey	KEC	12,612,260	8,264,403	0	8,264,403	12,104,117	8,649,613	0	8,649,613
KeySpan Energy Management Inc	KEM	273,029	72,938	0	72,938 2	266,865	72,242	0	72,242
KeySpan Energy Services Inc.	KES	43,957 1	24,923	0	24,923 <b>2</b>	41,464	24,369	0	24,369
KeySpan Energy Solutions Inc.	KSL	2,563,463	1,074,048	0	1,074,048 2	2,514,156	1,050,117	0	1,050,117
KeySpan Energy Supply LLC	KSP	74,347 t	32,654	0	32,654 2	72,374	33,826	0	33,826
KeySpan Communications	ксм	204,487	99,613	0	99,61 <b>3 2</b>	195,806	103,464	0	103,464
KeySpan Services, Inc.	KSI	450,183	69,459	0	69,459 2	446,272	70,628	0	70,628
KS Plumbing & Heating Solutions LLC	PHL	50,420	11,799	0	11,799 2	51,290	11,956	0	11,956
KS Plumbing & Heating Services Inc.	PHV	55,176	7,196	0	7,196 2	55,041	7,458	0	7,458
KeySpan Plumbing Solutions Inc.	PSL	96,054	13,792	0	13,792 <b>2</b>	96,912	12,968	0	12,968
KeySpan Home Energy Services NE	KHS	113,370	36,160	0	36,160 2	109,205	36,432	0	36,432
KeySpan Corporate Services LLC (KSI)	KSCSV	146,254 1	22,850	0	22,850 2	145,848	23,040	0	23,040
KeySpan Ravenswood Services Corp**	RAV	0	0	0	0	0	0	0	0
KeySpan Northeast Ventures	KNEV	35,320	0	0	0	33,598	0	· 0	0
Seneca	SEN	67,959	0	0	0	68,619	0	0	0
Boston Gas	BGC	10,945,135	5,788,931	0	5,788,931	10,644,974	5,606,854	.0	5,606,854
Colonial Gas (excluding Transgas)	COL	3,809,254	783,568	0	783,568	3,672,179	780,989	0	780,989
Transgas	TG	389,995	73,353	0	73,353	384,307	73,724	0	73,724
Algonquin	ALG	44,183	22,289	0	22,289	43,458	22,410	0	22.410
EnergyNorth	ENH	1,604,086	255,471	0	255,471	1,551,204	254,938	0	254,938
Essex Gas	ESX	599,624	453,422	0	453,422	587,588	454,507	0	454,507
Total Expense		177,377,000	102,156,000	0	102,156,000	169,635,000	103,756,000	0	103,756,000
VERO		15,624,000	493,000	0	493,000	5,208,000	165,000	0	165,000
Grand Total		193,001,000	102,649,000	0	102,649,000	174,843,000	103,921,000	00	103,921,000
		76,313,168 1			39,232,389 2	73,041,445			39,905,984

	Rate Year PBOP Cost 12 Months End Dec 2010								
National Grid - KeySpan Svc Co.	FY 2010	FY 2011	Rate Year Amount						
Total Fiscal Year Per Above	76,313,168	73,041,445							
Percentage Applicable to Rate Year	25%	75%							
Total Rate Year	19,078,292	54,781,084	73,859,376						

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#### National Grid USA Current and 5 Year Projection

	-	Pension	OPEB (excluding VEBA	VEBA CREDIT	NET OPEB	Pension Estimated	OPEB (excluding VEBA	VEBA CREDIT	NET OPEB Estimated
		Estimated	assets) Estimated		Estimated		assets) Estimated		
		4/2011-3/2012	4/2011-3/2012	4/2011-3/2012	4/2011-3/2012	4/2012-3/2013	4/2012-3/2013	4/2012-3/2013	4/2012-3/2013
Estimated FAS 87/106 Expense - Business Unit Allocations	-								
KeySpan Energy Delivery NY	BUG	24,861,823	10,743,924	0	10,743,924	23,798,288	9,692,533	0	9,692.533
KeySpan Energy Delivery LI	BUL	11,402,483	12,026,575	0	12,026,575	11,059,809	12,646,270	- 0	12,646,270
KeySpan Electric Services LLC	ESV	18,776,348	18,399,735	0	18,399,735	18,248,592	19,344,341	0	19,344,341
KeySpan Energy Trading Services LLC	TEG	276,779	157,910	0	157,910	265,548	163,749	0	163,749
KeySpan Generation LLC	GEN	6,577,986	7,486,949	0	7,486,949	6,379,829	7.864,955	0	7,864,955
KeySpan Corporate Services LLC*	CSV	63,726,607	35,185,464	0	35,185,464	61,798,041	35,984,880	0	35,984,880
KeySpan Utility Services LLC	USV	7,129,545	4,012,879	0	4,012,879	6,841,287	4,015,127	0	4,015,127
KeySpan Engineering and Survey	KEC	11,999,106	9,072,498	0	9,072,498	11,862,414	9.530,303	0	9,530,303
KeySpan Energy Management Inc	KEM	259,961	71,153	0	71,153	252,050	69,996	0	69,996
KeySpan Energy Services Inc.	KES	38,574	23,617	0	23,617	35,380	22,813	0	22,813
KeySpan Energy Solutions Inc.	KSL	2,466,077	1,022,975	0	1,022,975	2,409,861	993,988	0	993,988
KeySpan Energy Supply LLC	KSP	71,882	35,101	0	35,101	71,220	36,456	0	36,456
KeySpan Communications	КСМ	193,121	107,767	0	107,767	189,848	112,378	0	112,378
KeySpan Services, Inc.	KSI	443,986	71,632	0	71,632	440,713	72,526	0	72,526
KS Plumbing & Heating Solutions LLC	PHL	52,115	12,073	0	12,073	52,922	12,150	0	12,150
KS Plumbing & Heating Services Inc.	PHV	55,630	7,754	0	7,754	56,173	8,072	0	8,072
KeySpan Plumbing Solutions Inc.	PSL	97,600	12,078	0	12,078	98,185	11,121	0	11,121
KeySpan Home Energy Services NE	KHS	104,263	36,609	0	36,609	98,740	36,738	0	36,738
KeySpan Corporate Services LLC (KSI)	KSCSV	144,988	23,151	0	23,151	143,819	23,261	0	23,261
KeySpan Ravenswood Services Corp**	RAV	. 0	0	0	0	0	0	0	0
KeySpan Northeast Ventures	KNEV	32,656	0	0	0	31,566	0	0	0
Seneca	SEN	69,161	0	0	0	69,634	0	0	0
Boston Gas	BGC	10,317,102	5,408,254	0	5,408,254	9,944,512	5,193,566	0	5,193,566
Colonial Gas (excluding Transgas)	COL	3,522,952	775,850	0	775,850	3,355,345	768,644	0	768,644
Transgas	TG	379,132	73,878	0	73,878	372,853	73,924	0	73,924
Algonquin	ALG	42,530	22,468	0	22,468	41,456	22,492	0	22,492
EnergyNorth	ENH	1,492,587	253,447	0	253,447	1,426,582	251,407	0	251,407
Essex Gas	ESX	574,006	454,259	0	454,259	558,333	453,310	0	453,310
Total Expense	-	165,109,000	105,498,000	0	105,498,000	159,903,000	107,405,000	0	107,405,000
VERO		0	0	0	0	0	0	0	0
Grand Total	-	165,109,000	105,498,000	. 0	105,498,000	159,903,000	107,405,000	0	107,405,000
		71,111,596			40,622,253	<b>68,889,</b> 747			41,399,506
					0	0			0

#### National Grid USA Current and 5 Year Projection

		Pension Lytimated	OPEB (excluding VEBA assets) Estimated	VEBA CREDIT	Estimated
		4/2013-3/2014	4/2013-3/2014	4/2013-3/2014	4/2013-3/2014
Estimated FAS 87/106 Expense - Business Unit Allocations				_	
KeySpan Energy Delivery NY	BUG	22,661,487	8,567,032	0	8,567,032
KeySpan Energy Delivery LI	BUL	10,694,170	13,321,651	0	13,321,651
KeySpan Electric Services LLC	ESV	17.684,764	20,372,781	0	20,372,781
KeySpan Energy Trading Services LLC	TEG	253,591	170,085	0	170,085
KeySpan Generation LLC	GEN	6,168,463	8,276,479	0	8,276,479
KeySpan Corporate Services LLC*	CSV	59,718,656	36,859,253	0	36,859,253
KeySpan Utility Services LLC	USV	6,533,747	4,019,461	0	4,019,461
KeySpan Engineering and Survey	KEC	11,713,036	10.025,969	0	10,025,969
KeySpan Energy Management Inc	KEM	243,560	68,808	0	68,808
KeySpan Energy Services Inc.	KES	31,990	21,972	0	<b>2</b> 1,972
KeySpan Energy Solutions Inc.	KSL	2,349,194	963,219	0	963,219
KeySpan Energy Supply LLC	KSP	70,486	37,905	0	37,905
KeySpan Communications	ксм	186,311	117,337	0	117,337
KeySpan Services, Inc.	KSI	436,783	73,644	0	73,644
KS Plumbing & Heating Solutions LLC	PHL	53,743	12,200	0	12,200
KS Plumbing & Heating Services Inc.	PHV	56,714	8,415	0	8,415
KeySpan Plumbing Solutions Inc.	PSL	98,744	10,088	0	10,088
KeySpan Home Energy Services NE	KHS	92,855	36,855	0	36,855
KeySpan Corporate Services LLC (KSI)	KSCSV	142,500	23,386	0	23,386
KeySpan Ravenswood Services Corp**	RAV	0	0	0	0
KeySpan Northeast Ventures	KNEV	30,319	0	0	0
Seneca	SEN	70.092	0	0	0
Boston Gas	BGC	9,542,946	4,965,174	0	4,965,174
Colonial Gas (excluding Transgas)	COL	3,175,545	760,749	· 0	760,749
Transgas	TG	365,874	73,928	0	73,928
Algonquin	ALG	40,297	22,504	0	22,504
EnergyNorth	ENH	1,355,772	249,073	0	249,073
Essex Gas	ESX	541,361	452,032	0	452,032
Total Expense		154,313,000	109,510,000	0	109,510,000
VERO		0	0	0	0
Grand Total		154,313,000	109,510,000	Ö	109,510,000
		66,497,379			42,252,543

Niagara Mophawk power Corporation d/b/a National Grid Case 10-E-0050 Attachment 3 to DAG-38 Sheet 1 of 1

Sum of GL Act \$	Expense Type				
Business Unit	B01	B06	Grand Total	OPEB%	Pension%
00001	2,756.13	1,099.39	3,855.52	0.00%	0.00%
00004	1,375.93	579.28	1,955.21	0.00%	0.00%
00005	237,908.35	84,305.10	322,213.45	0.16%	0.14%
00010	19,250.65	7,574.33	26,824.98	0.01%	0.01%
00035	78.51	27.53	106.04	0.00%	0.00%
00036	142,962,383.07	58,565,237.58	201,527,620.65	97.37%	97.54%
00041	9,365.97	3,300.72	12,666.69	0.01%	0.01%
00048	525,505.82	194,806.75	720,312.57	0.36%	0.32%
00049	23,520.91	8,853.85	32,374.76	0.02%	0.01%
00099	2,838,012.70	1,092,959.72	3,930,972.42	1.93%	1.82%
01401	35,677.49	14,481.11	50,158.60	0.02%	0.02%
01403	11,590.28	4,669.21	16,259.49	0.01%	0.01%
01406	5,559.26	2,180.26	7,739.52	0.00%	0.00%
01434	64,380.86	25,752.59	90,133.45	0.04%	0.04%
01437	38,192.73	15,051.18	53,243.91	0.03%	0.03%
01438	55,203.74	22,379.78	77,583.52	0.04%	0.04%
Grand Total	146,830,762.40	60,043,258.38	206,874,020.78	100.00%	100.00%

Niagar Mohawk Power Corporation <u>d/b/a National grid</u> <u>Caes 10-E-0050</u> <u>Attachment 4 to DAG-38</u> <u>Sheet 1 of 1</u>

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## Niagara Mohawk Service Company Pension/OPEB Reconciliation Summary HTY 9-30-09

HTY 2009

Sum of Posted Jrnl \$		nse Type						
Orig Business Uni Business Uni		3	Pension	OPEB%	Pension%			
00099 00001		136,757	104,110	0.47%	0.22%			
00004		62,367	113,352	0.21%	0.24%			
00005		9,014,220	12,171,506	30.68%	26.07%			
00006		201,137	144,644	0.68%	0.31%			
00007		24	35	0.00%	0.00%			
00008		29,204	22,220	0.10%	0.05%			
00010		4,096,250	5,135,073	13.94%	11.00%			
00020		20,211	15,589	0.07%	0.03%			
00021		1,579	1,145	0.01%	0.00%			
00035		10	5	0.00%	0.00%			
00036		9,184,620	21,328,964	31.26%	45.68%			
00037		-	-	0.00%	0.00%			
00041		361,938	269,832	1.23%	0.58%			
00048		1,046,701	1,232,705	3.56%	2.64%			
00049		3,422,548	4,842,702	11.65%	10.37%			
00070		3,898	2.081	0.01%	0.00%			
00071		154	79	0.00%	0.00%			
00072		115.383	82,363	0.39%	0.18%			
00082		25	32	0.00%	0.00%			
00085		90	59	0.00%	0.00%			
00086		32	20	0.00%	0.00%			
00092		11	5	0.00%	0.00%			
00093		16	11	0.00%	0.00%			
00094		34	. 33	0.00%	0.00%			
00095		370	276	0.00%	0.00%			
01401		393,185	294.622	1.34%	0.63%			
01402		4,338	3.275	0.01%	0.01%			
01403		73,813	55.142	0.25%	0.12%			
01404		7,434	5.096	0.03%	0.01%			
01406		51,480	38,068	0.18%	0.08%			
01431		(17,719)	(13,184)	-0.06%	-0.03%			
01434	1	316.883	229,815	1.08%	0.49%			
01435		115,249	77,540	0.39%	0.17%			
01436		1,011	700	0.00%	0.00%			
01437		245,533	179,163	0.84%	0.38%			
01438	}	456,018	329,655	1.55%	0.71%			
01442		19,669	8,790	0.07%	0.02%			
01444		416	290	0.00%	0.00%			
01446	1	2,361	1,483	0.01%	0.00%			
01448	ļ	2,099	1,378	0.01%	0.00%			
01458		2	2	0.00%	0.00%			
01459		4,533	3,917	0.02%	0.01%			
01460		1,143	758	0.00%	0.00%			
01471		5,687	3,929	0.02%	0.01%			
01563		431	297	0.00%	0.00%			
00099 Total		29,381,146	46,687,577	100.00%	100.00%			

Date of Request: April 26, 2010 Due Date: May 6, 2010

#### Request No. DAG-39 NMPC Req. No. NM 674 DPS-439

#### NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Denise Gerbsch

TO: Revenue Requirement Panel

Request:

Pensions / OPEBs.

1. In its rate year forecasts, the Company is allocating 25.58% of the National Grid USA Service Co. pensions and OPEBs costs to Niagara Mohawk. Please provide the basis for the 25.58% allocation and provide the breakdown to all of National Grid's affiliates of 100% of the National Grid USA Service Co. pensions and OPEBs costs, with supporting documentation and calculations (amounts used in the calculations should be identified by source).

2. Please provide the breakdown to all of National Grid's affiliates of 100% of the National Grid USA Service Co. pensions and OPEBs costs, with supporting documentation and calculations (amounts used in the calculations should be identified by source) for the following time periods: (a) FYE 3/31/2006

(b) FYE 3/31/2007
(c) FYE 3/31/2008
(d) FYE 3/31/2009
(e) FYE 3/31/2010

3. Based on Exhibit \_\_\_\_(RRP-10) Schedule 19, Workpaper 5, Page 43 of 53, the following are the FAS 87 Pension costs (total of both Niagara Mohawk costs and costs attributable to its Service Co employees):

Actual FYE 3/09 = \$34,656,889

Estimated FYE 3/10 = \$64,331,000

Estimated FYE 3/11 = \$76,694,000

Estimated FYE 3/12 = \$72,963,000

Please explain in detail the reasons behind the significant increase in pension costs between actual FYE 3/09 and estimated FYE 3/10 through FYE 3/12. If there are several reasons for the increases, please highlight and explain each item with an estimated impact (with supporting documentation and calculations) for each.

4. Based on Exhibit \_\_\_\_ (RRP-10) Schedule 19, Workpaper 5, Page 46 of 53, the following are the Non-Union FAS 106 OPEBs costs (total of both Niagara Mohawk costs and costs attributable to its Service Co employees):

Actual FYE 3/09 = \$41,137,657

Estimated FYE 3/10 = \$43,360,000 Estimated FYE 3/11 = \$52,683,000 Estimated FYE 3/12 = \$52,624,000

Please explain in detail the reasons behind the significant increase in non-union OPEBs costs between actual FYE 3/09 and estimated FYE 3/10 through FYE 3/12. If there are several reasons for the increases, please highlight and explain each item with an estimated impact (with supporting documentation and calculations) for each.

5. Based on Exhibit \_\_ (RRP-10) Schedule 19, Workpaper 5, Page 50 of 53, the following are the Union FAS 106 OPEBs costs (total is only for Niagara Mohawk costs, there are no costs for Service Co employees):

Actual FYE 3/09 = \$66,251,268 Estimated FYE 3/10 = \$87,203,000

Estimated FYE 3/11 = \$105,599,000

Estimated FYE 3/12 = \$104,268,000

Please explain in detail the reasons behind the significant increase in union OPEBs costs between actual FYE 3/09 and estimated FYE 3/10 through FYE 3/12. If there are several reasons for the increases, please highlight and explain each item with an estimated impact (with supporting documentation and calculations) for each.

6. Please explain in detail the reasons why non-union FAS 106 OPEBs costs have increased by 28% when comparing actual FYE 3/2009 to estimated FYE 3/2010, and union FAS 106 OPEBs costs have increased by 57% when comparing the same time periods.

#### Response:

1. Please refer to Attachment 3 to DAG-34 for the calculation of the 25.58% HTY National Grid USA Service company allocation factor. The Company assumed the same allocation as used in the test year for the rate years. Refer to Attachment 1 for a breakdown to all of National Grid's affiliates of 100% of the National Grid USA Service Co. pensions and OPEBs costs for the HTY. The breakdown represents the unadjusted historic test year and the rate year levels are adjusted to the 25.58% Service Company allocation factor through the capitalization adjustment found on Exhibit RRP-2, Schedules 19 and 24, Sheet5, line 3.

2. Please refer to Attachments 2(a) through 2(e) for a breakdown to all of National grid's affiliates of 100% of the National Grid USA Service Co. pensions and OPEBs costs for the time periods requested.

3. The main reason for the \$29.674 million FAS 87 expense increase from FYE 3/2009 to FYE 3/2010 is due to the asset losses during FYE 3/2009. Specifically, there was an approximate \$440 million asset loss during this time and that resulted in a \$49.067 million increase in FAS 87 expense during FYE 3/2010. Offsetting a portion of this increase was assumption changes (discount rate and salary scale) and employer contributions. The main reason for the \$12.369 million FAS 87 expense increase from FYE 3/2010 to FYE 3/2011 is due to the drop in the discount rate assumption from 7.3% to 6.2%. Also, the mortality assumption was changed for FYE 3/2011, which resulted is a small increase to expense.

Please see the Attachment 3 which provides the liability and expense impact associated with the different changes.

4. The main reason for the \$2.222 million FAS 106 expense increase from FYE 3/2009 to FYE 3/2010 is due to the asset losses during FYE 3/2009. Specifically, there was an approximate \$22 million asset loss during this time and that resulted in a \$3.683 million increase in FAS 106 expense during FYE 3/2010. Offsetting a portion of this increase was assumption changes (discount rate and salary scale). The main reason for the \$9.323 million FAS 106 expense increase from FYE 3/2010 to FYE 3/2011 is due to the drop in the discount rate assumption from 7.3% to 6.2%. Also, the mortality assumption was changed for FYE 3/2011, which resulted is a small increase to expense.

Please see the Attachment 4 which provides the liability and expense impact associated with the different changes.

5. The main reason for the \$20.952 million FAS 106 expense increase from FYE 3/2009 to FYE 3/2010 is due to the asset losses during FYE 3/2009. Specifically, there was an approximate \$162 million asset loss during this time and that resulted in a \$28.752 million increase in FAS 106 expense during FYE 3/2010. Offsetting a portion of this increase was assumption changes (discount rate). The main reason for the \$18 million FAS 106 expense increase from FYE 3/2010 to FYE 3/2011 is due to the drop in the discount rate assumption from 7.3% to 6.2%. Also, the mortality assumption was changed for FYE 3/2011, which resulted in a small increase to expense.

Please see the Attachment 5 which provides the liability and expense impact associated with the different changes.

6. The union retiree welfare expense increased 31.2% from FY2009 to FY2010 and the nonunion retiree welfare expense increased 5.4% from FY2009 to FY2010. The reason the union retiree welfare expense increased so much more than the nonunion retiree welfare, both dollar wise and percentage wise is due to the asset losses during 2009. As of 4/1/2009, the Union plan was much better funded than the Non-union plan (50% vs. 23%). Therefore the relative impact of the asset losses (\$162 million for the Union plan and \$22 million for the nonunion plan) was much higher for the union plan. These losses are amortized over a 10 year period. The amortization for the loss is \$16.2 million for the union plan vs. \$2.2 million for the nonunion plan. In addition, the losses impacted the expected rate of return on assets. For the union plan the expected return estimate has declined by \$12.5 million. For the nonunion plan, the estimate only declined by \$2.5 million.

Name of Respondent: James Molloy Date of Reply: May 6, 2010 Date of Request: April 26, 2010 Due Date: May 6, 2010 Request No. WEL-12 NMPC Req. No. NM 675 DPS-440

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

### Request for Information

FROM: William Lysogorski

<u>TO:</u> Infrastructure and Operations Panel

Request:

1. For project CNYEMS, EMS Placeholder, please provide the following:

a) A detailed explanation why a placeholder is required and what expenses it would cover.

b) An explanation of how the capital expenditures for FY10/11 thru FY14/15 were derived.

c) Explain why the Company does not have a more defined implementation plan for a project starting in FY11.

#### Response:

- 1. The account represents estimated costs to perform preliminary engineering and capital costs for additional new RTU locations that are being identified in FY11-FY14. As locations are identified, either specific projects per location will be generated or one overall project will be created and funds will be transferred from CNYEMS to the new project. CNYEMS refers to the new Substation RTU program described in IOP Testimony on Line 17 on page 90 of 266.
- 2. The capital expenditures for FY10/11 through FY14/15 are budgetary based on an average cost of approximately \$150,000 per installation.
- 3. The Company does have an implementation plan with approximately 15 RTU projects currently in different stages of preliminary engineering. A group of these projects will proceed to construction in FY11 based on scope, cost, material and schedule. Presently, charges for these projects are being funded through C19851. Consolidation of Project C19851 and program work under CNYEMS is being reviewed currently.

Name of Respondent: John Gavin Date of Reply: May 3, 2010 Date of Request: April 26, 2010 Due Date: May 6, 2010

## Request No. DSM-6 NMPC Req. No. NM 679 DPS-444

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: David Morrell

<u>TO:</u> Revenue Requirement Panel

#### Request:

Regarding the Company response to DSM-5 (NM 529 DPS-345), please provide the following:

1. The full response to question # 1 as discussed by the Company.

2. Please provide (a) the data requested regarding tree-caused outage trends as described in question #2 of the Company response as well as (b) the line rankings and (c) performance ratings (or any other rating metric used for decision making) for the lines proposed to be completed during the rate years.

3. The Company response to question # 3 of DPS - 345 was not clear. How did the Company arrive at its rate year estimates for scheduled sub-transmission work (widening and danger tree) if there is not complete knowledge of whether rights to do the work exist.

4. Regarding Company response # 6 in DPS- 345, please clarify if the Company intends to prune any trees that are growing inside of the right-of-way on voltages 69kv and up as part of its rate year transmission vegetation management. If so, please describe how this practice complies, or does not comply, with the provisions of the Order issued in Case 04-E-0822.

5. If this Information Request is too voluminous or time consuming, please call David Morrell to work out something regarding the data that is acceptable to both the Company and Staff.

#### Response:

- Refer to Attachment 1 (DSM-6\_Attach 1\_SubT Widening) for the list of sub-transmission ROW's that will be widened during the rate years. This list represents the lines identified for widening through FY13. The list was compiled using 5 year historic tree related interruption data. Lines experiencing tree related interruptions, that have not been previously widened, were ranked and prioritized with the highest risk lines being top priority.
- 2a. The Company recently compiled data to determine whether the sub-transmission widening program conducted to date has been effective. Attachment 2 (DSM-6\_Attach 2\_SubT SAIFI) provides a graphic representation of tree-caused outage trends as related to SAIFI for

all causes for the years 2004 through 2009. Attachment 3 (DSM-6\_Attach 3\_Storm vs Nonstorm Outages) is a graphic illustration of storm and non-storm wind events compared to total tree-caused sub-transmission outages for the years 1993 through 2008.

- 2b & 2c. The criteria used to develop the list of sub-transmission lines presented in Attachment 1 is primarily based on customers interrupted (CI), due to tree-related events. The subtransmission line with the highest CI number is ranked first and the sub-transmission line with the lowest CI number is ranked last. Data compiled from aerial helicopter survey reports was also taken into consideration. Lines surveyed during this patrol were ranked by frequency of growth related reports per mile. In cases of frequent tree growth reports, the report data and local Forester field knowledge may have also warranted the addition of select lines to the list.
- 3. The Company has widened approximately 925 miles of sub-transmission rights-of-way, and approximately 1,762 miles of sub-transmission rights-of-way remain to be widened to the optimal width of 75 feet. Based on costs to perform widening activities to date, approximately 140 miles can be widened per year.

While the costs associated with the sub-transmission widening program are for widening activities, they may also be used for acquiring rights to widen the rights-of-way. The response to question (2) in IR DSM-5 stated that as sub-transmission reliability improves with the widening program, limitation to rights will begin to emerge as the limiting factor in widening some of the sub-transmission rights-of-way. Even though permission to widen a right-of-way is generally granted, in time, the Company will need to explore the possibility of acquiring rights where permissions are not granted.

4. To comply with Case 04-E-0822, Order No. 13, the Company submitted a Plan for Implementation, dated September 30, 1995, to the PSC. In accordance with the Plan, the Company identified buffer sites, evaluated the buffers, and wrote a prescription for each buffer. The prescription was either removal (the preferred prescription); reduction; replacement; or retention. The Company identified 446 buffers, and 265 sites required work of some kind, as reported in the Annual Report dated March 27, 2009. Buffer sites remain within some rights-ofway, therefore, the Company intends to prune trees that are growing inside of the right-of-way on voltages 69 kV and above as part of its rate year transmission vegetation management. This practice does comply with the provisions of Case 04-E-0822, Order No. 13, and the Company's Plan for Implementation for Order No. 13, dated September 30, 2005.

<u>Name of Respondent:</u> Dawn Travalini Sara Sankowich Date of Reply: 5/6/2010

# Sub-transmission ROW's to be widened during the rate years 2011, 2012, 2013

Name         Voltage         Division         RCW #           Station #67 - Walden #701         34.5         Western         10102           Lewiston Hts - Mountain #405         34.5         Western         10150           Mountain - Sanborne #404         34.5         Western         10154           Ransomulle - Phillips #402         34.5         Western         10158           Ridge - Shaleton #610         34.5         Western         10160           Sta 124 - Youngman #605, 606         34.5         Western         10161           Walden - Ledyard #702         34.5         Western         10162           Walden - Ledyard #702         34.5         Western         10166           Huntley - Millusy #26H         23         Western         10166           Huntley - Millusy #26H         23         Western         10172           Tonawanda Lines #601         23         Western         10172           Tonawanda Lines #601         23         Western         10254           Attica - No Leroy #208         34.5         Western         10254           Attica - No Leroy #203         34.5         Western         10254           Batavia - Attica #206         34.5         Western         102260 <th></th> <th></th> <th>Management</th> <th></th>			Management	
Station #67 - Walden #701         34.6         Western         10102           Lewiston Hts - Mountain #406         34.5         Western         10152           Mountain - Sanborne #404         34.5         Western         10152           Mountain - Sanborne #401         34.5         Western         10154           Ransomville - Phillips #402         34.5         Western         10160           Sta 124 - Youngman #605, 606         34.5         Western         10162           Walden - Ledyard #702         34.5         Western         10164           Youngstown - Sanborne #403         34.5         Western         10166           Huntley - Millary #26H         23         Western         10176           Kemmer - SUNY Buffalo #630, 631         23         Western         10172           Tonawanda Lines #601         23         Western         10274           Motimer - Golah #109         69         Western         10224           Attica - Westernthersfield #209         34.5         Western         10254           Attica - No Leroy #208         34.5         Western         10254           Batavia - No Leroy #223         34.5         Western         10264           Carborundum - No Akron #204         34.5	Name	Voltage	Division	ROW#
Lewiston Hts - Mountain #405         34.5         Western         10150           Mountain - Sanborne #404         34.5         Western         10152           Mountain - Youngstown #401         34.5         Western         10154           Ransonville - Phillips #402         34.5         Western         10160           Sta 124 - Youngstown #605, 606         34.5         Western         10160           Walden - Ledyard #702         34.5         Western         10164           Youngstown - Sanborne #403         34.5         Western         10168           Huntley - Military #26H         23         Western         10168           Huntley - Woodard #28H         23         Western         10172           Tonawanda Lines #601         23         Western         10250           Attica - No Leroy #208         34.5         Western         10221           Attica - No Leroy #208         34.5         Western         10256           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10266           Carborundum - No Akron #204         34.5         Western         10266           Gatavin Autita #213         34.5         Wes	Station #67 - Walden #701	34.5	Western	10102
Mountain - Sanborne #404         34.5         Western         10152           Mountain - Youngstown #401         34.5         Western         10154           Ransomville - Phillips #402         34.5         Western         10160           Sta 124 - Youngman #605,606         34.5         Western         10160           Sta 124 - Youngman #605,606         34.5         Western         10162           Walden - Ledyard #702         34.5         Western         10166           Huntley - Military #26H         23         Western         10170           Kenmore - SUNY Buffalo #330, 631         23         Western         10177           Kenmore - Suny Buffalo #330, 631         23         Western         10214           Altica - No Leroy #208         34.5         Western         10252           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10254           Batavia - No Leroy #223         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10262           Carborundum - No Akron #205         34.5         Western         10264           Carborundum - No Akron #205 <t< td=""><td>Lewiston Hts - Mountain #405</td><td>34.5</td><td>Western</td><td>10150</td></t<>	Lewiston Hts - Mountain #405	34.5	Western	10150
Mountain         Youngstown #401         34.5         Western         10154           Ransonville - Phillips #402         34.5         Western         10153           Ridge - Shatelon #810         34.5         Western         10162           Walden - Ledyard #702         34.5         Western         10162           Walden - Ledyard #702         34.5         Western         10164           Youngstown - Sanborne #403         34.5         Western         10168           Huntley - Military #26H         23         Western         10176           Kenmore - SUNY Buffalo #30, 631         23         Western         10177           Tonawanda Lines #601         23         Western         10174           Mortimer - Golah #109         69         Western         10252           Attica - No Leroy #208         34.5         Western         10252           Attica - No Leroy #208         34.5         Western         10254           Batavia - No Leroy #203         34.5         Western         10252           Attica - No Leroy #203         34.5         Western         10256           Batavia - No Leroy #213         34.5         Western         10262           Carborundum - No Akron #204         34.5	Mountain - Sanborne #404	34.5	Western	10152
Anstant         Total Status         Total Status           Ransomville - Phillips #402         34.5         Western         10158           Ridge - Shaleton #610         34.5         Western         10160           Sta 124 - Youngman #605, 606         34.5         Western         10162           Walden - Ledyard #702         34.5         Western         10164           Youngstown - Sanborne #403         34.5         Western         10166           Huntley - Miltary #26H         23         Western         10170           Kenmore - SUNY Buffalo #630, 631         23         Western         10171           Kenmore - SolNY Buffalo #630, 631         23         Western         10214           Abtion - Brockport #308         34.5         Western         10225           Attica - No Leroy #208         34.5         Western         10256           Batavia - Ntica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western<	Mountain - Youngstown #401	34.5	Western	10154
Rate         Process           Ridge         Shaleton #610         34.5         Western         10160           Sta 124         Youngman #605, 606         34.5         Western         10162           Walden         Ledyard #702         34.5         Western         10166           Huntley         Woodard #201         23         Western         10166           Huntley         Woodard #28H         23         Western         10170           Kenmore         SUNY Buffalo #630, 631         23         Western         10172           Tonawanda Lines #601         23         Western         10214           Albion - Brockport #308         34.5         Western         10250           Attica - Westernthersfield #209         34.5         Western         10254           Batavia - No Leroy #203         34.5         Western         10256           Batavia - No Leroy #203         34.5         Western         10256           Batavia - No Leroy #210         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10268           Gasport - Telegraph #312	Ransomville - Phillins #402	34.5	Western	10158
Note         One         Other         Ot	Ridge - Shaleton #610	34.5	Western	10160
Sia 12.4         TODE (100)         34.5         Western         10184           Youngstown - Sanborne #403         34.5         Western         10186           Huntley - Military #26H         23         Western         10170           Kenmore - SUNY Buffalo #630, 631         23         Western         10172           Tonawanda Lines #601         23         Western         10174           Mortimer - Golah #109         69         Western         10250           Attica - No Leroy #208         34.5         Western         10252           Attica - No Leroy #208         34.5         Western         10254           Batavia - No Leroy #208         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10268           Caledonia - Golah #101         34.5         Western         10262           Carborundum - No Akron #205         34.5         Western         10264           Gasport - Telegraph #312         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10272           Golah - No Lakeville #216         34.5	Sta 124 - Youngman #605_606	34.5	Western	10162
Waterin LEGy and Witz         34.5         Western         10166           Huntley - Military #26H         23         Western         10176           Kenmore - SUNY Buffalo #630, 631         23         Western         10172           Tonawanda Lines #601         23         Western         10174           Mortimer - Golah #109         69         Western         10244           Albion - Brockport #308         34.5         Western         10250           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10268           Brockport - GE #310         34.5         Western         10266           Carborundum - No Akron #204         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albion #305         34.5         Western         10276           Medina - Albion #305         34.5         Western	Walden - Ledvard #702	34.5	Western	10164
Huntley - Willtary #26H         23         Western         10168           Huntley - Woodard #28H         23         Western         10170           Kenmore - SUNY Buffalo #630, 631         23         Western         10172           Tonawanda Lines #601         23         Western         10174           Mortimer - Golah #109         69         Western         10250           Attica - No Leroy #208         34.5         Western         10252           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10262           Carborndum - No Akron #205         34.5         Western         10262           Carborndum - No Akron #205         34.5         Western         10262           Carborndum - No Akron #205         34.5         Western         10264           Gasport - Telegraph #312         34.5         Western         10272           Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10278           No Akron - Attica #225         34.5         Western<	Voungstown - Sanborne #403	34.5	Western	10166
Initial y Wintal y 2011         23         Western         10170           Kenmore - SUNY Buffalo #630, 631         23         Western         10172           Tonawanda Lines #601         23         Western         10174           Mortimer - Colah #109         69         Western         10250           Attica - No Leroy #208         34.5         Western         10252           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10266           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10266           Golah - No Lakeville #216         34.5         Western         10276           Medina - Albioh #305         34.5         Western         10276           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albioh #305         34.5         Western	Huntley Military #26H	23	Western	10168
Inditeg - Wolstein         23         Western         10172           Kenmore - SUNY Buffalo #630, 631         23         Western         10174           Mortimer - Golah #109         69         Western         10214           Mortimer - Golah #109         69         Western         10250           Attica - No Leroy #208         34.5         Western         10250           Attica - Westernthersfield #209         34.5         Western         10252           Attica - Westernthersfield #209         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10266           Batavia - No Leroy #223         34.5         Western         10262           Carborndum - No Akron #204         34.5         Western         10262           Carborndum - No Akron #205         34.5         Western         10262           Carborndum - No Akron #215         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10278           No Akron - Attica #225         34.5	Huntley - Woodard #28H	23	Western	10170
Network         23         Western         10172           Mortimer - Golah #109         69         Western         10214           Albion - Brockport #308         34.5         Western         10250           Attica - No Leroy #208         34.5         Western         10252           Attica - Westernthersfield #209         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10276           Golah - No Lakeville #217         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albion #305         34.5         Western         10276           Mo Akron - Cakfield #227         34.5         Western         10278           No Akron - Cakfield #2217         34.5         Western	Kenmore SUNX Buffalo #630_631	23	Western	10172
1014wind Eliss #01         23         Western         10274           Albion - Brockport #308         34.5         Western         10250           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10262           Carborundum - No Akron #205         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10272           Golah - No Lakeville #216         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10280           No Akron - Oakfiel #227         34.5         Western         10284           No Lakeville - Richmond #24, 226         34.5         Western         10282           No Lakeville - Ridge #218         34.5         W	Tenewondo Lines #601	23	Western	10172
Moltinel - Golal #109         03         Western         10214           Albion - Brockport #308         34.5         Western         10250           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10268           Golah - No Lakeville #217         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10280           No Lakeville - Ridge #218         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Weste	Nortimer, Caleb #100	20	Western	1074
Abbin - Brockport #308         34.5         Western         10250           Attica - No Leroy #208         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10268           Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Attica #225         34.5         Western         10280           No Lakeville - Richmond #224, 226         34.5         Western         10280           No Lakeville - Richond #203         34.5	Mortimer - Golan #109	24.6	Western	10214
Attica - No Leroy #205         34.5         Western         10252           Attica - Westernthersfield #209         34.5         Western         10256           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10276           Golah - No Lakeville #216         34.5         Western         10277           Golah - No Lakeville #217         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Attica #225         34.5         Western         10284           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           No Leroy - Caledonia #203         3		34.5	Western	10250
Attica         Yuestermitersite(a #209         34.5         Western         10254           Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10268           Golah - No Lakeville #216         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Cakfield #227         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10284           No Lakeville - Ridge #219         34.5         Western         10286           Oakfield - Batavia #219	Attica - No Leroy #208	34.5	vvestern	10252
Batavia - Attica #206         34.5         Western         10256           Batavia - No Leroy #223         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10266           Gasport - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Cakfield #227         34.5         Western         10280           No Lakeville - Richmond #224, 226         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #219         34.5         Western         10286           No Lakeville - Ridge #219         34.5         Western         10290           Oakfield - Datavia #219         34.5	Attica - Westerntherstield #209	34.5	vvestern	10254
Batavia - No Leroy #223         34.5         Western         10258           Brockport - GE #310         34.5         Western         10260           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10266           Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albion #305         34.5         Western         10280           No Akron - Cakfield #227         34.5         Western         10280           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #219         34.5         Western         10288           Oakfield - Caledonia #201         34.5         Western         10290           Oakfield - Caledonia #301         34.5	Batavia - Attica #206	34.5	vvestern	10256
Brockport - GE #310         34.5         Western         10260           Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10272           Golah - No Lakeville #216         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10276           Medina - Albion #305         34.5         Western         10276           Medina - Albion #305         34.5         Western         10280           No Akron - Attica #225         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Richmond #224, 226         34.5         Western         10286           No Lakeville - Richmond #203         34.5         Western         10286           No Lakeville - Richmond #203         34.5         Western         10290           Oakfield - Datavia #219         34.5         Western         10290           Oakfield - Caledonia #201 <td< td=""><td>Batavia - No Leroy #223</td><td>34.5</td><td>Western</td><td>10258</td></td<>	Batavia - No Leroy #223	34.5	Western	10258
Caledonia - Golah #213         34.5         Western         10262           Carborundum - No Akron #205         34.5         Western         10264           Garborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10268           Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Oakfield #227         34.5         Western         10280           No Lakeville - Richmond #224, 226         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10280           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10290           Oakfield - Caledonia #301         34.5         Western         10302           Phillips - Medina #301         34.5	Brockport - GE #310	34.5	Western	10260
Carborundum - No Akron #204         34.5         Western         10264           Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10272           Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10286           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Batavia #301         34.5         Western         10292           Phillips) - Medina #302, 303	Caledonia - Golah #213	34.5	Western	10262
Carborundum - No Akron #205         34.5         Western         10266           Gasport - Telegraph #312         34.5         Western         10272           Golah - No Lakeville #216         34.5         Western         10274           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Pery #853         69         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #219         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10280           Oakfield - Caledonia #301         34.5         Western         10290           Oakfield - Caledonia #303         34.5         Western         10300           Waterport - Albion #302, 303         34.5 </td <td>Carborundum - No Akron #204</td> <td>34.5</td> <td>Western</td> <td>10264</td>	Carborundum - No Akron #204	34.5	Western	10264
Gasport - Telegraph #312         34.5         Western         10268           Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #213         34.5         Western         10286           Oakfield - Batavia #219         34.5         Western         10288           Oakfield - Caledonia #201         34.5         Western         10290           Oakfield - Caledonia #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10302           Waterport - Albion #306         34.5         Western         10302           Waterport Hydro-Waterpt #312 <td< td=""><td>Carborundum - No Akron #205</td><td>34.5</td><td>Western</td><td>10266</td></td<>	Carborundum - No Akron #205	34.5	Western	10266
Golah - No Lakeville #216         34.5         Western         10272           Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           No Leroy - Caledonia #203         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Batavia #219         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10292           Caledonia #301         34.5         Western         10292           Phillips - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport Hydro-Waterpt #312         34.5	Gasport - Telegraph #312	34.5	Western	10268
Golah - No Lakeville #217         34.5         Western         10274           Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #24, 226         34.5         Western         10282           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #219         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10302           Waterport - Albion #306         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10304           Waterport Hydro-Waterpt #312 <td< td=""><td>Golah - No Lakeville #216</td><td>34.5</td><td>Western</td><td>10272</td></td<>	Golah - No Lakeville #216	34.5	Western	10272
Golah - So Perry #853         69         Western         10276           Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #219         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10296           Gasport (Phillips) - Telegraph #304         34.5         Western         10296           Telegraph - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport Hydro-Waterpt #312         34.5         Western         10304           Materport Hydro-Waterpt #312         34.5         Western         10502           Cold Spr - W Salamanca #804	Golah - No Lakeville #217	34.5	Western	10274
Medina - Albion #305         34.5         Western         10278           No Akron - Attica #225         34.5         Western         10280           No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport Hydro-Waterpt #312         34.5         Western         10306           Ashville - So. Dow #864         34.5         Western         10502           Cold Spr - W Salamanca #804	Golah - So Perry #853	69	Western	10276
No         Akron - Attica #225         34.5         Western         10280           No         Akron - Oakfield #227         34.5         Western         10282           No         Lakeville - Richmond #224, 226         34.5         Western         10284           No         Lakeville - Ridge #218         34.5         Western         10286           No         Lakeville - Ridge #218         34.5         Western         10286           No         Leroy - Caledonia #203         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport - Brockport #307         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10500           Bagdad - Dake Hill #815         34.5         Western         10502           Cold Spr - W Salamanca #804         34.5         <	Medina - Albion #305	34.5	Western	10278
No Akron - Oakfield #227         34.5         Western         10282           No Lakeville - Richmond #224, 226         34.5         Western         10284           No Lakeville - Ridge #218         34.5         Western         10286           No Lakeville - Ridge #218         34.5         Western         10286           No Leroy - Caledonia #203         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10296           Telegraph - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport - Brockport #307         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10306           Ashville - So. Dow #864         34.5         Western         10500           Bagdad - Dake Hill #815         34.5         Western         10504           Dake Hill - Machias #803	No Akron - Attica #225	34.5	Western	10280
No         Lakeville - Richmond #224, 226         34.5         Western         10284           No         Lakeville - Ridge #218         34.5         Western         10286           No         Leroy - Caledonia #203         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10296           Telegraph - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport - Brockport #307         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10306           Ashville - So. Dow #864         34.5         Western         10502           Cold Spr - W Salamanca #803         34.5         Western         10502           Cold Spr - W Salamanca #816         34.5         Western         10506           Dake Hill - Machias #803         34.5         Western         10506	No Akron - Oakfield #227	34.5	Western	10282
No         Lakeville - Ridge #218         34.5         Western         10286           No         Leroy - Caledonia #203         34.5         Western         10288           Oakfield - Batavia #219         34.5         Western         10290           Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10296           Telegraph - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport - Brockport #307         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10306           Ashville - So. Dow #864         34.5         Western         10500           Bagdad - Dake Hill #815         34.5         Western         10502           Cold Spr - W Salamanca #804         34.5         Western         10504           Dake Hill - Machias #803         34.5         Western         10508           Delevan - Machias #801         34.5         Western         10508           Delev	No Lakeville - Richmond #224, 226	34.5	Western	10284
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Oakfield - Caledonia #201         34.5         Western         10292           Phillips - Medina #301         34.5         Western         10294           Gasport (Phillips) - Telegraph #304         34.5         Western         10296           Telegraph - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport - Brockport #307         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10306           Ashville - So. Dow #864         34.5         Western         10500           Bagdad - Dake Hill #815         34.5         Western         10502           Cold Spr - W Salamanca #804         34.5         Western         10504           Dake Hill - Machias #803         34.5         Western         10506           Dake Hill - W Salamanca #816         34.5         Western         10508           Delevan - Machias #801         34.5         Western         10510           Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854	Oakfield - Batavia #219	34.5	Western	10290
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Gasport (Phillips) - Telegraph #304         34.5         Western         10296           Telegraph - Medina #302, 303         34.5         Western         10300           Waterport - Albion #306         34.5         Western         10302           Waterport - Brockport #307         34.5         Western         10304           Waterport - Brockport #307         34.5         Western         10304           Waterport Hydro-Waterpt #312         34.5         Western         10306           Ashville - So. Dow #864         34.5         Western         10500           Bagdad - Dake Hill #815         34.5         Western         10502           Cold Spr - W Salamanca #804         34.5         Western         10504           Dake Hill - Machias #803         34.5         Western         10506           Dake Hill - W Salamanca #816         34.5         Western         10508           Delevan - Machias #801         34.5         Western         10510           Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859<	Phillips - Medina #301	34.5	Western.	10294
Telegraph - Medina #302, 303       34.5       Western       10300         Waterport - Albion #306       34.5       Western       10302         Waterport - Brockport #307       34.5       Western       10304         Waterport Hydro-Waterpt #312       34.5       Western       10306         Ashville - So. Dow #864       34.5       Western       10500         Bagdad - Dake Hill #815       34.5       Western       10502         Cold Spr - W Salamanca #804       34.5       Western       10504         Dake Hill - Machias #803       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10508         Delevan - Machias #801       34.5       Western       10510         Dunkirk - Hartfield #852       34.5       Western       10514         Falconer) So Dow - Poland #865       34.5       Western       10516         Hartfield - Ashville #854       34.5       Western       10518         Hartfield - Falconer #859       34.5       Western       10520         Hartfield - Sherman #855       34.5       Western       10522	Gasport (Phillips) - Telegraph #304	34.5	Western	10296
Waterport - Albion #306       34.5       Western       10302         Waterport - Brockport #307       34.5       Western       10304         Waterport Hydro-Waterpt #312       34.5       Western       10306         Ashville - So. Dow #864       34.5       Western       10500         Bagdad - Dake Hill #815       34.5       Western       10502         Cold Spr - W Salamanca #804       34.5       Western       10504         Dake Hill - Machias #803       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10508         Delevan - Machias #801       34.5       Western       10510         Dunkirk - Hartfield #852       34.5       Western       10514         Falconer) So Dow - Poland #865       34.5       Western       10516         Hartfield - Ashville #854       34.5       Western       10518         Hartfield - Falconer #859       34.5       Western       10520         Hartfield - Sherman #855       34.5       Western       10520	Telegraph - Medina #302, 303	34.5	Western	10300
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Waterport Hydro-Waterpt #312       34.5       Western       10306         Ashville - So. Dow #864       34.5       Western       10500         Bagdad - Dake Hill #815       34.5       Western       10502         Cold Spr - W Salamanca #804       34.5       Western       10504         Dake Hill - Machias #803       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10508         Delevan - Machias #801       34.5       Western       10510         Dunkirk - Hartfield #852       34.5       Western       10514         Falconer) So Dow - Poland #865       34.5       Western       10516         Hartfield - Ashville #854       34.5       Western       10518         Hartfield - Falconer #859       34.5       Western       10520         Hartfield - Sherman #855       34.5       Western       10522	Waterport - Brockport #307	34.5	Western	10304
Ashville - So. Dow #864       34.5       Western       10500         Bagdad - Dake Hill #815       34.5       Western       10502         Cold Spr - W Salamanca #804       34.5       Western       10504         Dake Hill - Machias #803       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10508         Delevan - Machias #801       34.5       Western       10510         Dunkirk - Hartfield #852       34.5       Western       10514         Falconer) So Dow - Poland #865       34.5       Western       10516         Hartfield - Ashville #854       34.5       Western       10518         Hartfield - Falconer #859       34.5       Western       10520         Hartfield - Sherman #855       34.5       Western       10522	Waterport Hydro-Waterpt #312	34.5	Western	10306
Bagdad - Dake Hill #815       34.5       Western       10502         Cold Spr - W Salamanca #804       34.5       Western       10504         Dake Hill - Machias #803       34.5       Western       10506         Dake Hill - W Salamanca #816       34.5       Western       10508         Delevan - Machias #801       34.5       Western       10510         Dunkirk - Hartfield #852       34.5       Western       10514         Falconer) So Dow - Poland #865       34.5       Western       10516         Hartfield - Ashville #854       34.5       Western       10518         Hartfield - Falconer #859       34.5       Western       10520         Hartfield - Sherman #855       34.5       Western       10520	Ashville - So. Dow #864	34.5	Western	10500
Cold Spr - W Salamanca #804         34.5         Western         10504           Dake Hill - Machias #803         34.5         Western         10506           Dake Hill - W Salamanca #816         34.5         Western         10508           Delevan - Machias #801         34.5         Western         10510           Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Bagdad - Dake Hill #815	34.5	Western	10502
Dake Hill - Machias #803         34.5         Western         10506           Dake Hill - W Salamanca #816         34.5         Western         10508           Delevan - Machias #801         34.5         Western         10510           Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Cold Spr - W Salamanca #804	34.5	Western	10504
Dake Hill - W Salamanca #816         34.5         Western         10508           Delevan - Machias #801         34.5         Western         10510           Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Dake Hill - Machias #803	34.5	Western	10506
Delevan - Machias #801         34.5         Western         10510           Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Dake Hill - W Salamanca #816	34.5	Western	10508
Dunkirk - Hartfield #852         34.5         Western         10514           Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Delevan - Machias #801	34.5	Western	10510
Falconer) So Dow - Poland #865         34.5         Western         10516           Hartfield - Ashville #854         34.5         Western         10518           Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Dunkirk - Hartfield #852	34.5	Western	10514
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Hartfield - Falconer #859         34.5         Western         10520           Hartfield - Sherman #855         34.5         Western         10522	Hartfield - Ashville #854	34.5	Western	10518
Hartfield - Sherman #855 34.5 Western 10522	Hartfield - Falconer #859	34.5	Western	10520
	Hartfield - Sherman #855	34.5	Western	10522

# Sub-transmission ROW's to be widened during the rate years 2011, 2012, 2013

		Management	
Name	Voltage	Division	ROW#
Machias - Maplehurst #802	34.5	Western	10524
No Angola - Bagdad #862	34.5	Western	10530
No Angola - No Ashford #861	34.5	Western	10532
No Ashford - Nuclear Fuels #817	34.5	Western	10534
Olean - Centralres #809	34.5	Western	10536
Homer Hill/ Olean - Nile #811	34.5	Western	10538
Homer Hill - W Salamanca #805	34.5	Western	10540
Sherman - Ashville #863	34.5	Western	10542
So Westernlisville - Andover #541	34.5	Western	10544
W Portland - Hartfield #866	34.5	Western	10546
W Portland - Sherman #867	34.5	Western	10548
Curtis - Fay St	34.5	Central	11122
Mallory - Cleveland	34 5	Central	11142
Solvay - Harris Rd	34.5	Central	11152
Teall #25 Loon	34.5	Central	11154
Teall #26 Loop	34.5	Central	11156
Teall - Industrial I oon #26	34.5	Central	11162
Varrick - High Falls	34.5	Central	11168
Woodard - Crouse Hinds	34.5	Central	11172
Woodard - Longbranch	34.5	Central	11174
Woodard - Teall #24	34.5	Central	11176
Woodard - Teall #24	34.5	Central	11178
Deorfield Schuvler	46	Central	11404
Delacyille Inghams	40	Central	11408
Now Hatford Schuvler	40	Central	11410
Pleasant Schuvler	40	Central	11410
Schuvler Valley	40	Central	11416
Tronton Doorfield	40	Central	11418
Trenton Middleville	40	Central	11420
Trenton - Widdleville	40	Central	11420
Trenton - Whiteshore: Marcy Hospital Tap	46	Central	11424
Valley - Inchame	46	Central	11426
Whiteshoro New Hattford	46	Central	11428
Vahrundasis Clinton	46	Central	11420
Yahnundasis - New Hartford	46	Central	11432
Yahnundasis - Westernstmoreland	46	Central	11436
Battle Hill - Balmat	23	Central	11508
Gabriels - Bloomingdale	46	Central	11606
Gabriels - Paul Smith's	46	Central	11610
I k Clear - Tupper I k	46	Central	11616
Loon I k - Gabriels	46	Central	11618
Paul Smith's -   k Clear	46	Central	11620
Tupper I k - PierCentralfield	46	Central	11622
Union Falls - Loon Lk	46	Central	11628
Brasher - Bombay	34.5	Central	11652
Browns Falls - Colony	34 5	Central	11654
Malone - Chasm Falls	34.5	Central	11664
Carthage - Taylorville	23	Central	11712
Deferiet - Carthage	23	Central	11718
Emervville - Loomis	23	Central	11720
Emeryville - Mine Rd	23	Central	11722
Hailsboro - Balmat	23	Central	11726

# Sub-transmission ROW's to be widened during the rate years 2011, 2012, 2013

		Management	
Name	Voltage	Division	ROW#
McIntyre - Hammond	23	Central	11734
McIntyre - Heuvelton	23	Central	11736
Mill St - Black River	23	Central	11740
Norfolk - Norwood	23	Central	11742
Philadelphia - Indian River	23	Central	11742
l ittle River-State Street	23	Central	11762
Taylorville - BreWesternov Hill	23	Central	11766
Pehblehill - Rathhun	34.5	Central	11150
SpenCentralr Corners - Malone	34.5	Central	11670
Bristol Hill - Pheonix	34.5	Central	11106
Amsterdam - Rotterdam	60	Eastern	12200
Rethlehem - Rensselper	24.5	Eastern	12264
Cresent - School St	34.5	Eastern	12204
Delmar Bathlohom	24.5		12202
Karper Patroop	34.5	⊏astern	12200
Manlowaad Liberty	34.5		122/2
Menonda Liberty	34.5	⊏astern	12280
Neutenville Potreen	34.5	⊨astern	12286
Netton Menonde	34.5	Eastern	12288
Norton - Menands	34.5	⊨astern	12294
	34.5	Eastern	12296
Kosa Kd - McClellan	34.5	∟astern	12302
Rosa Rd - Vischers	34.5	Eastern	12304
Rotterdam - Scotia	34.5	Eastern	12306
School St - Maplewood	34.5	Eastern	12310
Scotia - Rosa Rd	34.5	Eastern	12314
Amsterdam - Ephratah	69	Eastern	12600
Amsterdam - Rotterdam	69	Eastern	12602
Cobleskill - Schoharie	69	Eastern	12604
Mayfield - Northville	69	Eastern	12614
Meco - Mayfield	69	Eastern	12618
Ashley - Glens Falls	34.5	Eastern	12700
Cambridge - Hoosick	34.5	Eastern	12706
Charlton - Ballston	34.5	Eastern	12708
Glens Falls - Bay St	34.5	Eastern	12714
Glens Falls - Mohican #11	34.5	Eastern	12716
Glens Falls - Mohican #12	34.5	Eastern	12718
Henry St - Glens Falls	34.5	Eastern	12720
Centralment Mtn SCA Tissue	34.5	Eastern	12724
Centralment Mtn Schuylerville	34.5	Eastern	12728
Queensbury - Bay St	34.5	Eastern	12736
North Creek - Warrensburg	34.5	Eastern	12745
Ephratah - Caroga	23	Eastern	12746
Marshville - Cherry Valley	23	Eastern	12748
Warrensburg - Ft. Gage	34.5	Eastern	12712
Ft. Gage - Queensbury	34.5	Eastern	12738

# SubT SAIFI Comparison

DSM-6

			1					Difference	%
Division	CAUSE	2004	2005	2006	2007	2008	2009	2004-2009	Improvement
West	All Causes	0.18	0.093	0.098	0.117	0.049	0.065		
Central	All Causes	0.144	0.275	0.184	0.112	0.128	0.08		
East	All Causes	0.139	0.193	0.2	0.183	0.108	0.143		
System	All Causes	0.154	0,188	0.161	0.137	0.095	0.096		
West	Tree Causes	0.032	0.012	0.03	0.013	0.006	0.016	0.016	50%
Central	Tree Causes	0.008	0.057	0.021	0.023	0.024	0.003	0.005	63%
East	Tree Causes	0.032	0.056	0.066	0.03	0.002	0.004	0.028	88%
System	Tree Causes	0.024	0.042	0.039	0.022	0.011	0.0008	0.0232	97%







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Date of Request: April 26, 2010 Due Date: May 6, 2010 Request No. MAS-11 NMPC Req. No. NM 692 DPS-447

### NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### **Request for Information**

FROM: Mary Ann Sorrentino

TO: Susan F. Tierney and Pam Dise

Request:

As a follow up to question 3 of interrogatory NM 105 DPS 70:

a) Assuming there is a charge in base delivery rates, will the Company prorate bills in the first month of each rate year?

b) How does the company price out revenues in the revenue forecast for the first month of each rate year?

c) If rates are prorated in subpart a (billed revenues) but not in subpart b, (forecast revenues), how will the RDM be impacted?

d) Your response to NM 105 DPS 70 states:

"The process described here is akin to the one used by the Company for its natural gas RDM process."

It is my understanding that the gas RDM adjusts "actual" revenues by calculating "actual revenues" using effective rates in the first month of each new rate year. This is done to account for prorated billing. Explain if your RDM proposal has a similar pro-ration process. If so, provide an illustrative example. If not, explain why.

#### Response:

- a) A change in the base delivery rates would be prorated in the first month the rate goes into effect.
- b) The revenue forecast for the first month of each rate year is equal to the usage in that month times the rate in effect for the month. There is no prorating in the rate years' forecast revenue.
- c) & d)

The Company recognizes that it will have to adjust the actual revenue for the first and last months of each reconciliation period to adjust for prorating of rate changes. The Company will use daily cycle billing units as reported from the Company's billing system and the applicable meter read dates associated with the 20 batches billed during the first and last month to determine the ratio applicable to the prior and current month's usage.

For instance, in January 2011 the Company will estimate the usage associated with the month of December 2010 included in January 2011 revenue, price out that usage at the December 2010 rates and reduce the January actual revenue by that amount. In addition, in January 2012 the Company will estimate the usage associated with the month of December 2011 included in January 2012 revenue, price out that usage at the December 2011 rates and add the amount to the annual reconciliation.

An illustration for a residential class is provided on Attachment 1.

Name of Respondent: Pamela Dise Date of Reply: May 7, 2010

NMPC Req No. NM 692 DPS-447 MAS-11											Niagara Mol	nawk Power C	orporation d/b/ Case Attacheme	a National Grid No. 10-E-0050 nt 1 to MAS-11 Sheet 1 of 1
	Jan-2011	Feb-2011	Mar-2011	Apr-2011	May-2011	Jun-2011	Jul-2011	Aug-2011	Sep-2011	Oct-2011	Nov-2011	Dec-2011	Jan-2012	Total
1 Actual Booked Revenue	\$ 127,510	\$ 141,400	\$ 157,500	\$ 147,000	\$ 155,400	\$ 149,800	\$ 161,000	\$ 150,500	\$ 143,500	\$ 156,100	\$ 156,800	\$ 122,500		
2 Adjustment for Prorating	\$ (53,940)	<u>\$</u> -	<u>s</u>	<u>\$</u>	<u>s</u> -	\$ -	<u> </u>	<u>s</u> -	<u>s -</u>	<u>s -</u>	<u>s -</u>	<u> </u>	<u>\$ 5</u> 1,975	
3 Adjusted Revenue	<u>\$ 73,570</u>	\$ 141,400	<b>\$</b> 157,500	\$ 147,000	\$ 155,400	\$ 149,800	<b>\$</b> 161,000	\$ 150,500	\$ 143,500	\$ 156,100	\$ 156,800	\$ 122,500	<u>\$ 51,975</u>	\$ 1,767,045

#### Prorating Adjustment:

4 kWh Usage 5 Customers Counts	1,450,000 1,750	1,520,000 1,750	1,750,000 1,750	1,600,000 1,750	1,720,000 1,750	1,640,000 1,750	1,800,000 1,750	1,650,000 1,750	1,550,000 1,750	1,730,000 1,750	1, <b>740,0</b> 00 1,750	1,250,000 1,750	1,350,000 1,750
6 % kWh associatied with prior month 7 kWh associated with prior month	62% 899,000												55% 742,500
8 Per kWh Charge for Prior Year	0.06												0.07
9 kWh revenue associated with prior month	\$ (53,940)												\$ 51,975

1 Revenue based on Company's books and records 2 Line 9 3 Line 1 + Line 2

3 Line 1 + Line 2 4 Usage based on Company's books and records 5 Customer counts based on Company's books and records 6 Per daily cycle billing units analysis 7 Line 6 x Line 4 8 Per kWh rate in effect

9 Line 7 x Line 8
Date of Request: April 26, 2010 Due Date: May 6, 2010

## Request No. DKS-18 NMPC Req. No. NM 694 DPS-449

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

## **Request for Information**

FROM: David Shahbazian

TO: Revenue Requirement Panel

Request:

- 1. The Company's response to DKS-11, question 1, part b, failed to provide the information requested. The question specifically asked for the amount of risk premium included in each of rate years for the projects listed in exhibit IOP-6, sheets 1& 2. The Company's reply referenced worksheets in the original rate filing, however these sheets do not quantify the amounts of risk in each rate year.
- I am repeating my request for this information. The original interrogatory asked in DKS-11, question 1, part b, is listed below:

Exhibit IOP-6, sheets 1 & 2, lists projects associated with Capital Software and Other Information Systems Rent Expense. For each project listed below, please provide the following information:

- b) The amount of risk premium in the RY1, RY2 and RY3 projection.
  - Exhibit IOP-6 Capital Software and Other Information System Projects:
  - INVP 0314 U.S. Intranet Consolidation
  - INVP 2210 Intranet Design
  - INVP 1092 OneNet (Common User Interface)
  - INVP 1393 Desktop Refresh
  - **INVP 1389 Unix Lifecycling**
  - INVP 1656 Customer Systems Agent Desktop
  - INVP 1306 IVR Phase 2 (Interactive Voice Response)
  - INVP 1242 Transformation KPI's

INVP 1088 Datacenter Rationalization for 2011, 2012, 2013

#### Response:

1. b) Please see Attachment A. Nothing in this Response should be regarded as an acceptance by the Company of the characterization in this IR of the Company's response to IR DKS-11.

Name of Respondent: Avron Segal Date of Reply: May 7, 2010

#### NIAGARA MOHAWK POWER CORPORATIION d/b/a National Grid Case 10-E-0050 Attachment A to DKS-18

	,			3/31/2010		% allocated								
				Inception to	INVP Spend	to Legacy	Legacy US	FY10	TOTAL US	In Service	Risk Margin Per	RY1	RY2	RY3
IS Erec	Investment Name	INVP	Category	Date S	Spending	Grid US	spend	Forecast	SPEND	Date	Investment Paper	CY11	CY12	CY13
EPO	US Intranet Consolidation	INVP 0314	Shared Services	913,112		50%	456,556		456,556	4/1/2010	0%	-	-	-
EPO	Intranet Design	INVP 2210	Shared Services	•	4,000,000	25%	1,000,000	-	1,000,000	4/1/2011	8.60%	12,900	17,200	17,200
ISSO	OncNet (common user interface)	<b>INVP</b> 1092	Shared Infrastructure	4,344,858		50%	2,172,429		2,172,429	4/1/2010	0%	-	-	-
ISSO	Desktop Refresh	INVP 1393	Shared Infrastructure	898,484	•	50%	449,242		449,242	4/1/2010	0%	-	-	-
ISSO	Unix Lifecycling	INVP 1389	Shared Infrastructure	1,821,274		50%	910,637		910,637	4/1/2010	0%	•	-	-
ED&G	Customer Systems Agent Desktop	INVP 1656	Customer Service	7,906,833	10,371,000	52%	9,504,473		9,504,473	4/1/2011	5.50%	78,412	104,549	104,549
ED&G	IVR Phase 2 - (Interactive Voice Response)	INVP 1306	Customer Service	1,489,236	•	100%	1,489,236		1,489,236	9/22/2008	0%	-	•	-
ED&G	Transformation KPIs	INVP 1242	Operations	6,040,211	-	100%	6,040,211		6,040,211	4/1/2010	0%	-	-	•
	Datacenter Rationalization (includes specific													
ISSO	storage computing & telecoms) 2011	<b>INVP 1088</b>	Shared Infrastructure	712,925	11,000,000	50%	5,856,462		5,856,462	4/1/2011	7%	61,493	B1,990	81,990
	Datacenter Rationalization (includes specific													
ISSO	storage computing & telecoms) 2012	INVP 1088	Shared Infrastructure	-	11.000,000	50%	5,500,000	-	5,500,000	4/1/2012	7%	•	57,750	77,000
	Datacenter Rationalization (includes specific													
ISSO	storage computing & telecoms) 2013	<b>INVP 1088</b>	Shared Infrastructure	•	11,000,000	50%	5,500,000	-	5,500,000	4/1/2013	7%	-	-	57,750

Where a project is in service, there is no risk included in the rent expense as the rent is based on the actual expenditure. Where the project is forecast to finish in the future, the risk included in the rent expense is as stated in the above table.

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Date of Request: April 28, 2010 Due Date: May 10, 2010 Request No. WEL-15 NMPC Req. No. NM 702 DPS-457

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

# Request for Information

FROM:William LysogorskiTO:Infrastructure and Operations Panel

## Request:

1. Please explain why Projects C32339 and C32342 have budgeted dollars of \$525,000.00 for FY10/11 and \$1,575,000.00 for FY11/12 when both Projects were cancelled per data provided in MJR-1-SuppB, project C32339 folder.

2. Provide a list of all projects cancelled that presently are included in Exhibit\_(IOP-14), Schedule 2.

3. Please explain what procedures are in place to remove cancelled projects from the budget planning process.

## Response:

- 1. The two referenced projects were cancelled by Distribution Network Asset Planning after further evaluation of the need for the increased capacity. The determination that the projects were no longer needed was made prior to filing the rate case but after the budget for the rate plan years were finalized. As described in the response to question 3, in-year adjustments to the approved FY11 capital plan have already begun by Investment Management and Program Management which include walk-in projects and revised forecasts for other projects.
- 2. William Lysogorski confirmed in a phone conversation on May 05, 2010 that this question pertains to distribution and sub-transmission projects only.

The list of cancelled distribution and sub-transmission projects that are presently included in Exhibit\_\_(IOP\_14) Schedule 2 are provided in the table below.

Region	Proj #	Project Description	F'11 Buoget	FY12 Budget	FY13 Budget
NY	C15678	Chautauqua 57 - Replace Xfmr	855,000	-	-
NY	C26639	Seneca Niagara Casino Relocation NF	50,000	-	-
NY	C28825	Krumkill Voorheesville Tie	500,000	•	•
NY	C30124	Wilson Station 93 - Load Relief	-	750,000	750,000
NY	C32339	Farmersville Transformer Replacemen	525,000	1,575,000	•
NY	C32342	Sinclairville Transformer Replace	525,000	1,575,000	-
NY	C32345	Butts Rd. 7252 Extension	675,000	-	•
NY	C32350	Albion 8064 Getaway Reconductoring	187,500	•	•
NY	C32452	NW 15564 Fdr, Record ug getaway	112,500	37,500	-

# PROJECTS IN THE NY PLAN WHICH HAVE BEEN CANCELLED

3. The full "project by project" line item capital budget (plan) is typically finalized and issued in October of each year. After issuing the budget, all changes for line items in the plan are made through forecast updates by Investment and Program Management. As indicated in the direct testimony of the Infrastructure and Operations Panel (p. 138 of 266), there are "inevitable changes in budgets and project estimates over time," and Company management is responsible for managing capital work under the approved budgets. The Company's annual capital plan reflects its best assessment of the future capital work needed based on what is known at the time. However, the Company continually reviews the capital plan (following approval and during the current year) for changes in assumption and conditions that may warrant changes in the capital plan, and adjusts the plan accordingly. The dynamic nature of the capital plan is reflected in the Quarterly Capital Investment Plan report the Company provides to Staff.

In the case of project cancellations as referenced in Question (1) of this request, the forecast investment for the specific project would be zeroed out and the project removed from the resource plan. However, the overall distribution and sub-transmission investment budget for the present fiscal year is not changed because Investment Management and Program Management prioritizes additional projects that have been identified for completion or approves changes in other projects' forecasts in order to manage the overall capital spending plan for the fiscal year.

<u>Name of Respondent:</u> Glen DiConza Rob Sheridan Date of Reply: May 10, 2010 Date of Request: April 28, 2010 Due Date: May 10, 2010 Request No. WEL-17 NMPC Req. No. NM 704 DPS-459

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### **Request for Information**

FROM: William Lysogorski

TO: Infrastructure and Operations Panel

Request:

1. Please provide the number of Sub-transmission poles replaced in FY05, FY06, FY07, FY08, and FY09.

2. Please provide the capital expenditures to replace Sub-transmission poles in FY05, FY06, FY07, FY08, and FY09.

3. Please provide the expected average capital cost to replace a Sub-transmission pole for FY10 thru FY15.

4. Please provide the forecasted number of Sub-transmission poles to be replaced in FY10, FY11, FY12, FY13, FY14, and FY15.

5. Please provide the same information requested in item 1, 2, 3, and 4 for Distribution poles.

Response:

Sub Transmission - pole replacement numbers and average costs are derived from unitized property in PowerPlant.

1. The number of sub-transmission poles replaced in FY05 through FY09 is provided below.

FY05	FY06	FY07	FY08	FY09
259	270	252	194	133

2. The capital expenditure for sub-transmission pole replacements in FY05 through FY09 is provided below.

FY05	FY06	FY07	FY08	FY09
\$3,324,042	\$2,845,110	\$5,233,170	\$3,410,878	\$4,169,357

3. The expected average capital cost to replace a sub-transmission pole is provided below.

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FY10	FY11	FY12	FY13	FY14	FY15
\$15k	\$15k*	\$15k*	\$15k*	\$15k*	\$15k*

\* Note - the cost estimates are derived from the Sub Transmission I&M program and are estimates. Historic annual average costs have varied between ~\$10,000 and ~\$30,000 per pole which is dependent on the size of the pole, construction type, location and accessibility.

4. The forecasted number of sub-transmission poles to be replaced in FY10 through FY15 is provided below.

FY10	FY11	FY12	FY13	FY14	FY15
~200	~200	~200	~200	~200	~200

These replacement rates are based on our experience in CY2008 – see response to IR WEL-9 and are related to maintenance codes 511 (POLE – Visual Rotting) and 526 (POLE – Woodpecker Damage). An estimated one third of the poles with associated damage may require replacement, in line with historic replacement rates. The number in FY15 may drop as the first complete inspection cycle of the enhanced inspection program will have been completed and all level III work will have been addressed for inspections that took place through FY11.

# Distribution – pole replacement numbers and average costs are derived from unitized property in PowerPlant.

1. The number of distribution poles replaced in FY05 through FY09 is provided below.

FY05	FY06	FY07	FY08	FY09
11,122	9,567	7,934	7,387	6,335

2. The capital expenditure for distribution pole replacements in FY05 through FY09 is provided below.

FY05	FY06	FY07	FY08	FY09
\$26,174,384	\$26,057,531	\$21,186,394	\$24,399,266	\$27,120,047

3. The expected average capital cost to replace a distribution pole is provided below.

ſ	FY10	FY11	FY12	FY13	FY14	FY15
	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500	\$4,500

\* Note, these costs are based on historic averages and best available planning estimates.

4. The forecasted number of distribution poles to be replaced in FY10 through FY15 is provided below.

FY10	FY11	FY12	FY13	FY14	FY15
7,000	7,000	7,000	7,000	7,000	7,000

5. Pole replacement rates are expected to be constant as the first complete cycle of Inspection and Maintenance is completed, with subsequent Level III work addressed through FY14. Consequently there may be a reduction in pole replacements in FY15.

<u>Name of Respondent:</u> John Gavin Date of Reply: 5/10/2010

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Date of Request: May 12, 2010 Due Date: May 24, 2010 459 Request No. WEL-17 SUPP NMPC Req. No. NM 704 DPS-

### NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: William Lysogorski

<u>TO:</u> Infrastructure and Operations Panel

Request:

1. Please provide the number of Sub-transmission poles replaced in FY05, FY06, FY07, FY08, and FY09.

2. Please provide the capital expenditures to replace Sub-transmission poles in FY05, FY06, FY07, FY08, and FY09.

3. Please provide the expected average capital cost to replace a Sub-transmission pole for FY10 thru FY15.

4. Please provide the forecasted number of Sub-transmission poles to be replaced in FY10, FY11, FY12, FY13, FY14, and FY15.

5. Please provide the same information requested in item 1, 2, 3, and 4 for Distribution poles.

#### Response:

This supplement to WEL-17 provides corrected data in response to question 1 due to a spreadsheet error. The error was related to utilizing installed plant 'counts' instead of 'summed' quantities of units of property installed. Further, pole replacements are estimated to be a percentage of pole installations as described below. This method is required when responding to system related requests since PowerPlant only collects asset installation and retirement data. Certain programs such as the Targeted Pole Replacement Program and the Inspection and Maintenance program are manually tabulated.

Question 2 is also updated based on the percentage of pole replacements as compared to pole installations.

Sub Transmission - pole replacement numbers are derived from retired property in PowerPlant.

1. The number of sub-transmission poles replaced on the system in FY05 through FY09 is provided below. It is estimated that 95% of the pole installations are pole replacements.

FY05	· FY06	FY07	FY08	FY09	
857	657	1,1 <b>7</b> 0	. 816	578	
814	624	1,112	775	549	

Total # poles unitized Replacements = 95% pole installations

2. The capital expenditure for sub-transmission pole replacements in FY05 through FY09 is provided below. It is estimated that 95% of the pole installation costs are related to pole replacements.

FY05	FY06	FY07	FY08	FY09	· · · · · · · · · · · · · · · · · · ·
\$3,324,042	\$2,845,110	\$5,233,170	\$3,410,878	\$4,169,357	Total cost
\$3,157,840	\$2,702,855	\$4,971,512	\$3,240,334	\$3,960,889	Replacements = 95% cost

# Distribution – pole replacement numbers are derived from retired property in PowerPlant.

1. The number of distribution poles replaced in FY05 through FY09 is provided below. It is estimated that 90% of the pole installations are pole replacements.

FY05	·FY06	<b>FY</b> 07	FY08	FY09	
20,207	17,619	12,935	12,071	10,903	Total # poles unitized
18,186	15,857	11,642	10,864	9,813	Replacements = 90% pole installations

2. The capital expenditure for distribution pole replacements in FY05 through FY09 is provided below. It is estimated that 90% of the pole installation costs are related to pole replacements.

FY05	FY06	FY07	FY08	FY09	
\$26,174,384	\$26,057,531	\$21,186,394	\$24,399,266	\$27,120,047	Total cost
\$23,556,946	\$23,451,778	\$19,067,755	\$21,959,339	\$24,408,042	Replacements = 90% cost

Name of Respondent: Anthony McGrail Peter Altenburger Date of Reply: May 25, 2010 Date of Request: April 29, 2010 Due Date: May 10, 2010

## Request No. RAV-132 NMPC Req. No. NM 707 DPS-462

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Robert Visalli

TO: Andrew Sloey

Request:

Under the National Grid USA Service Company (NG USA Service) service agreement with Niagara Mohawk Power Corporation (NMPC), monthly bills will be submitted to NMPC for services rendered under the service agreement [see Exhibit \_\_ (AFS-2) page 1]. On page 17 of Exhibit \_\_ (AFS-6), the service agreement states that that operating companies will review and approve the monthly bills before the charges are settled. Based on this information, provide the following information:

1) Provide the NMPC written corporate procedures that provide for the review and approval of the NG USA Service company monthly bills. Explain how these procedures provide assurance that the costs charged to NMPC are appropriate and for services actually rendered to NMPC.

2) Identify the NMPC organization(s) that perform this review and approval.

3) Identify any resource that NMPC employees have as part of the monthly bill review process that provides the capability to trail allocated charges on the bill back to their source (invoices and time reports) so as to perform a review and challenge allocations and their appropriateness [see Exhibit (AFS-8) page 61 where such "Super User" resources are discussed).

4) Provide a copy of all documentation resulting from the NMPC review and approval process for the January through March 2009 monthly NG USA Service bills.

5) Identify and provide details of any instance during the historic test year ended September 30, 2009 where, as part of its review and approval process, NMPC challenged charges on NG USA Service bills.

#### Response:

1. Exhibit AFS-6, Cost Allocation Policies & Procedures Manual for legacy National Grid ("Procedures Manual"), was drafted to update procedures following the KeySpan/National Grid merger. The Procedures Manual includes the statement identified above relating to review of monthly bills. At the time of the drafting of these procedures however, the Company maintained two separate processes for the dissemination of monthly service company billing transaction information. The procedure for reviewing monthly bills for legacy KeySpan Service Company providing services to KeySpan Affiliate companies was to disseminate billing information to Finance representatives via paper invoices and supporting documentation ("Paper Invoice Review"). The procedure for reviewing allocated costs for legacy National Grid Service Company and legacy KeySpan Service Company providing services to legacy National Grid Affiliate companies is an analytical review as described below. This procedure is in accordance with the guidance provided in FERC Docket No. RM06-11-000; Order No. 684 which states that:

• Centralized service companies will not be required to prepare paper invoices each month for services rendered to associate utility companies. Instead, the Commission will permit centralized service companies to use a variety of accounting mechanisms, provided that associate utilities are receiving accurate information about the work being done for them and the related costs on a monthly basis. (See attachment RAV-132-1)

The Procedures Manual inadvertently included the Paper Invoice Review applicable only to legacy KeySpan Service Company providing services to KeySpan affiliate companies. The Procedures Manual should have reflected the analytical review procedure applicable to legacy NG USA Service Company. The Company will revise the internal Procedures Manual accordingly.

Decision support finance groups perform analytical reviews using a variety of accounting mechanisms including tools such as Business Objects queries and standard reporting which can provide for a review and challenge of Service Company allocated costs. To respond to the intent of the remaining questions, the Company provides further detail regarding the review process below.

2. As explained further in response # 3 below, ED&G Finance dedicates employees to the monthly review of NMPC Divisional Operating Expenses, Program Mgmt provides for a review of Capital Budget expenditures, including NMPC and a Cost Allocation Review Committee, which is made up of a cross section of organizational representatives, provides for a review and challenge of centrally allocated costs.

3. The reference made is to exhibit AFS-8, Cost Allocation Training Presentation, page 61 and specifically the sub-process "Monthly Allocation Run and Monthly Review of Allocation Results". The message being conveyed in the training deck on page 61 is that:

- Management information/reporting has been developed that is focused on cost allocations
- Cost allocation information is available on Company web-sites

Resources that have the capability to trace allocated charges include the Financial Services and Line of Business Decision Support Finance teams who have been trained as to how cost allocators work. This training includes how to trace allocations from source transactions to the affiliate companies based on the percentage allocations embedded in billing pools and allocation codes used on these source transactions.

The ED&G Finance department dedicates three employees in the NMPC Operating Divisions to the review of monthly charges to NMPC from an operating perspective. These NMPC divisional resources review monthly labor and non-labor charges incurred from within and from outside NMPC (Company 00036) into NMPC's three Operating Divisions. This review is open to all work activities within normal Operations Expense. The Material Efficiency Team (MET) initiative has provided for further support in compiling best practices relating to the monthly review of invoices for NMPC's Divisions. (See attachment RAV-132-2).

In addition, as described in response to RAV-114, the Cost Allocation Review Committee represents a collection of cost allocation experts gathered from a cross section of Service Company Accounting, Line of Business Finance and Corporate Shared Services, Legal and Regulatory. Committee members review the integrity of centrally allocated costs which, as a component of their review, assures the integrity of allocations being made to NMPC from direct charges, billing pools and allocation codes originating from the respective Service Companies

The Program Management department performs capital budget expenditure reviews and prepares monthly reports for the Distribution Capital Investment Group (DGIC) and the System Resource Allocation Committee (SRAC)

4. Reviews of NG USA Service Company, Inc cost allocations that encompassed the January through March 2009 were provided in the responses to RAV-114 and RAV-116.

5. Examples of the review and challenge of Service Company billing transactions was provided in the responses to RAV-114 and RAV-116.

Name of Respondent: Dan Demauro Date of Reply: 5/10/2010

# UNITED STATES OF AMERICA 117 FERC ¶ 61, 064 FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Parts 366, 367, 368, 369, and 375

(Docket No. RM06-11-000; Order No. 684)

Financial Accounting, Reporting and Records Retention Requirements Under the Public Utility Holding Company Act of 2005

(Issued October 19, 2006)

<u>AGENCY</u>: Federal Energy Regulatory Commission.

ACTION: Final Rule.

RAV-132-1

SUMMARY: In this Final Rule, the Federal Energy Regulatory Commission

(Commission) is amending its regulations to further implement the Public Utility Holding Company Act of 2005 (PUHCA 2005). Specifically, the Commission is adding a Uniform System of Accounts (USofA) for Centralized Service Companies, adding preservation of records requirements for holding companies and service companies, revising FERC Form No. 60, Annual Report of Centralized Service Companies, to provide for financial reporting consistent with the new USofA and providing for electronic filing of the revised FERC Form No. 60. The Final Rule will provide for greater accounting transparency for centralized service company operations, and uniform records retention by holding companies and service companies subject to PUHCA 2005. This transparency will protect ratepayers from pass-through of improper service company costs.

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#### RAV-132-1 Docket No. RM06-11-000

for natural gas companies as set forth in Parts 101 and 201, respectively, of the Commission's regulations. The Final Rule adopts the new USofA for centralized service companies, but with the following modifications to reduce the burden on respondents:

- Centralized service companies will not be required to adopt a formal work order system. Instead, the Commission will permit centralized service companies to use a variety of cost accumulation systems, provided such systems support the allocation of expenses to the services performed and readily identify the source of the expenses and the basis for their allocation.
- Centralized service companies will not be required to obtain Commission approval to account for an item as extraordinary. Instead, the Commission will only require extraordinary items to be disclosed in footnotes to the financial statements.
- Centralized service companies will not be required to conduct extensive mortality studies to support the useful lives of all depreciable assets, but can exercise judgment in determining the evidence needed to support the lives of depreciable assets.
- Centralized service companies will not be required to prepare paper invoices each month for services rendered to associate utility companies. Instead, the Commission will permit centralized service companies to use a variety of accounting mechanisms, provided that associate utilities are receiving accurate information about the work being done for them and the related costs on a monthly basis.

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NMPC Case No. 10-E-0050 RAV-132-2 Page 1 of 1

#### Monthly Review of Invoice Payments

In the NY Operating Divisions, all invoices over \$200 charged to O&M are reviewed by Finance for accuracy.

A vendor report is generated at the close of the month for invoices paid in the month. The report lists the corresponding accounting detail including the voucher ID.

The voucher / invoice are then viewed in PeopleSoft.

The review is focused on charges from departments outside NY EDO, internal charges to O&M that qualify for capitalization (i.e. capital tool purchase), charges to incorrect segments, and any other charges that appear to be incorrect.

If a charging error is found, a copy of the invoice is sent to the individual that provided the accounting on the invoice. The individual's name is often listed in the heading of the invoice. If their name is not listed, the invoice and the accounting information are forwarded to the manager/supervisor of the charged department.

The individual is emailed a copy of the invoice along with the correct accounting. An explanation as to why the accounting that was used is not correct is also sent, although some explanations require a phone call.

Finance will prepare and submit a correcting journal entry.

All managers receive the vendor report for their review.

Communication with field management is key to resolving and eliminating these charging issues.

Date of Request: April 30, 2010 Due Date: May 10, 2010 Request No. DKS-19 NMPC Req. No. NM 709 DPS-464

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: David Shahbazian

<u>TO:</u> Revenue Requirements Panel

#### Request:

1. The Company's response to DPS-210-DKS-9.1 states: "For both Gasoline and Diesel the base price is the price that NYMEX Commodity is trading at for each period at the time that the forecast was being done. Added to the NYMEX Commodity component is a premium for each rate. The premium is based on the average monthly difference between NYMEX prices and what the Company actually paid based on OPIS (Oil Price Information Service)."

Please clarify the last sentence. Is the premium based upon the average monthly difference between NYMEX prices and what the Company actually paid, or is it based upon OPIS? If it is based upon OPIS, please provide detail from OPIS to support Company's projection.

- 2. The following two questions relate to the Company's response to DPS-178-DKS-7.3a.
  - a) Attachment 3a provides a listing of existing equipment on lease. Page 38, identifies asset id# 06744 as an Excavator with a monthly rate of \$15,477.98 with a lease term of 120 months. (1) Please provide the make (manufacturer) and model of the machine.
    (2) Please identify with specificity any unique capabilities of this machine that justify its full term payment of \$1,857,358, as opposed to other Excavators on the listing with monthly values of approximately \$600 per month.
  - b) Attachment 3a, when sorted by dollar value shows almost 700 entries of cost at approximately \$16, totally approximately \$11,300 per month. Informal discussion with Niagara Mohawk personnel indicates that these amounts represent the leasing agent's management fee plus sales tax for fully amortized vehicles. (1) Please explain why ratepayers should continue to pay management fees on fully amortized vehicles? (2) How long will the Company continue to be billed for leased assets fully amortized?

#### Response:

1. As per the response in DPS-210-DKS9.1, the premium is based upon the average monthly difference between NYMEX prices and what the company actually paid based on OPIS (Oil Price Information Service). To clarify, OPIS is the world's most widely accepted fuel price

benchmark for fuel supply contracts and actual prices paid for fuel are based on OPIS wholesale pricing plus a retail markup and applicable taxes.

Average actual prices paid by the Company (OPIS wholesale pricing + retail markup + applicable taxes) were provided in Attachment 2 of DKS-9. The premium calculated is equal to average actual prices paid by the Company – average NYMEX pricing, also previously provided in Attachment 2 of DKS-9.

2a. Attachment 3a identifies asset id#06744 as an excavator with a Sum of Total Amount (not monthly rate) equal to \$15,477.98. This unit's monthly rate is not \$15,477.98, nor is its full term payment \$1,857,358.

The unit, asset id#06744, is a Caterpillar Excavator, Model 312BL, and was put into service on 4/6/2001 with a capitalized cost of \$113,535.00 and a monthly lease payment of \$1111.31. It was sold at auction on 8/29/09 for \$25,000 as a reduction from the Company's fleet.

The total cost invoiced to the Company by the leasing company in Attachment 3a is the final settlement cost for this unit (17,212.31 remaining liability - 1111.31 previous month's lease payment - 623.02 refund of rental taxes = 15,477.98).

2b. When sorted by dollar value, Attachment 3a shows approximately 700 vehicles invoiced at \$15.00 plus applicable taxes. This amount represents a management fee, called a thereafter fee, which is assessed on a monthly basis for all vehicles that are fully amortized but not yet sold. Fully amortized vehicles (like vehicles with an unamortized balance) continue to be titled by the leasing company and remain on lease by the Company until reduced from or replaced in the fleet and subsequently disposed of at auction. The Company is contractually obligated to pay the leasing company for leased-assets based on the terms and conditions of the lease contract until the leased assets are disposed of, thereby removing them from lease.

The alternative for vehicles that are fully amortized would be to transfer the title from the leasing company to the Company. Costs associated with that alternative include paying sales tax to New York State on the fair market value of the unit, re-registering the unit and re-inspecting the unit. Additionally, the Company would be burdened with the administrative process of maintaining physical title of the units.

Name of Respondent: Fleet Services Department Date of Reply: May 7, 2010

James Molloy

Date of Request: April 30, 2010 Due Date: May 10, 2010 Request No. VVP-32 NMPC Req. No. NM 711 DPS-466

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Vijay Puran

TO: Infrastructure and Operations Panel

Request:

- 1. For project CNYPL24, please reconcile the capital expenditures proposed for FY13, FY14, and FY15 to the amount endorsed in strategy paper SG115.
- 2. Please provide strategy paper SG116 for project number C32259.
- 3. For project number C27163:

a. Is the Erie County Water Authority (ECWA) still planning a load expansion from 6 MVA to 8 MVA?

b. What is the status of the new receiving station proposed to be built by the ECWA?

c. Is there any agreement on the amount ECWA will be responsible for towards replacing the 115:34.5 kV transformers? If yes, what's the amount and has this amount been reflected in the project cost estimate?

Response:

- The expenditures associated with CNYPL24 were investment grade estimates (-50% to +200%) prepared when the project was a prospective project and not yet certain. When strategy paper SG115 was approved, these estimates were refined to reflect the specific work to be done. The numbers in SG115 superseded the numbers associated with CNYPL24.
- See Attachment SG116 for project number C32259. Strategy paper SG116 was inadvertently omitted from the documents provided in response to IR MJR-1. The response to MJR-1 will be supplemented accordingly.
- 3. Subsequent to the initiation of project C27163, Erie County Water Authority decided to put measures in place to limit their load to levels that would not trigger the need for system reinforcements. As a result, this project is no longer moving forward.

<u>Name of Respondent:</u> Joseph Hipius Toni Stores Date of Reply: May 10, 2010 Date of Request: May 4, 2010 Due Date: May 14, 2010 Request No. WEL-20 NMPC Req. No. NM 718 DPS-469

# NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

# Request for Information

FROM: William Lysogorski

TO: Infrastructure and Operations Panel

Request:

The following questions relate to information provided in Exhibit\_(IOP-14), Schedule 2, sheet 109 and 110.

- 1. Provide the number of transformers replaced for FY05 thru FY09. Include a breakdown of the capital expenditures for each replacement.
- 2. Please provide the workpapers showing the derivation of the capital expenditures for FY10/11, FY11/12, FY12/13, and FY14/15.
- 3. Provide a breakdown of the capital expenditures in FY09/10.
- 4. Provide the number of transformers the Company plans to replace in FY10/11, FY11/12, FY12/13, and FY14/15. Include a detailed explanation for each replacement.

# Response:

1. The number of transformers replaced for FY05 thru FY09 and a breakdown of their capital expenditures is as follows:

Fiscal Year	No. of Transformers	Capital Expenditure
	Replaced	<b>\$</b> Per Transformer
2005	0	0
2006	1	\$242,437
		\$97,827
		\$1,509,336
2007	5	\$2,789,822 <sup>2</sup>
		\$433,153
		\$1,835,521 <sup>3</sup>
		\$357,530
		\$1,278,575 <sup>4</sup>
		\$705,357 <sup>5</sup>
2008	9	\$63,255
		\$631,890
		\$211,941
		\$468,268
		\$180,971
		\$665,769
		\$610,260 <sup>6</sup>
		\$608,154
		\$858,497 '
		\$112,187
		\$171,619
2009	11	\$476,662
		\$1,081,173 <sup>8</sup>
		\$125,643
		\$180,630
		\$662,638
		\$1,405,750

 <sup>&</sup>lt;sup>1</sup> This expenditure also includes metalclad replacement
 <sup>2</sup> This expenditure is a new substation, which includes various other equipment
 <sup>3</sup> This expenditure is a substation rebuild, which includes various other equipment
 <sup>4</sup> This expenditure involves adding a second bank, which includes additional equipment
 <sup>5</sup> This expenditure also includes breakers and switches
 <sup>6</sup> This expenditure involves a station rebuild, which includes additional equipment
 <sup>7</sup> This expenditure also includes a breaker replacement
 <sup>8</sup> This expenditure also includes replacement

<sup>&</sup>lt;sup>8</sup> This expenditure also includes replacement of switches

It is very common and efficient to incorporate other necessary asset replacement work in a substation when a transformer is being replaced.

2. There are no work papers for the derivation of the capital budget. The derivation of the capital expenditures for replacement transformers are in accordance with the National Grid Strategy Document – Distribution Substation Transformers, October 2009, pg. 13. Transformers rated 7.4 MVA and below have an estimated replacement cost of \$900k per unit (average). For units rated above 7.4 MVA, the estimated replacement cost is \$1,500k per unit (average). The costs indicated here are estimates that represent all aspects of a typical transformer replacement including engineering, foundation upgrades, purchase price, installation, commissioning and basic connections, but does not include changes to relay protection or significant infrastructure upgrades. The replacement figures are conceptual estimates based on recent experiences and the MVA of the unit. Exhibit (IOP-14), Schedule 2, sheet 110 states that the Company expects to replace four to eight units a year. This statement includes those transformers identified under the Company's Buffalo Rebuild Program, which is not reflected in Table IV-29 on sheet 110 and is not part of the transformer replacement budget. The transformers being replaced under the Buffalo Rebuild Program are part of the indoor substation budget. The below table lists the derivation of the capital expenditures for the transformer asset replacement plan (ARP) and the transformers replaced under the Buffalo Rebuild Program.

Replacement	Fiscal	No. of	Capital	Total (\$M)
Plan/Program	Year	Transformers	Expenditure (\$k)	
Transformer ARP	FY10/11	2	750 each	1.5
Buffalo Rebuild	FY10/11	4	750 each	3.0
Transformer ARP	FY11/12	3	500 each	1.5
Buffalo Rebuild	FY11/12	5	750 each	3.75
Transformer ARP	FY12/13	2	750 each	1.5
Buffalo Rebuild	FY12/13	6	750 each	6.0
Transformer ARP	FY14/15	4	750 each	3.0
Buffalo Rebuild	FY14/15	4	750 each	3.0

3. The actual spend and breakdown in capital expenditures for FY09/10 for transformer replacements is as follows:

Description	Capital Expenditure	Status
East Golah 51 - Second Bank	\$326,176	Final Engineering
Cuba 05 - Replace Transformer Bank	\$456,975	Completed
Chautauqua 57 - Replace Xfmr	\$7,672	Cancelled
IE - NY ARP Transformers	\$158,435	Program
S. Newfane 71 - Replace Bank	\$443,250	Acceptance/Closeout
Buffalo Sta. 63 bank replacement	\$860,293	Construction
Sycaway add 2nd Xfmr & 115 kV equip	\$380,999	Final Engineering
W. Albion Transformer Addition	\$32,170	Project Initiation
Total	\$2,665,970	

The amount listed in Exhibit\_(IOP-14), Schedule 2, sheet 110 was the forecasted amount and the capital expenditure provided here is the actual spend for FY09/10.

4. The Company plans to replace the following number of transformers per fiscal year:

Fiscal Year	No. of	Description
	Transformers	
		Butts Road Station, 5.25 MVA;
		replacement transformer.
FY10/11	6	Spare
		Station 23, 4 units, 2.5 MVA, Buffalo
		Rebuild Program
		Fisher Ave, 5 MVA;
		Cuyler Sta. 24 are two 3-single phase
		banks rated 2 MVA – they will be replaced
		with a Modular Integrated Mobile
FY11/12	8	Substation (MIMS)
		Station 29, 4 units, 2.5 MVA Buffalo
		Rebuild Program
		Station 43, 1 unit, 2.5 MVA Buffalo
		Rebuild Program
		Brighton Ave. Sta. 8 are two 3-single phase
FY12/13	8	banks that will be replaced with two 3-
		phase banks.
		Station 43, 3 units, 2.5 MVA Buffalo
		Rebuild Program
		Station 52, 3 units, 2.5 MVA Buffalo
		Rebuild Program
		Station 124-Almeda Ave, 3 units, 5 MVA;
	_	Station 56, 2.5 MVA. All units are planned
FY14/15	8	to be replaced due to poor condition, but
		the detailed planning has not been
		formulated
		Station 52, 1 unit, 3 MVA Buffalo Rebuild
		Program
		Station $2/$ , 3 units, 2.5 MVA Buffalo
		Rebuild

Name of Respondent: Anthony McGrail Eileen Duarte Date of Reply: May 14, 2010 Date of Request: May 5, 2010 Due Date: May 17, 2010 Request No. DKS-20 NMPC Req. No. NM 724 DPS-473

#### NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### **Request for Information**

FROM: David Shahbazian

<u>TO:</u> Revenue Requirement Panel

Request:

- 1. The Company's response to DPS-178-DKS-7, Attachment 3a, reflects \$318,892 and \$11,968 for pending Fleet additions expected prior to March 2010 as a component of the \$1,676,390 monthly RY1 lease amount. Please provide a detailed listing of the asset category, lease term and charge amount similar to Attachment 3a to DKS-7 in order to support the above referenced amounts.
- 2 Please provide a complete and original hardcopy vendor invoice of the Company's leased equipment for the month of April 2010. The invoice should clearly identify the amount of sales tax charged and the detail for all assets billed.
- 3. Please provide the total number of leased vehicles and cost per vehicle for RY1 in a format similar to the Company's response in Attachment 5a of DKS-7. Please provide this information separately for both company 36 and 99.
- 4. Please provide an annual rollforward of lease expense starting with the Lease charges at 1/1/06 and ending at 12/31/09. Provide this information in the format below (taken from the response to IR DKS-7).

	Existing PHH Leases
Current Lease charges (Sept 09)	17,763,612
Lease invoice taxes	1,031,184
Current Lease Charges - Sept 0	9 (less taxes) 16,732,428
Units coming off lease FY10-11	(586,068)
FY 09-10 replacements (prior to 3/2010)	3,826,704
Pending Fleet Additions (prior to 3/2010)	143,616
Total Existing RY Leases	20,116,680
Replacement - New PHH Leases	2,754,432
Total Lease expense	22,871,112
Sales Tax	1,829,689
Total RY Lease Expense	24,700,801

#### Response:

1. Please see Attachments 1a for a detailed listing of the \$318,892 replacement costs referred to in DKS-7, Attachment 3a. Refer to Attachment 1b for a detail listing of the \$11,968 pending fleet additions referred to in DKS-7, Attachment 3a.

2. Please see Attachment 2a through 2d for complete and original hardcopy vendor invoices of the company's leased equipment for the month of April 2010.

3. Following is the total number of leased vehicles and cost per vehicle for RY1 as requested in a format similar to the Company's response in Attachment 5a of DKS-7, which provided an historical count of all leased and owned National Grid vehicles.

	# of Vehicles Leases	Total Vehicle Lease Charge
00036	2,989	22,871,112
00099	334	1,982,820
TOTALS	3,323	24,853,932

RY vehicle count

4. The information format requested in question 4 is a format that was used to forecast lease expenses for RY1. Actual invoice charges are not unbundled by the leasing company in that format. The table below provides the available breakdown of all historical lease costs for the calendar years 2006 through 2009:

Co36 Invoice Breakdown	 CY 2006	CY_2007	CY 2008	CY 2009
Lease Charges	\$ 20,750,107	\$ 19,746,812	\$ 19,069,295	\$ 18,391,788
Less:				
Lease Adjustments <sup>1</sup>	1,820,055	1,207,763	683,613	1,351,493
Delivery Related Charges	(175)	4,431	(47,507)	47,193
Title & Registration Charges	3,750	3,146	16,725	2,502
Title Registration Fee	530	360	200	80
Ticket	-	-	80	-
Accident Management Charges	•	-	-	(4,415)
Miscellaneous	 -	 	 345	1,450
Subtotal Adjustments	\$ 1,824,160	\$ 1,215,699	\$ 653,455	\$ 1,398,304
Lease Charges less Adjustments	\$ 18,925,947	\$ 18,531,113	\$ 18,415,840	\$ 16,993,485
Less:				
Tax-Federal	-	-	15,658	15,277
Tax-Local	13	13	-	-
Tax-Miscellaneous	260,319	174,104	233,383	2,226
Tax-Personal Property	3,701	1,116	(41)	3,227
Tax-Rental	952,588	1,224,083	1,073,242	1,013,765
Tax-Sales/Excise	 	 <u> </u>	322	-
Subtotal Taxes <sup>2</sup>	\$ 1,216,621	\$ 1,399,316	\$ 1,322,564	\$ 1,034,495
Lease Charges less Adjs & Taxes	\$ 17,709,326	\$ 17,131,796	\$ 17,093,275	\$ 15,958,990

<sup>1</sup>Lease adjustments represents the net final settlement cost for vehicles that are disposed of.

<sup>2</sup>As previously explained in DKS-17 3b, the leasing company has an obligation to the state to collect/remit the first 32 months of sales taxes up front for newly leased vehicles. When that requirement occurs, the leasing company includes the sales tax amount in the capitalized cost of the unit. Therefore, a portion of the sales taxes that the Company pays is embedded in the Lease Charges less Adjs & Taxes and is not unbundled.

Name of Respondent: Fleet Services Department James Molloy Date of Reply: May 14, 2010 Date of Request: May 5, 2010 Due Date: May 17, 2010 Request No. DAG-42 NMPC Req. No. NM 726 DPS-475

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

#### Request for Information

FROM: Denise Gerbsch

TO: Revenue Requirement Panel

Request:

Follow up to DAG-13

1. For each of the following, provide a copy of all invoices for the time period 10/1/09 - 3/31/2010, with supporting documentation for the costs incurred and charged to Niagara Mohawk (company #36) either directly or indirectly. The supporting documentation should include the actual accounting applied to each invoice to verify that the costs were charged to Niagara Mohawk.

(a) Harris Beach

(b) Morgan Lewis & Bockius

(c) The Energy Association of NY State

(d) Huron Consulting Services

(e) Equaterra Inc

(f) Accenture

(g) Icon Nicholson LLC

(h) Tata America International Corporation

(i) Davidson & O'Mara PC

2. If not already provided in response to DAG-13, for the invoices requested for (a) - (i) in question #1 above, please provide a copy of the related contract and purchase order the Company has with the vendor that supports and identifies the work being performed.

3. (a) Please explain the current status of the Energy Association of NY State, and the Company's status as a member. (b) Is the Company still incurring costs from the Energy Association of NY State, and in the same capacity? If no, please provide details as to the change in capacity, and if applicable when the Company no longer incurred costs or had a reduction in incurred costs, and why the change in the level of incurred costs. (c) Please provide all documentation, (e.g. internal memos, external communication between the Energy Association and the Company) that discusses the status and / or changing role of the Energy Association subsequent to the beginning of the historic test year.

4. Please explain why the historic test year charges for Davidson & O'Mara are not considered lobbying costs. Provide documentation to support your answer.

Response:

1. Please refer to the following attachments:

Attachment 1 DAG-42.xls Attachment 2 DAG-42.pdf Attachment 3 DAG-42.zip Attachment 4 DAG-42 Legacy KeySpan Select Vendor Charges.xls

2. All contracts and purchase orders were provided in response to DAG-13. Please refer to DAG-13 attachment DAG-13 Attachment 2.

3. (a) The Energy Association of NYS (EANYS) has been disbanded and no longer exists as an entity. Therefore, the company is no longer a member.

(b) The company is no longer incurring costs since the last quarterly payment in October 2009.

(c) The company is not aware of any memo's etc. other than phone conversations last year between the membership companies on how best to disband the EANYS. ConEd took the lead on this as their CEO, Kevin Burke was the Chairman of EANYS at the time it was decided that it would be shut down.

4. As of June 2008, Davidson & O'Mara ceased providing lobbying services. Since this date, all subsequent services provided by Davidson & O'Mara, including costs in the historic test year, were of a general consulting nature and were focused on advising the Company on strategy.

Name of Respondent: Donald Albers, William Flynn, John O Shaughnessy Date of Reply: May 17, 2010

.

Case: 10-E-0050 Niagara Mohawk Power Corporation DAG-42\_Costs Incurred and Charged to Niagara Mohawk Page 1 of 1

#### Niagara Mohawk Power Corporation (Electric) d/b/a National Grid Costs Incurred and Charged to Niagara Mohawk

<b>Business Unit</b>	Expense Type	Activity	Vendor	Involce No	Purchase Order	Involce Amount	Allocation	Co. 36 Allocation
Accenture LLP_			_					
00099	100	DO9000	Accenture LLP	1000286480	0000092808	60,000.00	44.67%	26,802.74
00099	100	DO9000	Accenture LLP	1000286482	0000092808	60,000.00	44.67%	26,802.74_
						120,000.00	Total per allocation	53,605.47
Davidson & O'm	ara PC							
00036	100	AG0085	Davidson & O'mara PC	012210		10,000.00	83.00%	8,300.00
00036	100	AG0085	Davidson & O'mara PC	014852		20,000.00	83.00%	16,600.00
00036	100	AG0085	Davidson & O'mara PC	2009 september		10,000.00	83.00%	8,300.00
00036	100	AG0085	Davidson & O'mara PC	Inv-6-30-2009		10,000.00	83.00%	8,300.00
00036	100	AG0085	Davidson & O'mara PC	Inv-7-31-2009		10,000.00	83.00%	8,300.00
00036	100	AG0085	Davidson & O'mara PC	Inv-9-15-2009		10,000.00	83.00%	8,300.00
00036	100	AG0085	Davidson & O'mara PC	sta012910		10,000.00	83.00%	8,300.00
00036	100	AG0085	Davidson & O'mara PC	sta022610		10,000.00	83.00%	8,300.00
				-		90,000.00	Total per allocation	74.700.00
Harris Beach Pl	LC							
00036	100	AG0255	Harris Beach PLLC	1798418		10,000,00	83.00%	8,300.00
00036	100	AG0253	Harris Beach PLLC	1803117		10.000.00	83.00%	8,300.00
00036	100	AG0236	Harris Beach PLLC	1804102		7,200.00	100.00%	7,200.00
00036	100	AG0253	Harris Beach PLLC	1808248		10.000.00	83.00%	8.300.00
00036	100	AG0236	Harris Beach PLLC	1808276		12 321 29	100.00%	12.321.29
00036	100	AG0253	Hamis Beach PLLC	1812504		10,000,00	83.00%	8.300.00
00036	100	AG0236	Harris Beach PLLC	1813923		1215.00	100.00%	1,215.00
00036	100	AG0253	Harris Beach PLLC	1817397		10,000,00	83.00%	8.300.00
00030	100	AG0253	Hamir Beach PLLC	1821308		10,000,00	83.00%	8 300 00
00036	100	AG0253	Harris Beach PLLC	1824958		10,000.00	83.00%	8,300.00
00030	100	AGULOU		1021000		90,736.29	Total per allocation	78,836.29
Icon Nicholson	ше							
00099	100	AG0846	- icon Nicholson I I C	00180305	0000100794	22 269 00	43.76%	9,745,49
00035	100	AC0946	Icon Nicholson LLC	00180306	0000100698	310 632 00	43.76%	135 940 58
00033	100	AC0946	Icon Nicholson LLC	00180307	0000100608	317 832 00	43 76%	139 091 48
00000	100	KC2001	Icon Nicholson LLC	00180310	0000100794	10 515 00	100 00%	10 515 00
00033	100	KC2001	Icon Nicholson LLC	00180311	0000100704	235 632 00	100.00%	235 632 00
00039	100	KC2001	Icon Nicholson LLC	00180312	0000100608	235 632 00	100.00%	235 632 00
000000	100	KC2001	Icon Nicholson LLC	00180313	0000100794	1 543 00	100.00%	1 543 00
00035	100	AC0848	Icon Nicholson LLC	00100010	0000100608	36 130 00	43.76%	15 811 42
00033	100	700040		00100401	0000100000	1,170,185.00	Total per allocation	783,910.97
Mornan Lewis 8	Bocklus							
00036	100	460253	Moman Lewis & Bockius	2232783		101 949 08	83.00%	84 6 17 74
00099	100	AG0253	Moman Lewis & Bockins	2242918		11 778 03	27 314	3 2 16.02
00000	100	460253	Moman Lewis & Bockius	2251896		437 32	27 31%	119.41
000000	100	AG0253	Morgan Lewis & Bockius	2269848		4 481 91	27.31%	1 223 80
00000	100	AC0253	Morgan Lewis & Bockius	2277844		5 260 39	27 31%	1 436 36
00033	100	AG0253	Morgan Lewis & Bockius	2207423		5 001 83	27 31%	1 365 76
00000	100	AG0253	Moman Lewis & Bockius	2296085		5 109 96	27.31%	1 395 29
00083	100	A00200	The gas come a decide	2130303		134,018.52	Total per allocation	93,374.37
TATA America	nternational Corp	oration						
00099	100	AG0844	TATA America International Corporation	TAND200907272	0000090722	7,976.86	43.76% Total per allocation	3,490.88
The Energy Ass	ociation of NY St	ate	_					
00036	100	AG0760	The Energy Association of NY State	014307		6,788.33	100.00%	6,788.33
00036	100	AG0760	The Energy Association of NY State	014583		5,542.87	100.00%	5,542.87
00036	100	AG0255	The Energy Association of NY State	TOCAUGUST2009	9	4,588.66	100.00%	4,588.66
00036	100	AG0253	The Energy Association of NY State	TOCSEPT2009		21,145.28	100.00%	21,145.28
						38,065.14	Total per allocation	38.065.14

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<u>Invoice Nu</u> Invoice Da Descriptior Matter Nur Matter Nan Customer I	mber: te: nber: ne: Pay Name:	2232783 10/26/2009 FERC FINANG 051477 FERC Audit	CIAL AUDIT FERC	Financia	al Audit		Redacted Attorney/Client and Work Product Privileged Material and Pricing Information
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		Philadelphia,	PA 19103-2921				
ees:							
Date	Timekeepe	r LI#	Code Hours	Rate	Orig. Amt	To Pay	Description
9/01/2009	JohnMcGrane	48264153			\$1,937.50	\$1,937.50	Office conference re: call with Staff (0.3); conference call re: site visit schedule, plans (0.8); review data responses re: site visit (1.5); emails re: same (0.5).
<b>)9/01/2009</b>	GeorgeBillinso	n 48282173			\$3,150.00	\$3,150.00	Review request and discuss same with D. Skees (1.0); attention to preparations for telephone conference with Audit Staff re site visit (0.4); telephone conference with Client personnel and FERC Audit Staff re same and discuss same with J. McGrane (1.3); numerous discussions with D. Skees re site visit preparations and review and respond to Client emails re same (3.3 hours).
9/01/2009	DanielSkees	48236237			\$912.00	\$912.00	Review and conference with G. Billinson regarding conclusions (1.0 hours); review and respond to correspondence regarding preparations for conference call with National Grid Audit Staff; (0.9 hours); attend conference call with National Grid personnel, G. Billinson, and FERC Audit Staff to discuss site visit preparations and conference with J. McGrane to discuss the outcome of the call (1.3 hours); research and send requested information to S. Heywood (0.3 hours); conference with G. Billinson regarding site visit preparations (0.3 hours).
9/02/2009	JohnMcGrane	48264161			\$2,250.00	\$2,250.00	Steering Committee conference call (1.0); review issues re: site visit (0.5); conference call issues (0.8); teleconference with M. Noble re: site visit record retention requests (0.5); emails re: same (0.8).
)9/02/2009	GeorgeBillinso	n 48282176			\$3,202.50	\$3,202.50	Prepare for and attend conference call with M. Noble, M. Guttikonda, J. McGrane, and D. Skees re (0.4 hours); prepare for and attend Audit Stearing Committee
							conference call (1.2 hours); prepare for and participate in conference call with FERC Audit Staff and Client personnel re supplemental response to 509 and follow-up telephone conference with B. Richer (1.5 hours); attention to preparation for site visit (3.0 hours).
)9/02/2009	DanielSkees	48243670			\$1,224.00	\$1,224.00	Prepare for and attend conference call with M. Noble, G. Billinson, and J. McGrane to discuss (0.4 hours); prepare for and attend conference call with National Grid steering 1402

https://ngrid.lagalay.change.com/inv/invoice/print.do

Page 1 of 7

Bottomline I	Legal eXchang	ge				Niagara Mohawk Power Corporation d/b/a National Grid	Page 2 of 7
						Case 10-E-0050 CAMUTITIER 2-005 (CARL) A Constraint of the second conference hput by person of the second conference with the second conference of the second conference with the second conference of the second conference Nationally Crick parameters of the second conference supplemental response to 509 and follows	on (1.2 ence call d d Material ow-up
						with additional call with B. Richer (1.5 review and respond to various e-mail a phone requests from M. Guttikonda (2 baurs)	hours); and .0
09/03/2009	DanielSkees	48250407		\$696.00	\$696.00	Review and respond to e-mails from N Grid (0.5 hours); prepare for and atter preparation session with D. DeMauro, Billinson, and M. Guttikonda (1.0 hours prepare for and attend audit preparation session with S. Heywood, G. Billinson, Guttikonda (1.0 hours); review and response of the follow-up e-mails and questions from N Grid (0.4 hours).	ational nd audit G. s); on and M. spond to Vational
09/03/2009	JohnMcGrane	48264167		\$312.50	\$312.50	Conference call with S. Heywood re:	
09/03/2009	GeorgeBillinson	48282180		\$2,310.00	\$2,310.00	Attention to preparations for site visit prepare for and attend audit preparations session with D. DeMauro, M. Guttikono D. Skees (1.0); prepare for and attence preparation session with S. Heywood, Guttikonda, and D. Skees (1.0).	(2.4); on Ja, and I audit M.
09/04/2009	SimonLaw	48302415		\$110.00	\$110.00	Prepare production DVDs per D. Skees	i.
09/04/2009	DanielSkees	48265711		\$648.00	\$648.00	Review	
						to various e-mail requests from Nation (1.7 hours).	t respond nal Grid
09/06/2009	DanielSkees	48265715		\$936.00	\$936.00	Draft and send to M. Guttikonda and C Galaburda a proposed schedule for the site visit, a to-do list for remaining iter address during the coming week befor visit, and a draft steering committee a	). e second ms to e the site genda.
09/08/2009	DanielSkees	48295692		\$1,152.00	\$1,152.00	Attend various conference calls with G and National Grid personnel to discuss preparations and address numerous m	. Billinson site visit iinor
09/08/2009	JohnMcGrane	48315412		\$1,375.00	\$1,375.00	Office conferences with G. Billinson re- issue, data issues (0.7); emails re: sai collective bargaining agreements (1.2) conference call with A. Sloey, et al re: allocation workpaners (0.3)	: site visit me, re: ); cost
09/08/2009	GeorgeBillinson	48339013	ويداليطل	\$4,987.50	\$4,987.50	Attention to preparations for site visit telephone conference with A. Sloey, et (.3).	(9.2); t al. re
09/09/2009	JamesMcNinch	48316007		\$66.00	\$66.00	Prepare data to be produced electronic request of attorney, D. Skees.	ally per
09/09/2009	DanielSkees	48295696		\$1,512.00	\$1,512.00	Attend steering group conference call McGrane and G. Billinson (0.8 hours); various conference calls with G. Billins other National Grid personnel, corresp	with J. attend on and ond with
						National Grid personnel regarding site preparations, and work on site visit preparations, including the preparation documents (5.5 hours).	visit ns of
09/09/2009	JohnMcGrane	48315419		\$1,000.00	\$1,000.00	Steering Committee call (0.9); emails visit data responses (0.7)	re: site
09/09/2009	GeorgeBillinson	48339015		\$4,305.00	\$4,305.00	Audit Steering Committee conference (1.0); attention to preparations for site (7.20).	call e visit
09/10/2009	DanielSkees	48302487		\$1,728.00	<b>\$1,728.00</b>	Prepare for upcoming second FERC site attending numerous conference calls v Billinson and National Grid personnel, documents for shipment to National G facilities, and addressing various items requested by National Grid personnel,	e visit by vith G. preparing rid s revising

site visit plan, and sending status update on preparation items.

Bottomline Legal eXchan	ge				Niagara Mohawk Power Corporation Page 3 of 7 d/b/a National Grid
09/10/2009 JohnMcGrane	48315427		\$312.50	\$312.50	Case 10-E-0050 RENEW (0-1)- Stire-conference with G. Billinson re:
09/10/2009 GeorgeBillinson	48339017	\$4	,357.50	\$4,357.50	SREducited U.S. Alternation Production Register Material
09/10/2009 GlendaSmith	48308003		\$500.00	\$500.00	Prepare and audit data/image CDs/DVDs of
09/11/2009 DanielSkees	48307815	<b></b>	1,512.00	\$1,512.00	Prepare for second site visit by preparing relevant materials, attending various conference calls with G. Billinson and National Grid personnel, and reviewing and responding to various e-mail requests from National Grid.
09/11/2009 JohnMcGrane	48315430	<b>1</b>	1,125.00	\$1,125.00	Office conferences with G. Billinson, D. Skees re: site visit, call with FERC staff, data requests (0.9); emails re: data responses (0.9).
09/11/2009 GeorgeBillinsor	48339019	\$3	3,307.50	\$3,307.50	Attention to preparations for FERC Audit Site Visit.
09/13/2009 JohnMcGrane	48402845		\$625.00	\$625.00	Review site visit issues (0.5); discussions with G. Billinson, D. Skees re: same (0.5).
09/13/2009 GeorgeBillinsor	48405955		\$682.50	\$682.50	Review
09/14/2009 JohnMcGrane 09/14/2009 DanielSkees	48402848 48373395	\$4 \$2 \$2	4,375.00 2,352.00	\$4,375.00 \$2,352.00	(.3); review additional materials in preparation for FERC audit site visit. Site visit by FERC audit staff, Brooklyn, NY. Attend site visit meetings and interviews and
					address issues that came up during meetings (9.2 hours); draft and send list of outstanding items and their status (0.5 hours).
09/14/2009 GeorgeBillinsor	48405956	\$5	5,040.00	\$5,040.00	In Brooklyn. Attend FERC audit second site visit.
09/15/2009 DanielSkees	48373396	\$2	2,160.00	\$2,160.00	Attend site visit meetings and interviews and address issues that arose during those meetings.
09/15/2009 GeorgeBillinsor	48405957	\$4	4,935.00	\$4,935.00	In Brooklyn. Attend FERC audit second site visit.
09/16/2009 JosephLowell	48404864 A102		\$871.00	\$871.00	Review FERC precedent on
09/16/2009 GeorgeBillinsor	48405960	\$4	4,987.50	\$4,987.50	In Brooklyn. Attend FERC audit second site visit
09/16/2009 DanielSkees	48373398	\$2	2,160.00	\$2,160.00	Prepare for site visit meetings by drafting and sending list of site visit requests and their status (0.5 hours); attend site visit meetings and interviews (8.5 hours).
09/16/2009 JohnMcGrane	48402859	<b></b> \$2	2,000.00	\$2,000.00	Conference call with FERC audit staff, NG, MLB personnel re: audit issues (1.0); conference call with NG re: same (0.7); research issues on
09/17/2009 JosephLowell	48404868 A102	\$1	1,641.50	\$1,641.50	Review
09/17/2009 GeorgeBillinsor	48405961		\$892.50	\$892.50	Discuss Audit Staff issues with J. McGrane (.8);
09/17/2009 DanielSkees	48373401		\$576.00	\$576.00	review materials re same (.9). Draft and circulate list of site visit requests and
· · · · ·					their status (0.4 hours); attend various meetings with National Grid personnel to discuss how to address site visit requests (2.0 hours).
09/17/2009 JohnMcGrane	48402864	\$1	1,000.00	\$1,000.00	Review (1.2); emails re: data responses, additional materials for staff (0.4)
09/18/2009 DanielSkees	48376460		\$696.00	\$696.00	Correspond with M. Guttikonda, J. McGrane, and D. Galaburda to address follow-up issues related to the FERC site visit (2.0 hours); draft additional section of the section
09/18/2009 JohnMcGrane	48402879		\$437.50	\$437.50	with J. McGrane (0.9 hours). Emails re: supplement on
09/18/2009 JosephLowell	48404870 A102		\$971.50	\$971.50	Review precedent on

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Bottomline Legal eXchang	ge				Niagara Mohawk Power Corporation d/b/a National Grid	Page 4 of 7
09/18/2009 GeorgeBillinson 09/20/2009 DanielSkees	48405965 48386832	\$ 	945.00 360.00	\$945.00 \$360.00	Case 10-E-0050 Attraction for Stopping for a local data respondence Resign second personnel and update li outstanding treas to be disisted seta	nses. e with ist of
					signification and send and send and send National Grid personnel a list of remainers, assigned responsibility, and st outstanding requests (0.9 hours).	to aining atus of
09/20/2009 JohnMcGrane	48402882	\$2	250.00	\$250.00	Emails re: site visit data responses.	
09/21/2009 DanielSkees	48406171	<b></b> \$	480.00	\$480.00	Conference with G. Billinson regardin to responses and other process items hours); review correspondence and d organize responses to site visit data (1.7 hours).	g revisions s (0.3 Iraft and requests 
09/21/2009 GeorgeBillinson	484/1125	\$	525.00 197 EQ	\$525.00	Attention to open items from site visi	IT.
09/21/2009 John McGrane	48400125	ېې 1 ( \$ 1	107.50	\$107.50	Review and respond to National Grid	
OJ/22/2009 Dunicionees				¥1,052100	correspondence regarding responses update responses accordingly (2.0 hd prepare for and attend conference ca Billinson and National Grid personnel (0.6 hours); and send to group (0.2 hours); co drafting responses to include latest u from National Grid personnel and dra send status of all responses to group hours).	and burs); ill with G. to discuss ontinue pdates ft and (1.5
09/22/2009 GeorgeBillinson	48471127	<b></b> \$1,	785.00	\$1,785.00	Attention to responses to open data (2.50); review and partici- telephone conference with D. Galabu Sloey, et al. re same (.90).	pate in rda, A.
09/22/2009 JohnMcGrane	48468135	<b>,</b>	312.50	\$312.50	Emails re: response to staff re: accord system and Form 60 (0.3); review	unting
09/23/2009 DanielSkees	48431835	<b></b> \$	384.00	\$384.00	Review and respond to corresponden National Grld personnel (0.2 hours); steering group conference call with G and J. McGrane and follow up on call conference call with D. Galaburda an Billinson (1.3 hours); conference with Billinson regarding project (0.1 hours	ace with attend 5. Billinson with d G. h G. 5).
09/23/2009 GeorgeBillinson	48471130	<b></b> \$	787.50	\$787.50	Regular Audit Steering Committee Co Call and follow-up with J. Skees (.80 up telephone conference with D. Gala D. Skees re same (.30); attention to items (.40)	onference ); follow- aburda and open
09/23/2009 JohnMcGrane	48468141	<b>5</b>	937.50	\$937.50	Steering Committee call (1.0); email	s re: 5).
09/24/2009 DanielSkees	48439843	<b></b> \$	264.00	\$264.00	Review and respond to corresponden National Grid personnel regarding sit requests and revise data request res accordingly.	ice from e visit data ponses
09/24/2009 GeorgeBillinson	48471134	<b>, 1997 - 1997 - 1997 - 1997 - 1997</b> - 1997	577.50	\$577.50	Attention to responding to open data requests/issues (.90); telephone con with R. Strother (Audit Staff) re setti to walk through response to	ference ng up call
09/24/2009 JohnMcGrane	48468144	<b></b>	500.00	\$500.00	Emails ret information to Staff.	
09/25/2009 GeorgeBillinson	48471138	\$1,	155.00	\$1,155.00	Prepare for and participate in confere	ence call re
					(1.0); conference call with D. Galabu re status of open issues (.80); attent open issues (.40).	rda, et al. ion to
09/25/2009 DanielSkees	48448647	\$	552.00	\$552.00	Review correspondence relating to si data responses and send to A. Sloey responses ready for his review and so working group the status of outstand (1.0 hours); attend conference call w Billinson, J. McGrane, and National G personnel to	te visit existing end to ling items rith G. irid
					(0.5 nours); conference call with J. McGrane, G. E	Billinson,

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# Bottomline Legal eXchange

Niagara Mohawk Power Corporation d/b/a National Grid Page 5 of 7

					Case 10-E-0050 and Nation of Goge sonnel to discuss status of စမုန္လုခ္မရမ္မွာမှာကြင္များတြင္ပုံတေန (0.8 hours).
09/25/2009	JohnMcGrane	48468153	\$937,50	\$937.50	CREGATERCE calls re: data responses, narratives (ARDing)(Callentang)(Callentang)(Callentang)
09/25/2009	JosephLowell	48470198 A104	\$1,842.50	\$1,842.50	Rævdefvriðlagi innfærhrætidi <b>for som som som som som som som som som som</b>
09/28/2009	JohnMcGrane	48468154	\$62.50	\$62.50	Teleconference with D. Galaburda re: data responses.
09/29/2009	GeorgeBillinson	48511066	\$1,417.50	\$1,417.50	Attention to open items from site visit.
09/30/2009	GeorgeBillinson	48511069	\$472.50	\$472.50	Attention to open items from site visit.

#### Expenses:

Date	Timekeeper	LI #	Code	Hours	Rate	Orig. Amt	То Рау	Description
08/21/2009	DanielSkees	57401207	E107	1.00	\$31.52	\$31.52	\$31.52	Overnight Courier Service SEE LABEL, SEE LABEL WALTHAM MA 02451 Tracking#: 982574694548
09/01/2009	DanielSkees	57466034	E107	1.00	\$9.92	\$9.92	\$9.92	Overnight Courier Service SEE LABEL, SEE LABEL WALTHAM MA 02451 Tracking#: 982574697216
09/01/2009	GeorgeBillinson	57377798	E105			\$0.77	\$0.77	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/01/2009	DanielSkees	57377797	E105			\$0.26	\$0.26	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/02/2009		57381800	E105			\$0.31	\$0.31	Domestic Long Distance 17819072149 WALTHAM Ma ssachusetts
09/02/2009	GeorgeBillinson	57381799	E105			\$3,50	\$3.50	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/02/2009	GeorgeBillInson	57381798	E105			\$2.66	\$2.66	Domestic Long Distance 15165455246 HICKSVILLE w York
09/02/2009	DanielSkees	57381801	E105			\$1.63	\$1.63	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/03/2009	DanielSkees	57384932	E105			\$0.36	\$0.36	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/03/2009		57384931	E105			\$1,15	\$1.15	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/03/2009	GeorgeBillinson	57384930	E105			\$0.65	\$0.65	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/08/2009	DanielSkees	57393873	E105			\$0.43	\$0.43	Domestic Long Distance 17819072149 WALTHAM Ma ssachusetts
09/08/2009	DanielSkees	57393872	E105			\$0.70	\$0.70	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
09/09/2009		57399395	E101			\$30.10	\$30.10	Duplicating Usage 301 Copies
09/09/2009	JohnMcGrane	57451683	E110	1.00	\$453.00	\$453.00	\$453.00	Air Shuttle
09/09/2009	DanielSkees	57399397	E101			\$234.00	\$234,00	Duplicating Usage 2340 Copies
09/09/2009	DanielSkees	57399396	E101			\$183.10	\$183.10	Duplicating Usage 1831 Copies
09/09/2009	DanielSkees	57399394	E105			\$0.36	\$0.36	Domestic Long Distance 17819072149 WALTHAM Ma ssachusetts
09/09/2009		57399393	E105			\$2.47	\$2.47	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
09/10/2009	DanielSkees	57467082	E107	1.00	\$23.42	\$23.42	\$23.42	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699506
09/10/2009	DanielSkees	57467088	E107	1.00	\$23.42	\$23.42	\$23.42	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699528
09/10/2009	GeorgeBillinson	57451684	E110	1.00	\$453.00	\$453.00	\$453.00	Air Shuttle
09/10/2009	DanielSkees	57467087	E107	1.00	\$23.42	\$23.42	\$23.42	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699540
09/10/2009	DanielSkees	57405098	E105			\$2.50	\$2.50	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
09/10/2009	DanielSkees	57467086	E107	1.00	\$23.42	\$23,42	\$23.42	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699480
09/10/2009	DanielSkees	57405097	E105			\$0.36	\$0.36	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
09/10/2009	DanielSkees	57467085	E107	1.00	\$23.42	\$23.42	\$23.42	Overnight Courier Service SEE LABEL, SEE

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B	ottomline I	Legal eXchang	ge					Ni d/I	agara Mohawk Power Corporation Page 6 of 7 b/a National Grid
								Ca At	ase 10-E-0050 14Chmen 98 00048 M 2N 11201 Tracking#: 982574699470
	09/10/2009	DanielSkees	57467084	E107	1.00	\$23.42	\$23.42	ع \$23.4≩€ At	ige 55 of 56 of the service SEE LABEL, SEE ଭେଷ୍ଟରାର୍ମ୍ବରେମ୍ବର ସେମ୍ବର କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗର୍ଭ କରୁ ଅନ୍ତର୍ଭୁଗ
	09/10/2009	DanielSkees	57467090	E107	1.00	\$23.43	\$23.43	\$23.43	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699550
	09/10/2009		57405096	E105			<b>\$3.29</b>	\$3.29	Domestic Long Distance 17819071860 WALTHAM Ma ssachusetts
	09/10/2009	GeorgeBillinson	57405095	E105			\$2.47	\$2.47	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
	09/10/2009	DanielSkees	57467083	E107	1.00	\$23.42	\$23.42	\$23.42	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699539
	09/10/2009	DanielSkees	57467089	E107	1.00	\$23.42	\$23.42	\$23.42	Overnight Courier Service SEE LABEL, SEE LABEL BROOKLYN NY 11201 Tracking#: 982574699491
	09/11/2009		57412648	E105			\$4.97	\$4.97	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
	09/11/2009		57412647	E105			\$1.80	\$1.80	Domestic Long Distance 17184032479 BKLYN NYC N w York
	09/13/2009	DanielSkees	57479093	E110	1.00	\$1,419.00	\$1,419.00	\$1,419.00	Hotel - Daniel Skees Trip to National Grid- NY to attend Audit; 9/13-17-09
	09/13/2009	JohnMcGrane	57456586	E110	1.00	\$25.00	\$25.00	\$25.00	Cab from LaGuardia Airport to Hotel. Taxi Sep 13, 2009 - John D McGrane
	09/13/2009	GeorgeBillinson	57485286	E110	1.00	\$1,039.83	\$1,039.83	\$1,039.83	FERC Audit Second Site Visit (September 13-16, 2009) Hotel Sep 13, 2009 - George D. Billinson
	09/13/2009	GeorgeBillinson	57485285 ,	E111	1.00	\$134.77	\$134.77	\$134.77	FERC Audit Second Site VIsit (September 13-16, 2009) Travel Meals - Group < 10 Sep 13, 2009 - George D. Billinson George D. Billinson, J. Daniel Skees, John D McGrane
	09/13/2009	GeorgeBillinson	57485284	E110	1.00	\$36.00	\$36.00	\$36.00	FERC Audit Second Site Visit (September 13-16, 2009) Taxi Sep 13, 2009 - George D. Billinson
	09/14/2009	JohnMcGrane	57456589	E110	1.00	\$346.61	\$346.61	\$346.61	Marriott/Brooklyn Hotel while traveling to NY on client related business. Hotel Sep 14, 2009 - John D McGrane
	09/14/2009	JohnMcGrane	57456588	E110	1.00	\$25.00	\$25.00	\$25 <b>.</b> 00	Airport parking fee at Reagan National Airport. Parking Sep 14, 2009 - John D McGrane
	09/14/2009	JohnMcGrane	57456587	E110	1.00	\$36.00	\$36.00	\$36.00	Cab from Brooklyn, NY to LaGuardia Airport. Taxi Sep 14, 2009 - John D McGrane
	09/14/2009	GeorgeBillinson	57485288	E111	1.00	\$62 <i>.</i> 48	\$62.48	\$62.48	FERC Audit Second Site Visit (September 13-16, 2009) Travel Meals - Group < 10 Sep 14, 2009 - George D. Billinson George D. Billinson, John D McGrane, J. Daniel Skees
	09/16/2009	GeorgeBillinson	57485287	E110	1.00	\$80.00	\$80.00	\$80.00	FERC Audit Second Site Visit (September 13-16, 2009) Parking Sep 16, 2009 - George D. Billinson
	09/18/2009	DanielSkees	57453853	E105			\$0.29	\$0.29	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
	09/18/2009	DanielSkees	57453852	E105			\$1.06	\$1.06	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
	09/18/2009	DanielSkees	57453854	E105			\$1.37	\$1.37	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
	09/22/2009	DanielSkees	57473627	E105			\$0.26	\$0.26	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
	09/22/2009	DanielSkees	57473626	E105			\$0.26	\$0.26	Domestic Long Distance 17819071855 WALTHAM Ma ssachusetts
	09/22/2009	GeorgeBillinson	57473625	E105			\$0.46	\$0.46	Domestic Long Distance 17184035157 BKLYN NYC N w York
	09/23/2009		57473628	E105			\$4.92	\$4.92	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
	09/28/2009	JohnMcGrane	57492492	E105			\$0.34	\$0.34	Domestic Long Distance 17819071847 WALTHAM Ma ssachusetts
	09/29/2009	JohnMcGrane	57488186	E105			\$0.86	\$0.86	Domestic Long Distance 17819071880

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Niagara Mohawk Power Corporation d/b/a National Grid Case 10-E-0050 Attachment 2 to DAG-42 Page 36 of 50 Redacted Attorney/Client and Work Product Privileged Material and Pricing Information

# **Billing Summary:**

	Orig. Amt	Adjustment	To Pay
Fees:	\$97,098.50	\$0.00	\$97,098.50
Expenses:	\$4,850.58	\$0.00	\$4,850.58
Totals:	\$101,949.08	\$0.00	\$101,949.08



Date of Request: Due Date: May 5, 2010 May 17, 2010 Request No. DPS-478(JJA-46) NMPC Req. No.

## NIAGARA MOHAWK POWER CORPORATION Case No.10-E-0050 - Niagara Mohawk Power Corporation d/b/a National Grid Electric Rates

## **Request for Information**

FROM: Jerry Ancona

TO: Infrastructure and Operations Panel

Request:

Subject: 115 kV Circuit Interruptions

Reference: [Book 28, IOP Testimony, Pg. III-4]

Regarding Figure III-1 (Reliability of 115 kV National Grid US Assets by Age Groups), please provide:

- (A) A chart similar to Fig. III-1 that includes Niagara Mohawk 115 kV historical data over the last five years;
- (B) Verification that the "TSAIFI" represents transmission circuit annual interruptions only; and not customer interruptions;
- (C) A definition of "TSAIFI" in terms of the numerator and denominator used in the computation;
- (D) As graphed on Fig. III-1, to what extent the Company believes that a TSAIFI of 2.00 +/- for circuits greater than 80 years in age is statistically significant in terms of worsening reliability and costs compared to a TSAIFI of 1.00 +/- for circuits less than 20 years in age.
### Response:

- (A) Attached below is a chart similar to Figure III-1 derived using Niagara Mohawk 115 kV historical data over the last five calendar years.
- (B) "TSAIFI" represents unplanned transmission circuit interruptions during the subject period.
- (C) "TSAIFI" is the number of unplanned transmission circuit interruptions during the subject period divided by the product of the number of circuits that experienced the unplanned transmission circuit interruptions and the period in years.

Number of unplanned transmission circuit interruptions Number of impacted circuits x period (years)

(D) As shown in the attached chart, older circuits on NMPC's service territory have a greater tendency for unplanned outages that newer circuits. The Company has performed a regression analysis to estimate the relationship between increasing age and unplanned outages The greater than 0.9 r-squared coefficient (square of the Pearson project moment correlation coefficient) demonstrates a very tight relationship between reliability and circuit age. This relationship demonstrates that, as circuits age, conditions on the circuit degrade which may lead to greater amounts of unplanned outages. However, it does not explain the cause of the degradation over time and its relationship to the outage.

The Company has not conducted a statistical test to determine whether the TSAIF1 of 1 for 20 year old lines is significantly different than the TSAIF1 of 2 for 80 year old lines.

Name of Respondent: Jonathan Abebe Date of Reply: May 13, 2010

Form 103



Date of Request: May 5, 2010 Due Date: May 17, 2010 Request No. JJA-48 NMPC Req. No. NM 731 DPS-480

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

### Request for Information

FROM: Jerry Ancona

<u>TO:</u> Infrastructure and Operations Panel

Request:

Subject: Refurbishment and Reliability

Reference: [Book 26, IOP Testimony, Pg. 98 of 266]

The Company states the Overhead Transmission Line Refurbishment Program will: "improve the reliability of the aging transmission system by rebuilding the worst performing lines before they become unacceptably unreliable". With respect to this statement, please provide any studies or analyses which indicate:

(A) That older transmission lines are significantly more unreliable and contribute to customer outages disproportionately more than newer transmission lines;

(B) That the worst performing lines can be expected to be "unacceptably unreliable" in the next five to ten years;

(C) That refurbishment of entire circuits will produce reliability and cost savings improvements significantly greater than selective refurbishment of unacceptably deteriorated portions of transmission lines; and will be more cost effective.

1412

## Response:

A. The following analysis of the five-year transmission circuit outage information provided in response to IR JJA-49 shows that as the mean age of transmission lines increases so does the mean interruption duration.

Summary and plot:

Age Group (yrs)	Number of Trans. Lines	Data	Mean			
<10	00	Age				
~40	77	Interruption mins	460			
40.60	247	Age	51			
40-00	247	Interruption mins	625			
>=(0	501	Age	77			
>=00	501	Interruption mins	680			



This information and the information and illustration provided in response to Part A of IR JJA-46 demonstrate that older transmission lines are significantly more unreliable and contribute disproportionately more interruption time than newer transmission lines.

B. It is the Company's contention that the 40 worst performing lines are already unacceptably unreliable and that this situation will only worsen until such time as the circuits are refurbished. In comparison with industry peers, the 115kV system has ranked in the fourth quartile since 2006 both in terms of outage frequency and duration. This level of performance is unacceptable due to its impact on reliability to Customers.

C. In Exhibit P7 of the Company's Petition to Defer Electric T&D Investment Costs (Case 07-E-1533, December 21, 2007) the Company describes the estimated cost savings resulting from the overhead line refurbishment program. At that time the Company predicted that cost savings based on a reduction in trouble maintenance and a decrease in the amount of planned preventive maintenance.

Using the data provided in response to IR JJA-46 there have been approximately 2,200 outages across 298 circuits over the past five years; i.e., an average of seven outages per circuit or 1.5 outages per circuit per year (although this can range from less than 1 per year to more than 8 depending upon the circuit in question, its condition and location). Assuming that refurbishment returns the worst circuits to average performance would result in a reduction in the number of outages from 2,200 to 1,460 (33% reduction).

As discussed in the response to JJA-50, selective refurbishment is an option in some cases but not for lines that are in poor condition throughout their length.

Name of Respondent: Alan Roe Date of Reply: May 17, 2010 Date of Request: May 5, 2010 Due Date: May 17, 2010 Request No. JJA-49 NMPC Req. No. NM 732 DPS-481

## NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid Docket 10-E-0050 Niagara Mohawk Power Corporation Rate Case

### Request for Information

FROM: Jerry Ancona

TO: Infrastructure and Operations Panel

Request:

Subject: Historical Transmission Circuit Interruptions

Reference: [Book 28, IOP Testimony, Pg. III-4]

With respect to transmission interruptions and associated customer interruptions, please provide a five year historical tabulation for Niagara Mohawk transmission circuits of: (A) Annual transmission circuit interruptions each designated by:

(A) Annual transmission encut interruptions each designa

(1) Voltage class;

(2) Circuit length;

(3) Circuit age;

(4) Reported cause (e.g., equipment deterioration; weather; emergency repair outages; planned maintenance outages; manufacturing/construction/design defects; auxiliary/ancillary equipment malfunctions/failures; trees; animals; operator error; third party accident and vandalism damage; other causes; and unknown causes);

(5) Type of failure (e.g., failure of foundation, cross-arm, steel structural member, wood pole, phase conductor, static wire, splice, insulator, etc.);

(6) Interruption duration;

(B) Annual customer interruptions caused by transmission interruptions each designated by:

(1) Number of customers affected;

(2) Outage duration;

(3) Type of feed (i.e., loop feed or radial circuit);

(4) Voltage class;

(5) Circuit length;

(6) Circuit age;

(7) Reported cause;

(8) Type of failure

Response:

Please see Attachment 1 (JJA-49\_Attach1\_Interruptions). Sheet 1 and Sheet 2 contain the 5 year historical (CY2005-CY2009) annual transmission circuit interruptions and customer interruptions respectively, caused by transmission interruptions, broken down by the specifications requested.

Name of Respondent: Jonathan Abebe

Date of Reply: May 12, 2010

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					n alt fil de station factor				
T3320	Taylorville - Boonville #5	115	31,13	79.4	1/4/05 13:35	1/5/05 12:15	Line Equipment	Insulator	1,360
T1410	Huntley - Gardenville #80	230	20.43	52.1	1/7/05 10:19	1/7/05 10:20	Other	Human Error	1
T6080	Falconer - Warren #171	115	7.99	82.0	1/8/05 15:35	1/8/05 16:51	Other	Human Error	76
T1080	Dunkirk - Falconer #160	115	59.83	35.8	1/8/05 15:35	1/8/05 15:36	Other	Human Error	· 1
T1100	Dunkirk - Falconer #162	115	35.51	81.2	1/8/05 15:35	1/8/05 15:36	Vegetation	Tree Fell	1
T1160	Falconer - Homer Hill #153	115	43.93	78.2	1/8/05 15:35	1/8/05 15:36	Other	Human Error	1
T2350	Nine Mile Point Unit One - Clay #8	345	26.5	41.8	1/11/05 16:00	1/11/05 16:00	System Protection	Relay	0
T2350	Nine Mile Point Unit One - Clay #8	345	26.5	41.8	1/11/05 16:03	1/11/05 16:03	System Protection	Relay	0
T2350	Nine Mile Point Unit One - Clay #8	345	26.5	41.8	1/11/05 16:09	1/11/05 16:10	System Protection	Relay	0
T2350	Nine Mile Point Unit One - Clay #8	345	26.5	41.8	1/11/05 16:10	1/11/05 16:11	System Protection	Relay	1
T5130	Front St Rosa Road #11	115	4.04	47.4	1/12/05 13:35	1/12/05 13:35	Substation Equipment	Insulator	0
T5140	G.E. R&D - Inman Road #20	115	7.26	36.8	1/12/05 13:35	1/12/05 13:35	Substation Equipment	Insulator	0
T5200	Grooms Road - Inman Road #15	115	4.21	36,8	1/12/05 13:35	1/12/05 13:35	Substation Equipment	Insulator	0
T5210	Grooms Road - Johnson Road #13	115	8.4	#N/A	1/12/05 13:35	1/12/05 13:35	Substation Equipment	Insulator	0
T5290	Johnson Road - Maplewood #12	115	2.7	#N/A	1/12/05 13:35	1/12/05 13:35	Substation Equipment	Insulator	0
T5610	Rosa Road - G.E. (R&D) #14	115	1.88	#N/A	1/12/05 13:35	1/12/05 13:35	Substation Equipment	Insulator	0
T5220	Hoosick - Bennington #6	115	4.16	52.0	1/14/05 11:36	1/14/05 11:36	Substation Equipment	Transformer	0
T5530	North Troy - Hoosick #5	115	17.83	52.0	1/14/05 11:36	1/14/05 11:36	Substation Equipment	Transformer	0
T5920	Woodlawn - State Campus #12	115	11.43	75.1	1/15/05 6:58	1/15/05 6:59	Unknown	Unknown	0
T4070	Edic - New Scotland #14	345	83.24	48.0	1/16/05 17:49	1/16/05 17:49	Substation Equipment	Circuit Breaker	0
T5450	New Scotland - Alps #2	345	30.81	39.0	1/16/05 17:49	1/16/05 17:49	Substation Equipment	Circuit Breaker	0
T5480	New Scotland - Leeds #93	345	25.75	47,9	1/16/05 17:49	1/16/05 17:49	Substation Equipment	Circuit Breaker	0
T4200	Porter - Rotterdam #30	230	71.53	50.5	1/17/05 21:37	1/17/05 21:38	Other	Human Error	1
T1530	Lockport - Mortimer #111	115	66.82	78.1	1/18/05 17:40	1/19/05 9:39	Line Equipment	Splice	959
T4070	Edic - New Scotland #14	345	83.24	48.0	1/18/05 20:11	1/18/05 20:11	Substation Equipment	Circuit Breaker	0
T5450	New Scotland - Alps #2	345	30,81	39.0	1/18/05 20:11	1/18/05 20:11	Substation Equipment	Circuit Breaker	0
T5480	New Scotland - Leeds #93	345	25.75	47. <del>9</del>	1/18/05 20:11	1/18/05 20:11	Substation Equipment	Circuit Breaker	0
T5080	aFarge Building Materials - Pleasant Valley #	115	62.47	67. <del>9</del>	1/19/05 1:39	1/20/05 3:15	Line Equipment	Static Wire	1,536
T2240	General Electric - Geres Lock #8	115	9.69	76.2	1/20/05 3:08	1/20/05 20:25	Line Equipment	Static Wire	1,036
T2750	Clay - General Electric (Electronics Park) #14	115	6.48	86.3	1/20/05 3:08	1/20/05 14:11	External	Customer Equipment	662
	aFarge Building Materials - Pleasant Valley #	115	62.47	67.9	1/20/05 13:08	1/20/05 13:09	Line Equipment	Static Wire	0
T5080	aFarge Building Materials - Pleasant Valley #	115	62.47	67.9	1/20/05 13:17	1/20/05 13:17	Line Equipment	Static Wire	0
T5080	aFarge Building Materials - Pleasant Valley #	115	62.47	67.9	1/20/05 22:04	1/20/05 22:05	Line Equipment	Static Wire	Ō
T3350	Thousand Islands - Coffeen #4	115	27.72	38.9	1/24/05 0:55	1/24/05 1:58	Substation Equipment	Switch - Manual	63
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	1/24/05 0:55	1/24/05 0:56	Substation Equipment	Switch - Circuit Switcher	2
T3120	Coffeen - Black River #3	115	10.66	48.6	1/24/05 0:55	1/24/05 0:56	Substation Equipment	Switch - Circuit Switcher	2
T3130	Coffeen - West Adams #2	115	14.15	24.6	1/24/05 0:55	1/24/05 0:56	Substation Equipment	Switch - Circuit Switcher	22

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T3060	Black River - Taylorville #2	115	32.82	48 7	1/27/05 1:56	1/27/05 1.57	Unknown	Unknown	0
T1230	Gardenville - Depew #54	115	7.26	53.9	1/28/05 13:08	1/28/05 13:08	Unknown	Unknown	0
T1230	Gardenville - Depew #54	115	7.26	53.9	1/28/05 14:06	1/28/05 14:07	Unknown	Unknown	0
T4240	Porter - Valley #4	115	17 58	34.5	2/1/05 14:49	2/1/05 15:53	Substation Equipment	Circuit Breaker	64
T4270	Valley - Inghams #3	115	12.2	50.3	2/1/05 14:49	2/1/05 16:04	Substation Equipment	Circuit Breaker	74
T3280	McIntyre - Colton #8	115	37.65	72.2	2/3/05 0:54	2/3/05 0:54	Unknown	Unknown	0
T1150	Elm Street - Gardenville #72	230	6.13	#N/A	2/5/05 4:19	2/5/05 16:59	Other	Miscellaneous	759
T1510	Lockport - Batavia #112	115	34.13	76.6	2/7/05 0:58	2/8/05 4:25	Line Equipment	Conductor	1,647
T3060	Black River - Taylorville #2	115	32.82	48.7	2/8/05 11:41	2/8/05 12:00	Other	Human Error	19
T3090	Browns Falls - Taviorville #4	115	26,79	38.8	2/8/05 11:41	2/8/05 12:00	Other	Human Error	19
T3330	Tavlorville - Boonville #6	115	37.35	80.8	2/8/05 11:41	2/8/05 12:00	Other	Human Error	
T3340	Taylorville - Moshier #7	115	11.21	79.9	2/8/05 11:41	2/8/05 12:00	Other	Human Error	19
T5020	Albany - Greenbush #2	115	3.07	58.0	2/8/05 14:52	2/8/05 14:53	External	Generator	0
T5850	Trinity - Albany #9	115	4.07	36.0	2/8/05 14:52	2/8/05 14:53	External	Generator	0
T5330	Leeds - Pleasant Valley #92	345	38.84	47.9	2/9/05 6:33	2/9/05 6:34	Unknown	Unknown	0
T2040	Clay - Dewitt #3	115	20.46	60.7	2/9/05 11:31	2/9/05 13:30	System Protection	Relay	119
T4080	Edic - Porter #10	115	0.47	36.0	2/12/05 14:01	2/12/05 14:24	Other	Human Error	23
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/16/05 9:42	2/16/05 9:42	Substation Equipment	ther Substation Equipme	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/16/05 13:06	2/16/05 13:07	Substation Equipment	ther Substation Equipme	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/16/05 13:08	2/16/05 13:09	Substation Equipment	ther Substation Equipme	Ō
T2410	Oneida - Fenner #8	115	10.85	22.1	2/17/05 16:54	2/17/05 21:49	Other	Human Error	295
T2670	Teall - Oneida #2	115	28.54	80.3	2/17/05 16:54	2/17/05 21:49	Other	Human Error	295
T4140	Oneida - Oneida Energy (Sterling) #4	115	2.55	56.3	2/17/05 16:54	2/17/05 21:49	Other	Human Error	295
T4160	Oneida - Yahnundasis #6	115	19.52	52.3	2/17/05 16:54	2/17/05 21:49	Other	Human Error	295
T4250	Rome - Oneida #1	115	12.31	64.3	2/17/05 16:54	2/17/05 21:49	Other	Human Error	295
T1660	Niagara - Gardenville #180	115	31.67	77.5	2/21/05 4:15	2/21/05 16:32	Line Equipment	Insulator	737
T1780	Packard - Gardenville #182	115	29.13	72.4	2/22/05 8:45	2/22/05 8:47	Unknown	Unknown	2
T5430	Mohican - Battenkill #15	115	15.12	79.0	2/22/05 18:24	2/22/05 18:24	Unknown	Unknown	0
T2180	Elbridge - Geres Lock #18	115	8.16	86.9	2/25/05 12:26	2/25/05 12:27	Line Equipment	Other Line Equipment	0
T2190	Elbridge - Geres Lock #19	115	8,17	29.0	2/25/05 12:26	2/25/05 13:29	Substation Equipment	Reclosing Equipment	63
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	2/27/05 2:48	2/27/05 2:48	Unknown	Unknown	0
T2130	Cortland - Lapeer #1	115	7.77	80.0	2/27/05 5:17	2/27/05 5:17	Substation Equipment	Lightning Arrestor	0
T2640	SUNY Cortland - Cortland #2	115	7.1	34.0	2/27/05 5:17	2/27/05 5:17	Substation Equipment	Lightning Arrestor	0
T1580	Mortimer - Golah #110	115	9.52	59.5	3/6/05 11:36	3/6/05 11:37	Unknown	Unknown	0
T2350	Nine Mile Point Unit One - Clay #8	345	26,5	41.8	3/7/05 4:37	3/7/05 5:02	External	Generator	24
T2370	Nine Mile Point Unit One - Scriba #9	345	0.4	23.0	3/7/05 4:37	3/7/05 5:00	External	Generator	22
T3320	Taylorville - Boonville #5	115	31.13	79.4	3/10/05 14:30	3/11/05 2:03	Other	Logger	693

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T3330	Taylogyille - Boonville #6	115	37 35	80.8	3/10/05 14:30	3/10/05 14:30	Other	Logger	0
T1780	Packard - Gardenville #182	115	29.13	72 4	3/13/05 6:14	3/13/05 6:16	Unknown	Unknown	2
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	3/20/05 11:40	3/20/05 11:40		Unknown	0
T1510	Lockport - Batavia #112	115	34.13	76.6	3/20/05 13:36	3/20/05 13:36	Unknown	Unknown	0
T2030	Auburn (State St.) - Elbridge #5	115	10.34	86.9	3/22/05 16:49	3/22/05 19:52	External	Foreign Utility	182
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89,0	3/22/05 16:49	3/22/05 19:52	External	Foreign Utility	182
T6150	Hook Road - Elbridge #7	115	54.75	82.6	3/29/05 2:26	3/29/05 2:26	Unknown	Unknown	0
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	3/30/05 18:38	3/30/05 18:38	Unknown	Unknown	0
T2740	Carr Street - Dewitt #15	115	3,06	#N/A	4/1/05 10:26	4/1/05 10:26	Unknown	Unknown	0
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	4/1/05 12:51	4/1/05 12:51	Unknown	Unknown	0
T1510	Lockport - Batavia #112	115	34.13	76.6	4/2/05 7:45	4/3/05 12:37	Line Equipment	Splice	1,731
T1660	Niagara - Gardenville #180	115	31.67	77.5	4/2/05 10:22	4/3/05 16:39	Line Equipment	Static Wire	1,817
T4300	Yahnundasis - Porter #3	115	13.21	50.9	4/2/05 10:43	4/2/05 10:43	Line Equipment	Pole (Wood Structure)	
T4300	Yahnundasis - Porter #3	115	13.21	50.9	4/2/05 10:56	4/2/05 10:56	Line Equipment	Pole (Wood Structure)	0
T4300	Yahnundasis - Porter #3	115	13.21	50.9	4/2/05 10:58	4/2/05 10:58	Line Equipment	Pole (Wood Structure)	0
T4300	Yahnundasis - Porter #3	115	13.21	50.9	4/2/05 10:59	4/2/05 10:59	Line Equipment	Pole (Wood Structure)	0
T4300	Yahnundasis - Porter #3	115	13.21	50.9	4/2/05 11:05	4/2/05 19:00	Line Equipment	Pole (Wood Structure)	475
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	4/2/05 19:49	4/2/05 19:50	Vegetation	Tree Growth	1
T1080	Dunkirk - Falconer #160	115	59.83	35.8	4/3/05 0:00	4/4/05 12:50	Vegetation	Tree Fell	2,210
T1420	Huntley - Praxair #46	115	9.83	50.9	4/3/05 0:20	4/3/05 0:27	Line Equipment	Static Wire	7
T5240	Inghams - East Springfield #7	115	13.9	82.8	4/3/05 5:21	4/3/05 5:21	Unknown	Unknown	0
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	4/3/05 9:42	4/3/05 23:30	Vegetation	Tree Fell	828
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	4/3/05 23:40	4/3/05 23:41	Unknown	Unknown	0
T1170	Falconer - Homer Hill #154	115	44.03	77.7	4/4/05 0:21	4/4/05 0:22	Unknown	Unknown	1
T4070	Edic - New Scotland #14	345	83,24	48.0	4/4/05 14:00	4/4/05 14:49	Substation Equipment	Circuit Breaker	49
T5450	New Scotland - Alps #2	345	30.81	39.0	4/4/05 14:00	4/4/05 14:49	Substation Equipment	Circuit Breaker	49
T5480	New Scotland - Leeds #93	345	25.75	47.9	4/4/05 14:00	4/4/05 14:49	Substation Equipment	Circuit Breaker	49
T1160	Falconer - Homer Hill #153	115	43.93	78.2	4/5/05 13:49	4/5/05 13:50	Other	Human Error	0
T1160	Falconer - Homer Hill #153	115	43.93	78.2	4/5/05 17:18	4/5/05 20:38	Other	Human Error	200
T1090	Dunkirk - Falconer #161	115	35.04	81.2	4/6/05 20:26	4/6/05 20:27	Line Equipment	Static Wire	1
T1780	Packard - Gardenville #182	115	29.13	72.4	4/9/05 6:31	4/9/05 6:31	Unknown	Unknown	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	4/10/05 6:50	4/10/05 6:51	Unknown	Unknown	0
T1170	Falconer - Homer Hill #154	115	44.03	77.7	4/13/05 7:38	4/13/05 7:39	Unknown	Unknown	1
T2420	Oswego - LaFayette #17	345	47.85	31.6	4/14/05 17:03	4/14/05 17:04	Other	Miscellaneous	0
T2470	Oswego - Volney #11	345	13.4	35.0	4/14/05 17:03	4/14/05 17:03	Other	Miscellaneous	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	4/19/05 14:35	4/20/05 11:20	Unknown	Unknown	1,245
T5980	New Scotland - Albany #8	115	8.57	20.1	4/21/05 12:47	4/21/05 13:35	External	Generator	48

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T1160	Falconer - Homer Hill #153	115	43,93	78.2	4/22/05 22:51	4/22/05 23:19	Line Equipment	Insulator	28
T1660	Niagara - Gardenville #180	115	31.67	77.5	4/25/05 13:21	4/25/05 13:21	Unknown	Unknown	0
T1100	Dunkirk - Falconer #162	115	35.51	81.2	4/26/05 14:46	4/27/05 13:24	Substation Equipment	Circuit Breaker	1,358
T1330	Hartfield - Moons Switches #159	115	9.4	52.6	4/26/05 14:46	4/27/05 13:24	Configuration	Тар	1,358
T2420	Oswego - LaFayette #17	345	47.85	31.6	5/2/05 13:16	5/2/05 13:16	Other	Human Error	0
T2420	Oswego - LaFayette #17	345	47.85	31.6	5/2/05 14:18	5/2/05 14:18	Other	Human Error	0
T2670	Teall - Oneida #2	115	28.54	80.3	5/3/05 14:37	5/3/05 14:38	Unknown	Unknown	0
T5650	Rotterdam - Front St. #16	115	3.62	47.4	5/3/05 15:01	5/6/05 10:48	Substation Equipment	Switch - Manual	4,066
T5060	Battenkill - North Troy #10	115	23,42	79.0	5/3/05 15:33	5/3/05 15:50	Other	Human Error	17
T6150	Hook Road - Elbridge #7	115	54,75	82.6	5/4/05 6:16	5/4/05 6:16	Unknown	Unknown	0
T2670	Teall - Oneida #2	115	28.54	80.3	5/5/05 9:38	5/5/05 9:38	Unknown	Unknown	0
T2540	Scriba - Volney #20	345	8.81	23.0	5/5/05 13:31	5/5/05 13:31	Other	Human Error	0
T2540	Scriba - Volney #20	345	8.81	23.0	5/5/05 13:32	5/5/05 13:33	Other	Human Error	0
T2540	Scriba - Volney #20	345	8,81	23.0	5/5/05 13:34	5/5/05 13:35	Other	Human Error	0
T1440	Huntley - Lockport #36	115	24.35	64.8	5/9/05 10:40	5/9/05 10:41	Other	Human Error	0
T1450	Huntley - Lockport #37	115	24.35	22.4	5/9/05 10:40	5/9/05 10:41	Other	Human Error	0
T1540	Lockport - Mortimer #113	115	66,63	77.9	5/14/05 2:06	5/14/05 2:07	Unknown	Unknown	1
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	5/16/05 5:34	5/16/05 5:35	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	5/17/05 5:58	5/17/05 5:59	Unknown	Unknown	0
T1000	Brunner - Sour Springs #118	115	4.6	57.6	5/18/05 4:45	5/18/05 4:45	Configuration	Configuration	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	5/18/05 4:45	5/18/05 4:45	Unknown	Unknown	0
T1200	Gardenville - Bethlehem #150	115	5.83	29.4	5/20/05 10:40	5/20/05 10:41	Other	Human Error	1
T2660	Teall - Carr Street #6	115	4.03	42.8	5/20/05 17:55	5/20/05 17:56	Unknown	Unknown	0
T1060	Beck - Lockport #104	115	19.07	71.6	5/22/05 13:22	5/22/05 14:01	External	Foreign Utility	39
T1620	Mountain - Lockport #103	115	19.86	76.8	5/22/05 13:22	5/22/05 13:22	Configuration	Configuration	0
T1630	Mountain - Niagara #120	115	0,98	49.0	5/22/05 13:22	5/22/05 13:22	Configuration	Configuration	0
T3140	Colton - Browns Falls #1	115	30.45	71.0	5/23/05 9:09	5/24/05 1:42	Line Equipment	Splice	993
T1500	Lockport - Batavia #108	115	35.63	71.2	5/25/05 14:29	5/25/05 16:46	External	Other	137
T3070	Browns Falls - Newton Falls Pap. Co. #6	115	3.87	38.8	5/26/05 10:42	5/26/05 10:42	Substation Equipment	Transformer	0
T3080	Browns Falls - Taylorville #3	115	26,77	86.4	5/26/05 10:42	5/26/05 10:43	Substation Equipment	Transformer	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	5/26/05 10:42	5/26/05 10:43	Substation Equipment	Transformer	
T3140	Colton - Browns Falls #1	115	30.45	71.0	5/26/05 10:42	5/26/05 10:43	Substation Equipment	Transformer	0
T3150	Colton - Browns Falls #2	115	30.49	71.0	5/26/05 10:42	5/26/05 10:43	Substation Equipment	Transformer	0
T4020	Boonville - Porter #1	115	27.1	86.3	5/29/05 5:14	5/29/05 5:14	Unknown	Unknown	0
T5770	Spier - West #9	115	16.6	64.8	5/30/05 12:55	5/30/05 12:55	Unknown	Unknown	0
T5880	Warrensburg - Scofield Road #10	115	10,46	85.0	5/30/05 12:55	5/30/05 12:55	Unknown	Unknown	0
T1540	Lockport - Mortimer #113	115	66.63	77.9	5/31/05 1:59	5/31/05 2:01	Unknown	Unknown	1
	<u> </u>			-				_	

### JJA-49 Atatchment 1

									Sheet 1
2	·黄山中的1.18日,19日1年月1日的经济资源。1980年			Section of the section of the	te <b>matin</b> of the constant of the second s	Martin Sections Martin Same			1944 7
								Human France	0
T5020	Albany - Greenbush #2	115	3.07	58.0	5/31/05 13:54	5/31/05 13:55	Other	Human Error	U
T5910	Whitehall - Cedar #6	115	24.25	70.9	6/2/05 16:56	6/2/05 17:57	Other	Venicle	61
T5970	Queensbury - Cedar #10	115	3.63	70.9	6/2/05 16:56	6/2/05 17:57	Configuration	Shared Circuit	
T5750	Spier - Rotterdam #1	115	54.31	20.0	6/6/05 13:25	6/6/05 <u>13:26</u>	vveather	vveatner	
T5770	Spier - West #9	115	16.6	64.8	6/6/05 13:30	6/6/05 13:31	Lightning	Lightning	
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	6/6/05 13:30	6/6/05 13:31	Configuration	Configuration	
T2160	Dewitt - Tilden #19	115	7.89	36.6	6/6/05 13:48	6/6/05 13:48	System Protection	Relay	0
T2290	Geres Lock - Tilden #16	115	10.88	57.2	6/6/05 <u>13</u> :48	6/6/05 13:48	System Protection	Relay	0
T2710	Tilden - Cortland #18	115	34.81	40.0	6/6/05 13:48	6/6/05 13:48	Lightning	Lightning	0
T2770	O.C.R.R.A Tilden #15	115	3.97	33.8	6/6/05 13:48	6/6/05 13:48	System Protection	Relay	0
T5770	Spier - West #9	115	16,6	64.8	6/6/05 14:37	6/6/05 14:38	Configuration	Configuration	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	6/6/05 14:37	6/6/05 14:38	Lightning	Lightning	0
T5430	Mohican - Battenkill #15	115	15.12	79.0	6/6/05 15:55	6/6/05 15:56	Lightning	Lightning	0
T5820	Ticonderoga - Hague Road #4	115	1.35	70.2	6/6/05 16:44	6/6/05 16:44	Weather	Storm	0
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	6/8/05 15:31	6/8/05 17:27	Other	Logger	116
T3080	Browns Falls - Taylorville #3	115	26.77	86,4	6/9/05 14:47	6/9/05 14:47	Lightning	Lightning	0
T3090	Browns Falls - Taylorville #4	115	26.79	38,8	6/9/05 14:47	6/9/05 14:47	Lightning	Lightning	0
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	6/9/05 15:58	6/9/05 15:59	Lightning	Lightning	0
T5810	Ticonderoga - Republic #2	115	23,3	70,2	6/9/05 18:42	6/10/05 10:01	Vegetation	Tree Fell	919
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	6/9/05 21:35	6/9/05 21:36	Lightning	Lightning	1
T1200	Gardenville - Bethlehem #150	115	5.83	29.4	6/10/05 0:23	6/10/05 0:23	Weather	Weather	0
T1230	Gardenville - Depew #54	115	7.26	53,9	6/10/05 1:15	6/10/05 1:16	Lightning	Lightning	0
T4210	Porter - Rotterdam #31	230	72.16	58.2	6/10/05 14:05	6/10/05 14:05	Lightning	Lightning	0
T2410	Oneida - Fenner #8	115	10.85	22.1	6/10/05 14:05	6/10/05 14:06	Lightning	Lightning	Ō
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	6/10/05 14:42	6/10/05 14:43	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31,35	86,9	6/10/05 14:57	6/10/05 14:57	Lightning	Lightning	0
T1080	Dunkirk - Falconer #160	115	59.83	35.8	6/10/05 15:08	6/10/05 15:08	Lightning	Lightning	0
T2410	Oneida - Fenner #8	115	10.85	22.1	6/10/05 16:01	6/10/05 16:01	Lightning	Lightning	0
T6140	Fenner - Cortland #3	115	34.55	22.1	6/10/05 16:01	6/10/05 16:01	Lightning	Lightning	0
T4130	Marcy - New Scotland #18	345	84.34	37.9	6/10/05 17:18	6/10/05 20:09	External	Foreign Utility	171
T6270	North Carthage - Taylorville #8	115	11.6	48.7	6/10/05 19:28	6/10/05 19:28	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37,35	80.8	6/11/05 16:20	6/11/05 16:21	Lightning	Lightning	0
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	6/11/05 22:12	6/11/05 22:13	Lightning	Lightning	0
T5350	Maplewood - Menands #19	115	5 41	63.6	6/12/05 6:49	6/12/05 6:50	Other	Animal	0
T5400	Menands - Revnolds Road #2	115	2 4 9	72.6	6/12/05 6:49	6/12/05 6:50	Other	Animal	0
T6010	Wolf Road - Menands #10	115	4 64	75.1	6/12/05 6:49	6/12/05 6:50	Other	Animal	0
T1860	Pannell (Sta 122) - Geneva (Border City) #4	115	25.11	88.0	6/13/05 16:04	6/13/05 16:04	Lightning	Lightning	0
11000	Familien (Sta. 122) - Geneva (Border Olty) #4		20.11	00.0	0,10,00 10.04	0.10/00 10.04	Eightening .	a	

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T1860         Pannell (Sta. 122) - Geneva (Border City) #4         115         25.11         88.0         6/13/05 16:25         6/13/05 16:26         Lightning         Lightning         0           T1020         Adams - Packard #188         115         6.41         43.4         6/13/05 16:25         6/13/05 16:59         Weather         Weather         0           T1620         Mountain - Lockport #103         115         19.86         76.8         6/13/05 17:27         6/13/05 17:27         Lightning         0           T1630         Mountain - Niagara #120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Configuration         Configuration         0           T1630         Mountain - Niagara #120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Configuration         Configuration         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 11:13         6/14/05 19:19         Line Equipment         Insulator         486           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 23:45         6/16/05 14:50         Lightning         Lightning         0           T										Offect
T1860         Pannell (Sta. 122) - Geneva (Border City) #4         115         25.11         88.0         6/13/05 16:25         6/13/05 16:26         Lightning         Lightning         0           T1020         Adams - Packard #188         115         6.41         43.4         6/13/05 16:25         6/13/05 16:29         Weather         Weather         0           T1620         Mountain - Lockport #103         115         19.86         76.8         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T1630         Mountain - Niagara #120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Cionfiguration         Configuration         0           T1690         Niagara - Lockport #101         115         18.55         39.1         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 19:13         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         Lightning         Lightning         0           T4400         Huntley - Lockport #36 <th></th> <th></th> <th></th> <th></th> <th></th> <th>al cara da car Cara da cara da Cara da cara da</th> <th></th> <th></th> <th></th> <th></th>						al cara da car Cara da cara da Cara da cara da				
T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         6/13/05 16:25         6/13/05 16:26         Lightning         Lightning         0           T1020         Adams - Packard #188         115         6.41         43.4         6/13/05 16:58         6/13/05 16:59         Weather         Weather         0           T1620         Mountain - Lockport #103         115         19.86         76.8         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T1630         Mountain - Niagara #120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Configuration         Configuration         0           T1630         Mountain - Niagara *120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T1630         Mountain - Niagara *120         115         18.55         39.1         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 19:43         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3 </td <td></td> <td>the second s</td> <td></td> <td><u> </u></td> <td><u></u></td> <td><u>an an a</u></td> <td></td> <td>a ta ta</td> <td>A CARLER AND A CARLER AND A</td> <td></td>		the second s		<u> </u>	<u></u>	<u>an an a</u>		a ta	A CARLER AND A CARLER AND A	
T1020Adams - Packard #1881156.4143.46/13/05 16:586/13/05 16:59WeatherWeather0T1620Mountain - Lockport #10311519.8676.86/13/05 17:276/13/05 17:27LightningLightning0T1630Mountain - Niagara #1201150.9849.06/13/05 17:276/13/05 17:27ConfigurationConfiguration0T1630Niagara - Lockport #10111518.5539.16/13/05 17:276/13/05 17:27LightningLightning0T2560Sleight Road - Auburn (State St.) #311528.0989.06/13/05 19:426/13/05 19:43LightningLightning0T2560Sleight Road - Auburn (State St.) #311510.6431.06/14/05 19:43LightningLightning0T2560Sleight Road - Auburn (State St.) #311528.0989.06/14/05 22:456/14/05 22:45LightningLightning0T1440Huntley - Lockport #3611528.0989.06/14/05 22:456/14/05 12:45LightningLightning0T5600Sleight Road - Auburn (State St.) #311528.0989.06/14/05 22:456/14/05 11:51Line EquipmentInsulator486T5600Sleight Road - Auburn (State St.) #311528.0989.06/14/05 23:456/15/05 11:51Line EquipmentInsulator705T5600Sleight Road - Auburn (State St.) #311524.3564.86/14/05 23:456/15/05 14:51<	T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	6/13/05 16:25	6/13/05 16:26	Lightning	Lightning	0
T1620         Mountain - Lockport #103         115         19.86         76.8         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T1630         Mountain - Niagara #120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Configuration         Configuration         0           T1630         Niagara - Lockport #101         115         18.55         39.1         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/13/05 19:42         6/13/05 19:43         Lightning         Lightning         0           T3210         Lake Colby - Lake Placid #3         115         10.64         31.0         6/14/05 22:45         6/14/05 19:19         Line Equipment         Insulator         486           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         6/14/05 22:45         Lightning         Lightning         0           T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705      <	T1020	Adams - Packard #188	115	6,41	43.4	6/13/05 16:58	6/13/05 16:59	Weather	Weather	0
T1630         Mountain - Niagara #120         115         0.98         49.0         6/13/05 17:27         6/13/05 17:27         Configuration         Configuration         0           T1690         Niagara - Lockport #101         115         18.55         39.1         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/13/05 19:42         6/13/05 19:43         Lightning         Lightning         0           T3210         Lake Colby - Lake Placid #3         115         10.64         31.0         6/14/05 22:45         6/14/05 22:45         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         6/14/05 22:45         Lightning         Lightning         0           T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705           T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0	T1620	Mountain - Lockport #103	115	19.86	76.8	6/13/05 17:27	6/13/05 17:27	Lightning	Lightning	0
T1690         Niagara - Lockport #101         115         18.55         39.1         6/13/05 17:27         6/13/05 17:27         Lightning         Lightning         0           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/13/05 19:42         6/13/05 19:43         Lightning         Lightning         0           T3210         Lake Colby - Lake Placid #3         115         10.64         31.0         6/14/05 11:13         6/14/05 19:19         Line Equipment         Insulator         486           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         6/14/05 22:45         Lightning         0           T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705           T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Lightning         Configuration         0           T5690	T1630	Mountain - Niagara #120	115	0.98	49.0	6/13/05 17:27	6/13/05 17:27	Configuration	Configuration	0
T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/13/05 19:42         6/13/05 19:43         Lightning         Lightning         0           T3210         Lake Colby - Lake Placid #3         115         10.64         31.0         6/14/05 11:13         6/14/05 19:19         Line Equipment         Insulator         486           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         6/14/05 22:45         Lightning         0           T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705           T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/18/05 13:59         Lightning         Lightning         0           T1950	T1690	Niagara - Lockport #101	115	18,55	39.1	6/13/05 17:27	6/13/05 17:27	Lightning	Lightning	0
T3210         Lake Colby - Lake Placid #3         115         10.64         31.0         6/14/05 11:13         6/14/05 19:19         Line Equipment         Insulator         486           T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         6/14/05 22:45         Lightning         0           T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705           T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Configuration         Configuration         0           T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5690         Rotterdam - New Scotland #19         115         82.6         87.1         6/18/05 13:59         Unknown         Unknown         0	T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	6/13/05 19:42	6/13/05 19:43	Lightning	Lightning	0
T2560         Sleight Road - Auburn (State St.) #3         115         28.09         89.0         6/14/05 22:45         6/14/05 22:45         Lightning         Lightning         0           T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705           T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Configuration         Configuration         0           T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T1950         Gardenville - Homer Hill #151         115         82.6         87.1         6/18/05 13:58         6/18/05 13:59         Unknown         Unknown         0	T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	6/14/05 11:13	6/14/05 19:19	Line Equipment	Insulator	486
T1440         Huntley - Lockport #36         115         24.35         64.8         6/14/05 23:45         6/15/05 11:31         Line Equipment         Insulator         705           T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Configuration         Configuration         0           T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T1950         Gardenville - Homer Hill #151         115         82.6         87.1         6/18/05 13:58         6/18/05 13:59         Unknown         Unknown         0	T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	6/14/05 22:45	6/14/05 22:45	Lightning	Lightning	0
T5040         Altamont - New Scotland #20         115         8.48         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Configuration         Configuration         0           T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T1950         Gardenville - Homer Hill #151         115         82.6         87.1         6/18/05 13:58         6/18/05 13:59         Unknown         Unknown         0	T1440	Huntley - Lockport #36	115	24.35	64.8	6/14/05 23:45	6/15/05 11:31	Line Equipment	Insulator	705
T5620         Rotterdam - Altamont #17         115         8.53         69.3         6/16/05 14:50         6/16/05 14:51         Configuration         Configuration         0           T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T1950         Gardenville - Homer Hill #151         115         82.6         87.1         6/18/05 13:58         6/18/05 13:59         Unknown         Unknown         0	T5040	Altamont - New Scotland #20	115	8.48	80.3	6/16/05 14:50	6/16/05 14:51	Lightning	Lightning	0
T5690         Rotterdam - New Scotland #19         115         17.03         80.3         6/16/05 14:50         6/16/05 14:51         Lightning         Lightning         0           T1950         Gardenville - Homer Hill #151         115         82.6         87.1         6/18/05 13:58         6/18/05 13:59         Unknown         0	T5620	Rotterdam - Altamont #17	115	8.53	69.3	6/16/05 14:50	6/16/05 14:51	Configuration	Configuration	0
T1950 Gardenville - Homer Hill #151 115 82.6 87.1 6/18/05 13:58 6/18/05 13:59 Unknown Unknown 0	T5690	Rotterdam - New Scotland #19	115	17.03	80.3	6/16/05 14:50	6/16/05 14:51	Lightning	Lightning	0
	T1950	Gardenville - Homer Hill #151	115	82.6	87.1	6/18/05 13:58	6/18/05 13:59	Unknown	Unknown	0
T5110 Curry Road - Wolf Road #8 115 7.89 75.1 6/19/05 3:02 6/19/05 3:03 Unknown Unknown 1	T5110	Curry Road - Wolf Road #8	115	7.89	75,1	6/19/05 3:02	6/19/05 3:03	Unknown	Unknown	1
T5640 Rotterdam - Curry Road #11 115 7.1 75.1 6/19/05 3:02 6/19/05 3:03 Unknown Unknown 1	T5640	Rotterdam - Curry Road #11	115	7.1	75.1	6/19/05 3:02	6/19/05 3:03	Unknown	Unknown	1
T2300 Indeck Oswego - Lighthouse Hill #2 115 42.6 48.0 6/19/05 9:50 6/19/05 9:51 Unknown Unknown 0	T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	6/19/05 9:50	6/19/05 9:51	Unknown	Unknown	0
T1160 Falconer - Homer Hill #153 115 43.93 78.2 6/24/05 16:52 6/24/05 16:53 Other Vehicle 1	T1160	Falconer - Homer Hill #153	115	43.93	78.2	6/24/05 16:52	6/24/05 16:53	Other	Vehicle	1
T5080 aFarge Building Materials - Pleasant Valley # 115 62.47 67.9 6/26/05 14:52 6/26/05 14:53 Unknown Unknown 0	T5080	aFarge Building Materials - Pleasant Valley #	115	62.47	67,9	6/26/05 14:52	6/26/05 14:53	Unknown	Unknown	0
T5920 Woodlawn - State Campus #12 115 11.43 75.1 6/26/05 18:36 6/26/05 18:36 Line Equipment Cross Arm / Davit Arm 0	T5920	Woodlawn - State Campus #12	115	11.43	75.1	6/26/05 18:36	6/26/05 18:36	Line Equipment	Cross Arm / Davit Arm	0
T5920 Woodlawn - State Campus #12 115 11.43 75.1 6/26/05 20:04 6/30/05 21:04 Line Equipment Cross Arm / Davit Arm 5,820	T5920	Woodlawn - State Campus #12	115	11.43	75.1	6/26/05 20:04	6/30/05 21:04	Line Equipment	Cross Arm / Davit Arm	5,820
T5700 Rotterdam - Woodlawn #35 115 13.6 75.1 6/27/05 17:19 6/28/05 1:25 Line Equipment Pole (Wood Structure) 485	T5700	Rotterdam - Woodlawn #35	115	13.6	75.1	6/27/05 17:19	6/28/05 1:25	Line Equipment	Pole (Wood Structure)	485
T3080 Browns Falls - Taylorville #3 115 26.77 86.4 6/28/05 16:58 6/28/05 16:59 Lightning Lightning 0	T3080	Browns Falls - Taylorville #3	115	26.77	86.4	6/28/05 16:58	6/28/05 16:59	Lightning	Lightning	0
T3090 Browns Falls - Taylorville #4 115 26.79 38.8 6/28/05 16:58 6/28/05 16:59 Lightning Lightning 0	T3090	Browns Fails - Taylorville #4	115	26.79	38.8	6/28/05 16:58	6/28/05 16:59	Lightning	Lightning	0
T3070 Browns Falls - Newton Falls Pap. Co. #6 115 3.87 38.8 6/28/05 18:51 6/28/05 18:56 Substation Equipment Reclosing Equipment 5	T3070	Browns Falls - Newton Falls Pap. Co. #6	115	3.87	38.8	6/28/05 18:51	6/28/05 18:56	Substation Equipment	Reclosing Equipment	5
T4020 Boonville - Porter #1 115 27.1 86.3 6/28/05 21:13 6/28/05 21:14 Lightning Lightning 0	T4020	Boonville - Porter #1	115	27.1	86.3	6/28/05 21:13	6/28/05 21:14	Lightning	Lightning	0
T4030 Boonville - Porter #2 115 27.1 86.1 6/28/05 21:13 6/28/05 21:14 Lightning Lightning 0	T4030	Boonville - Porter #2	115	27.1	86.1	6/28/05 21:13	6/28/05 21:14	Lightning	Lightning	0
T3340 Taylorville - Moshier #7 115 11.21 79.9 6/28/05 22:35 6/28/05 22:36 Lightning Lightning 0	T3340	Taylorville - Moshier #7	115	11.21	79,9	6/28/05 22:35	6/28/05 22:36	Lightning	Lightning	0
T2130 Cortland - Lapeer #1 115 7.77 80.0 6/29/05 0:30 6/29/05 0:31 Unknown Unknown 0	T2130	Contland - Lapeer #1	115	7.77	80,0	6/29/05 0:30	6/29/05 0:31	Unknown	Unknown	0
T2130 Cortland - Lapeer #1 115 7.77 80.0 6/29/05 0:32 6/29/05 0:32 Unknown Unknown 0	T2130	Contiand - Lapeer #1	115	7.77	80.0	6/29/05 0:32	6/29/05 0:32	Unknown	Unknown	0
T3320 Taylorville - Boonville #5 115 31.13 79.4 6/29/05 14:37 6/29/05 14:37 Lightning Lightning 0	T3320	Taylorville - Boonville #5	115	31.13	79,4	6/29/05 14:37	6/29/05 14:37	Lightning	Lightning	0
T3330 Taylorville - Boonville #6 115 37.35 80.8 6/29/05 14:37 6/29/05 14:37 Lightning Lightning 0	T3330	Taylorville - Boonville #6	115	37.35	80.8	6/29/05 14:37	6/29/05 14:37	Lightning	Lightning	0
T3320 Taylorville - Boonville #5 115 31.13 79.4 6/29/05 14:56 6/29/05 14:57 Lightning Lightning 0	T3320	Taylorville - Boonville #5	115	31.13	79.4	6/29/05 14:56	6/29/05 14:57	Lightning	Lightning	0
T3330 Taylorville + Boonville + 6 115 37.35 80.8 6/29/05 14:56 6/29/05 14:57 Lightning Lightning 0	T3330	Taylorville - Boonville #6	115	37.35	80.8	6/29/05 14:56	6/29/05 14:57	Lightning	Lightning	0
T3330 Taylorville + Boonville #6 115 37.35 80.8 6/29/05 15:48 6/29/05 15:48 Lightning Lightning 0	T3330	Taylorville - Boonville #6	115	37,35	80.8	6/29/05 15:48	6/29/05 15:48	Lightning	Lightning	0
T2130         Cortland - Lapeer #1         115         7.77         80.0         6/29/05 16:26         6/29/05 16:26         Weather         Weather         0	T2130	Cortland - Lapeer #1	115	7.77	80,0	6/29/05 16:26	6/29/05 16:26	Weather	Weather	0
T5440 Mohican - Butler #18 115 7.43 #N/A 6/29/05 17:55 6/29/05 17:56 Weather Weather 0	T5440	Mohican - Butler #18	115	7.43	#N/A	6/29/05 17:55	6/29/05 17:56	Weather	Weather	0
T5900 Whitehall - Mohican #13 115 25.81 77.6 6/29/05 17:55 6/29/05 17:56 Weather 0	T5900	Whitehall - Mohican #13	115	25.81	77.6	6/29/05 17:55	6/29/05 17:56	Weather	Weather	0

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									Onect
						Sec. 10.10		18 (see the se	
T3080	Browns Falls - Taylorville #3	115	26,77	86.4	6/29/05 19:10	6/29/05 19:10	vveather	vveather	
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	6/29/05 19:10	6/29/05 19:10	vveather	vveatner	
T1450	Huntley - Lockport #37	115	24.35	22.4	6/30/05 10:21	7/7/05 16:24	Line Equipment	Conductor	10,443
T5750	Spier - Rotterdam #1	115	54.31	20.0	6/30/05 14:52	6/30/05 14:53	Weather	vveather	
T2030	Auburn (State St.) - Elbridge #5	115	10,34	86.9	7/1/05 13:33	7/1/05 13:42	External	Foreign Utility	
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	7/1/05 14:13	7/1/05 14:13	Lightning	Lightning	
T3320	Taylorville - Boonville #5	115	31.13	79,4	7/1/05 15:25	7/1/05 15:25	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	7/1/05 15:25	7/1/05 15:25	Lightning	Lightning	0
T5770	Spier - West #9	115	16.6	64.8	7/1/05 18:01	7/1/05 18:02	Lightning	Lightning	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	7/1/05 18:01	7/1/05 18:02	Lightning	Lightning	0
T5950	Indeck Corinth - Spier #18	115	3.8	#N/A	7/1/05 18:01	7/1/05 18:02	Lightning	Lightning	0
T3050	Black River - North Carthage #1	115	15.29	75.0	7/2/05 18:10	7/2/05 18:11	Unknown	Unknown	0
T3120	Coffeen - Black River #3	115	10,66	48.6	7/2/05 18:10	7/2/05 18:11	Unknown	Unknown	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/3/05 18:54	7/3/05 18:55	Unknown	Unknown	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	7/4/05 21:17	7/4/05 21:18	Vegetation	Tree Broken Limb	0
T3080	Browns Falls - Taylorville #3	115	26.77	86.4	7/5/05 13:37	7/5/05 13:37	Lightning	Lightning	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	7/5/05 13:37	7/5/05 13:37	Lightning	Lightning	0
T3150	Colton - Browns Falls #2	115	30,49	71.0	7/5/05 14:26	7/5/05 14:27	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	7/5/05 16:02	7/5/05 16:02	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	7/5/05 16:12	7/5/05 16:12	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	7/5/05 16:13	7/5/05 16:36	External	Foreign Utility	24
T1620	Mountain - Lockport #103	115	19.86	76.8	7/5/05 17:24	7/7/05 10:20	Substation Equipment	Transformer	2,456
T1630	Mountain - Niagara #120	115	0.98	49.0	7/5/05 17:24	7/7/05 10:20	Substation Equipment	Transformer	2,456
T1650	Mountain - Niagara #122	115	1.12	49,1	7/5/05 17:24	8/16/05 13:49	Substation Equipment	Transformer	60,265
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	7/6/05 0:30	7/6/05 0:30	Lightning	Lightning	0
T1530	Lockport - Mortimer #111	115	66.82	78,1	7/8/05 4:34	7/8/05 4:34	Unknown	Unknown	0
T1170	Falconer - Homer Hill #154	115	44.03	77.7	7/8/05 10:37	7/8/05 16:30	Line Equipment	Insulator	353
T1550	Lockport - Mortimer #114	115	60.3	58.0	7/8/05 15:33	7/8/05 15:34	Vegetation	Tree Broken Limb	1
T2230	Fulton Co-Gen - Clay #4	115	20.9	61.0	7/10/05 10:53	7/10/05 10:53	Unknown	Unknown	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	7/10/05 13:51	7/10/05 13:51	Vegetation	Tree Broken Limb	0
T2320	Lighthouse Hill - Clay #7	115	26,39	79.2	7/12/05 5:27	7/12/05 5:27	Unknown	Unknown	0
T4140	Oneida - Oneida Energy (Sterling) #4	115	2.55	56.3	7/12/05 16:17	7/12/05 16:18	Lightning	Lightning	1
T4160	Oneida - Yahnundasis #6	115	19.52	52.3	7/12/05 16:17	7/12/05 16:18	Lightning	Lightning	1
T3080	Browns Falls - Taylorville #3	115	26.77	86,4	7/13/05 0:01	7/13/05 0:02	Lightning	Lightning	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	7/13/05 0:01	7/13/05 0:02	Lightning	Lightning	0
T3320	Taylorville - Boonville #5	115	31.13	79.4	7/13/05 1:47	7/13/05 1:48	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	7/13/05 1:47	7/13/05 1:48	Lightning	Lightning	0

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			Special States	1		$\int_{\mathbb{R}^{n}} \frac{1}{ x ^{n}} \frac{dx}{dx} = \int_{\mathbb{R}^{n}} d$	$= \left\{ \begin{array}{c} \left\{ C_{1}^{(0)} + C_{2}^{(0)} + C$		
T6270	North Carthage - Taylorville #8	115	11.6	48.7	7/13/05 3:30	7/13/05 3:30	Lightning	Lightning	Ō
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	7/13/05 4:02	7/13/05 18:00	Lightning	Lightning	837
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	7/13/05 4:02	7/13/05 6:08	Lightning	Lightning	125
T2410	Oneida - Fenner #8	115	10,85	22.1	7/13/05 5:55	7/13/05 5:55	Lightning	Lightning	0
T2740	Carr Street - Dewitt #15	115	3.06	#N/A	7/13/05 7:06	7/13/05 7:07	Lightning	Lightning	0
T1600	Mortimer - Pannell Road #25	115	15.72	83.8	7/13/05 14:42	7/14/05 9:05	Vegetation	Tree Growth	1,103
T5410	Menands - Riverside #3	115	1.97	28.9	7/13/05 16:40	7/13/05 16:41	Unknown	Unknown	0
T1700	Niagara - Lockport #102	115	18.52	40.2	7/13/05 17:03	7/13/05 17:03	Lightning	Lightning	0
T1420	Huntley - Praxair #46	115	9.83	50.9	7/13/05 17:20	7/13/05 17:26	Lightning	Lightning	6
T1070	Beck - Packard #76	230	4.55	52.6	7/14/05 3:12	7/14/05 3:21	Weather	Extreme Hot	8
T1620	Mountain - Lockport #103	115	19.86	76.8	7/14/05 3:32	7/14/05 3:36	Lightning	Lightning	4
T1630	Mountain - Niagara #120	115	0.98	49.0	7/14/05 3:32	7/14/05 3:36	Lightning	Lightning	_4
T3130	Coffeen - West Adams #2	115	14.15	24.6	7/14/05 9:13	7/14/05 9:18	Lightning	Lightning	5
T3120	Coffeen - Black River #3	115	10.66	48.6	7/14/05 9:13	7/14/05 9:14	System Protection	Relay	0
T3320	Taylorville - Boonville #5	115	31.13	79.4	7/14/05 9:28	7/14/05 9:28	Lightning	Lightning	0
T1600	Mortimer - Pannell Road #25	115	15.72	83.8	7/14/05 15:42	7/14/05 15:42	Lightning	Lightning	0
T2090	Clay - Teall #10	115	15.72	69.8	7/14/05 16:21	7/14/05 16:21	Lightning	Lightning	0
T1600	Mortimer - Pannell Road #25	115	15.72	83.8	7/14/05 16:47	7/14/05 16:54	External	Foreign Utility	7
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	7/14/05 17:04	7/14/05 17:04	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	7/14/05 17:06	7/14/05 17:06	Lightning	Lightning	0
T4020	Boonville - Porter #1	115	27.1	86.3	7/14/05 17:07	7/14/05 17:07	Lightning	Lightning	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	7/14/05 18:55	7/14/05 18:55	Lightning	Lightning	0
T1540	Lockport - Mortimer #113	115	66.63	77.9	7/14/05 18:55	7/14/05 18:55	Lightning	Lightning	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	7/14/05 18:55	7/14/05 18:55	Lightning	Lightning	0
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	7/16/05 16:30	7/16/05 16:32	Lightning	Lightning	<u> </u>
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	7/16/05 16:30	7/16/05 16:32	Lightning	Lightning	1
T1020	Adams - Packard #188	115	6.41	43.4	7/16/05 17:23	7/16/05 17:24	Lightning	Lightning	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	7/17/05 0:30	7/17/05 0:31	Weather	Weather	0
T6150	Hook Road - Elbridge #7	115	54.75	82.6	7/17/05 5:56	7/17/05 5:57	Other	Animal	0
T4040	Boonville - Rome #4	115	26.71	76.6	7/17/05 18:49	7/17/05 18:50	Lightning	Lightning	00
T4060	Boonville - Rome #3	115	24,86	79.0	7/17/05 18:49	7/17/05 18:50	Lightning	Lightning	0
T1570	Mortimer - Elbridge #2	115	71.99	42.0	7/17/05 19:44	7/18/05 12:14	Substation Equipment	Circuit Breaker	990
T6150	Hook Road - Elbridge #7	115	54.75	82.6	7/17/05 19:44	7/17/05 19:44	Lightning	Lightning	00
T2230	Fulton Co-Gen - Clay #4	115	20,9	61.0	7/17/05 21:27	7/17/05 21:28	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37,35	80.8	7/17/05 21:59	7/17/05 22:00	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	7/17/05 22:09	7/17/05 22:10	Lightning	Lightning	0
T2140	Curtis Street - Teall #13	115	33.47	64.9	7/17/05 22:10	7/17/05 22:11	Lightning	Lightning	0

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T1590	Mortimer - Pannell Road #24	115	15.71	92.6	7/18/05 17:28	7/19/05 9:08	Line Equipment	Splice	939
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	7/19/05 19:45	7/19/05 19:45	Unknown	Unknown	0
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	7/20/05 13:58	7/20/05 21:47	Line Equipment	Conductor	469
T1460	Homer Hill - Indeck Olean #166	115	0.2	#N/A	7/22/05 14:49	7/22/05 21:31	External	Generator	402
T5440	Mohican - Butler #18	115	7,43	#N/A	7/23/05 12:55	7/23/05 12:56	Unknown	Unknown	0
T6070	Spier - Mohican #7	115	9.46	79.0	7/23/05 12:55	7/23/05 12:56	Unknown	Unknown	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	7/24/05 20:38	7/24/05 20:38	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	7/25/05 5:45	7/25/05 5:45	Unknown	Unknown	0
T1460	Homer Hill - Indeck Olean #166	115	0.2	#N/A	7/25/05 10:14	7/25/05 21:30	External	Generator	676
T4250	Rome - Oneida #1	115	12.31	64,3	7/26/05 10:31	7/26/05 10:46	Unknown	Unknown	15
T1100	Dunkirk - Falconer #162	115	35.51	81.2	7/26/05 17:03	7/26/05 17:04	Unknown	Unknown	1
T1100	Dunkirk - Falconer #162	115	35.51	81.2	7/26/05 17:07	7/26/05 17:08	Lightning	Lightning	1
T1690	Niagara - Lockport #101	115	18,55	39.1	7/26/05 17:25	7/26/05 17:26	Lightning	Lightning	0
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	7/26/05 17:38	7/27/05 17:47	Vegetation	Tree Fell	1,448
T1530	Lockport - Mortimer #111	115	66.82	78.1	7/26/05 18:04	7/26/05 18:05	Lightning	Lightning	0
T1080	Dunkirk - Falconer #160	115	59.83	35.8	7/26/05 18:21	7/28/05 15:00	Vegetation	Tree Fell	2,679
T2160	Dewitt - Tilden #19	115	7.89	36.6	7/26/05 20:09	7/26/05 20:10	Lightning	Lightning	0
T2710	Tilden - Cortland #18	115	34.81	40.0	7/26/05 20:09	7/26/05 20:10	Lightning	Lightning	0
T2710	Tilden - Cortland #18	115	34.81	40.0	7/26/05 20:18	7/26/05 20:19	Lightning	Lightning	0
T5190	Greenbush - Stephentown #993	115	20.12	79.4	7/27/05 15:04	7/27/05 15:04	Lightning	Lightning	0
T4020	Boonville - Porter #1	115	27.1	86.3	7/28/05 11:51	7/28/05 11:51	Vegetation	Tree Fell	0
T1420	Huntley - Praxair #46	115	9.83	50.9	7/31/05 5:12	7/31/05 5:16	Substation Equipment	Reclosing Equipment	4
T5310	Leeds - Hurley Avenue #301	345	0.06	38.0	7/31/05 15:41	7/31/05 <u>1</u> 5:42	Weather	Weather	0
T1090	Dunkirk - Falconer #161	115	35.04	81.2	8/1/05 0:56	8/1/05 0:57	Unknown	Unknown	1
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	8/1/05 16:47	8/1/05 16:47	Lightning	Lightning	0
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	8/1/05 16:47	8/1/05 16:47	Lightning	Lightning	0
T3320	Taylorville - Boonville #5	115	- 31.13	79.4	<u>8/1</u> /05 17:00	8/1/05 17:01	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	8/1/05 17:00	8/1/05 17:01	Lightning	Lightning	0
T1000	Brunner - Sour Springs #118	115	4.6	57.6	8/1/05 19:43	8/1/05 19:43	Configuration	Configuration	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	8/1/05 19:43	8/1/05 19:43	Lightning	Lightning	0
T1540	Lockport - Mortimer #113	115	66.63	77.9	8/1/05 19:43	8/1/05 19:43	Lightning	Lightning	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	8/1/05 19:43	8/1/05 19:43	Lightning	Lightning	0
T1620	Mountain - Lockport #103	115	19.86	76.8	8/1/05 20:12	8/1/05 20:12	Unknown	Unknown	0
T1630	Mountain - Niagara #120	115	0.98	49.0	8/1/05 20:12	8/1/05 20:12	Unknown	Unknown	0
T4040	Boonville - Rome #4	115	26.71	76.6	8/1/05 20:41	8/3/05 0:30	Line Equipment	Conductor	1,669
T4060	Boonville - Rome #3	115	24.86	79.0	8/1/05 20:41	8/1/05 20:41	Lightning	Lightning	0
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	8/1/05 20:57	8/1/05 20:58	Substation Equipment	Circuit Breaker	0

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		N 885.5.							
12320	Lighthouse Hill - Clay #7	115	26.39	79.2	8/1/05 20:57	8/1/05 20:58	Substation Equipment	Circuit Breaker	0
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	8/1/05 20:57	8/1/05 20:58	Substation Equipment	Circuit Breaker	0
T4060	Boonville - Rome #3	115	24.86	79.0	8/1/05 21:18	8/1/05 21:19	Lightning	Lightning	0
T2670	Teall - Oneida #2	115	28,54	80,3	8/2/05 7:39	8/2/05 7:39	Weather	Weather	0
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	8/2/05 17:30	8/2/05 17:30	Substation Equipment	Bushing	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	8/2/05 17:30	8/2/0 <u>5 1</u> 7:30	Substation Equipment	Bushing	0
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	8/2/05 17:30	8/2/05 17:30	Substation Equipment	Circuit Breaker	0
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	8/3/05 13:06	8/3/05 13:07	Unknown	Unknown	1
T5750	Spier - Rotterdam #1	115	54.31	20.0	8/3/05 15:10	<u>B/3/05 15:11</u>	Lightning	Lightning	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	8/3/05 15:10	8/3/05 15:11	Lightning	Lightning	0
T5950	Indeck Corinth - Spier #18	115	3.8	#N/A	8/3/05 15:10	8/3/05 15:11	System Protection	Relay	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	8/3/05 18:15	8/3/05 18:16	Lightning	Lightning	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	8/3/05 18:17	8/3/05 18:18	Lightning	Lightning	0
T5730	Spier - Queensbury #5	115	10.41	56.6	8/4/05 11:04	8/4/05 11:28	External	Generator	24
T5760	Spier - Rotterdam #2	115	51.21	62.0	8/4/05 11:04	8/4/05 11:28	External	Generator	24
T5950	Indeck Corinth - Spier #18	115	3.8	#N/A	8/4/05 11:04	8/4/05 11:28	External	Generator	24
T6070	Spier - Mohican #7	115	9.46	79.0	8/4/05 11:04	8/4/05 11:28	External	Generator	24
T5900	Whitehall - Mohican #13	115	25.81	77,6	8/4/05 14:25	8/4/05 14:26	Lightning	Lightning	0
T5910	Whitehall - Cedar #6	115	24.25	70.9	8/4/05 14:25	8/4/05 14:26	Lightning	Lightning	0
T5970	Queensbury - Cedar #10	115	3.63	70.9	B/4/05 14:26	8/4/05 14:27	Unknown	Unknown	0
T5180	Greenbush - Hudson #15	115	30.37	74.5	8/5/05 11:42	8/5/05 11:42	System Protection	Relay	0
T5910	Whitehall - Cedar #6	115	24.25	70.9	8/6/05 18:52	8/6/05 18:52	Unknown	Unknown	0
T4110	Levitt - Rome #8	115	22.88	41.4	8/13/05 1:06	8/13/05 2:16	Unknown	Unknown	69
T4250	Rome - Oneida #1	115	12.31	64.3	8/13/05 1:07	8/13/05 1:07	Lightning	Lightning	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79,6	8/14/05 9:52	8/14/05 9:52	Weather	Weather	0
T2350	Nine Mile Point Unit One - Clay #8	345	26.5	41,8	8/18/05 9:49	8/18/05 11:17	External	Generator	88
T2370	Nine Mile Point Unit One - Scriba #9	345	0.4	23.0	8/18/05 9:49	8/18/05 11:17	External	Generator	88
T6150	Hook Road - Elbridge #7	115	54,75	82.6	8/18/05 13:02	8/18/05 13:03	Unknown	Unknown	0
T3080	Browns Falls - Taylorville #3	115	26.77	86,4	8/18/05 19:15	8/18/05 19:15	Unknown	Unknown	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	8/19/05 5:45	8/19/05 5:46	Lightning	Lightning	1
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	8/19/05 5:45	8/19/05 5:46	Lightning	Lightning	1
T1590	Mortimer - Pannell Road #24	115	15.71	92.6	8/20/05 21:51	8/21/05 5:53	External	Foreign Utility	482
T1000	Brunner - Sour Springs #118	115	4.6	57.6	8/27/05 2:05	8/27/05 2:06	Unknown	Unknown	1
T1550	Lockport - Mortimer #114	115	60.3	58.0	8/27/05 2:05	8/27/05 2:06	Unknown	Unknown	1
T5770	Spier - West #9	115	16.6	64,8	8/27/05 20:47	8/27/05 20:48	Configuration	Configuration	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	8/27/05 20:47	8/27/05 20:48	Substation Equipment	Capacitor	0
T1100	Dunkirk - Falconer #162	115	35.51	81.2	8/30/05 12:03	8/30/05 12:04	Unknown	Unknown	1
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		445		en e dâj areje j		A 4 1 101 101 101 101		Tee	
11330	Hartrield - Moons Switches #159	115	9.4	52.6	8/30/05 12:03	8/30/05 12:04			
11690	Niagara - Lockport #101	115	18.55	39.1	8/31/05 5:02	8/31/05 5:03	Weather	vveather	
15760	Spier - Rotterdam #2	115	51.21	62.0	8/31/05 8:12	8/31/05 8:12	vveatrier	vveather	
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	8/31/05 12:25	8/31/05 12:26	vveatner	vveatner	
T1690	Niagara - Lockport #101	115	18.55	39.1	9/2/05 12:55	9/2/05 12:55		Guy	0
T3000	Alcoa - Dennison #12	115	2.47	32.0	9/2/05 19:35	9/2/05 19:40	Other	Human Error	5
T5730	Spier - Queensbury #5	115	10.41	56.6	9/13/05 21:03	9/13/05 22:48	External	Generator	105
T5760	Spier - Rotterdam #2	115	51.21	62.0	9/13/05 21:03	9/13/05 22:47	External	Generator	104
T6070	Spier - Mohican #7	115	9.46	79.0	<u>9/13/05 21:03</u>	9/13/05 22:47	External	Generator	104
T5950	Indeck Corinth - Spier #18	115	3.8	#N/A	9/13/05 21:07	9/13/05 22:48	External	Generator	100
T5750	Spier - Rotterdam #1	115	54.31	20.0	9/15/05 12:10	9/15/05 12:11	Lightning	Lightning	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	9/15/05 12:10	9/15/05 12:11	Lightning	Lightning	0
T1590	Mortimer - Pannell Road #24	115	15.71	92.6	9/16/05 9:32	9/16/05 9:33	Lightning	Lightning	0
T1600	Mortimer - Pannell Road #25	115	15.72	83.8	9/16/05 9:32	9/16/05 9:33	Lightning	Lightning	0
T1890	Southeast Batavia - Golah #119	115	28.39	58.1	9/16/05 11:33	9/16/05 20:58	Lightning	Lightning	565
T1000	Brunner - Sour Springs #118	115	4.6	57.6	9/18/05 4:33	9/18/05 4:34	Configuration	Тар	1
T1550	Lockport - Mortimer #114	115	60.3	58,0	9/18/05 4:33	9/18/05 4:34	Unknown	Unknown	1
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	9/20/05 5:47	9/20/05 5:47	Lightning	Lightning	0
T3080	Browns Falls - Taylorville #3	115	26.77	86.4	9/20/05 6:58	9/20/05 6:58	Weather	Weather	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	9/20/05 6:58	9/20/05 6:58	Weather	Weather	0
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	9/20/05 8:27	9/20/05 8:27	Lightning	Lightning	0
T6180	Corning - Battle Hill #4	115	25.2	78.8	9/21/05 10:39	9/21/05 10:39	Unknown	Unknown	0
T3340	Taylorville - Moshier #7	115	11.21	79.9	9/26/05 6:13	9/26/05 12:28	Line Equipment	Conductor	374
T5810	Ticonderoga - Republic #2	115	23.3	70.2	9/28/05 5:47	9/28/05 11:18	Other	Logger	330
T6060	Mohican - North Troy #3	115	37.39	79.0	9/28/05 8:42	9/28/05 8:42	Unknown	Unknown	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	9/28/05 13:28	9/28/05 13:28	Unknown	Unknown	0
T1160	Falconer - Homer Hill #153	115	43.93	78.2	9/29/05 5:28	9/29/05 5:29	Weather	Weather	0
T1170	Falconer - Homer Hill #154	115	44.03	77.7	9/29/05 5:28	9/29/05 5:29	Unknown	Unknown	1
T2100	Clay - Teall #11	115	13.85	58.9	9/29/05 8:17	10/1/05 14:52	Line Equipment	Tower (Steel Structure)	3,274
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	9/29/05 8:53	9/29/05 8:53	Vegetation	Tree Fell	0
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	9/29/05 8:56	9/30/05 14:03	Vegetation	Tree Fell	1,747
T4020	Boonville - Porter #1	115	27.1	86.3	9/29/05 9:17	9/30/05 20:22	Line Equipment	Conductor	2,105
T4030	Boonville - Porter #2	115	27.1	86,1	9/29/05 9:17	9/29/05 9:17	Vegetation	Tree Fell	0
T5770	Spier - West #9	115	16.6	64.8	9/29/05 11:04	9/29/05 11:04	Weather	Weather	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	9/29/05 11:04	9/29/05 11:04	Weather	Weather	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	9/29/05 11:04	9/29/05 11:05	Weather	Weather	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	9/29/05 11:10	9/29/05 11:10	Weather	Weather	ō
10010	noonderoga - nepublic #2		20.0	, ,,,,	0.20.00 11.10	0120100 11.10			

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T3280	Melature - Colton #8	115	37.65	72.2	9/29/05 12:22	0/20/05 19:27	Vecetation		1 804
T5770	Spier - West #9	115	16.6	64.9	9/29/05 12:22	9/30/05 13:53	Weather	Weather	1,004
T5880	Warrensburg - Scofield Road #10	115	10.0	85.0	9/29/05 13:53	9/29/05 13:53	Weather	Weather	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	9/29/05 18:51	9/29/05 18:52	Weather	Weather	0
T1540	Lockport - Mortimer #113	115	66.63	77.9	9/29/05 18:51	10/1/05 18:29	Line Equipment	Conductor	2 857
T1550	Lockport - Mortimer #114	115	60.3	58.0	9/29/05 18:51	9/29/05 18:52	Weather	Weather	0
T2670	Teall - Oneida #2	115	28.54	80.3	10/1/05 18:12	10/1/05 18:12		Conductor	0
T2670	Teall - Oneida #2	115	28.54	80.3	10/1/05 18:15	10/1/05 18:15	Line Equipment	Conductor	0
T2670	Teatl - Oneida #2	115	28.54	80.3	10/1/05 18:16	10/1/05 18:17	Line Equipment	Conductor	0
T1250	Gardenville - Dunkirk #74	230	47.22	49.5	10/3/05 10:43	10/3/05 17:03	Substation Equipment	ther Substation Equipme	380
T5040	Altamont - New Scotland #20	115	8,48	80,3	10/3/05 12:56	10/3/05 12:56	Unknown	Unknown	0
T1000	Brunner - Sour Springs #118	115	4.6	57.6	10/5/05 23:31	10/5/05 23:32	Configuration	Reclose > 1 minute	1
T1550	Lockport - Mortimer #114	115	60,3	58.0	10/5/05 23:31	10/5/05 23:32	Unknown	Unknown	1
T2470	Oswego - Volney #11	345	13.4	35.0	10/10/05 8:25	10/10/05 8:25	Other	Human Error	0
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	10/11/05 23:16	10/11/05 23:16	Unknown	Unknown	0
T6210	Raymondville - Norfołk #1	115	2.4	77.8	10/14/05 0:08	10/14/05 3:44	Substation Equipment	Switch - Motor Operated	216
T2020	Ash - Temple #9	115	1.5	#N/A	10/15/05 19:36	10/15/05 19:37	Substation Equipment	Circuit Breaker	1
T5250	Inghams - Meco #15	115	30.9	66.9	10/19/05 19:39	10/19/05 19:39	Vegetation	Tree Fell	0
T5270	Inghams - Stoner #9	115	26.1	72.0	10/19/05 19:39	10/20/05 19:26	Vegetation	Tree Fell	1,427
T5800	Stoner - Rotterdam #12	115	29.83	72.0	10/19/05 19:39	10/19/05 21:04	Configuration	Shared Circuit	86
T5060	Battenkill - North Troy #10	115	23.42	79.0	10/19/05 23:23	10/20/05 4:00	Other	Animal	277
T5540	North Troy - Reynolds Road #16	115	11.57	73.5	10/19/05 23:23	10/20/05 4:00	Other	Animal	277
T5630	Rotterdam - Bear Swamp E205	230	43.78	47.7	10/28/05 23:29	10/29/05 5:28	System Protection	Relay	359
T1530	Lockport - Mortimer #111	115	66.82	78.1	11/2/05 19:30	11/3/05 19:46	Line Equipment	Splice	1,455
T5350	Maplewood - Menands #19	115	5.41	63.6	11/5/05 10:16	11/5/05 10:21	Substation Equipment	Circuit Breaker	5
T5400	Menands - Reynolds Road #2	115	2.49	72.6	11/5/05 10:16	11/5/05 10:16	Substation Equipment	Capacitor	0
T6010	Wolf Road - Menands #10	115	4.64	75.1	11/5/05 10:16	11/5/05 10:17	Substation Equipment	Capacitor	0
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	11/6/05 16:39	11/7/05 5:15	Line Equipment	Insulator	756
T1250	Gardenville - Dunkirk #74	230	47.22	49.5	11/6/05 16:55	11/7/05 21:08	Line Equipment	Static Wire	1,692
T4020	Boonville - Porter #1	115	<u>2</u> 7.1	86.3	11/6/05 17:20	11/6/05 17:20	Weather	Wind	0
T3150	Colton - Browns Falls #2	115	30,49	71.0	11/6/05 17:42	11/6/05 17:42	Weather	Wind	0
T1480	Kensington - Gardenville #45	115	6.16	55.6	1/6/05 17:45	11/8/05 8:50	Line Equipment	Suspension Hardware	2,345
T5810	Ticonderoga - Republic #2	115	23.3	70.2	11/9/05 6:17	11/9/05 6:17	Unknown	Unknown	0
T5820	Ticonderoga - Hague Road #4	115	1.35	70.2	11/9/05 6:17	11/9/05 6:17	Unknown	Unknown	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	11/9/05 6:17	11/9/05 6:17	Unknown	Unknown	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	11/9/05 11:06	11/10/05 12:58	Substation Equipment	Circuit Breaker	1,552
	Gardenville - Dunkirk #142	115	55.38	81.2	11/9/05 11:06	11/9/05 11:07	Weather	Storm	1

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8-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	the first operation and the selection	$\mathcal{J}_{m}^{\mathrm{odd}} \mathcal{J}_{m}^{\mathrm{odd}} \mathcal{J}_{m}^{\mathrm{odd}} \mathcal{J}_{m}^{\mathrm{odd}} \mathcal{J}_{m}^{\mathrm{odd}} \mathcal{J}_{m}^{\mathrm{odd}}$		$\int_{\mathbb{R}^{d}}    e^{-i \frac{1}{2} t} \int_{\mathbb{R}^{d}}    e^{-i \frac{1}{2} t} dt e^{-i \frac{1}{2} t} dt$	the first first the state of the second s	bahar per server setti	and the state of the second state of the secon	and the second	Kara an
									na den La navada
T1660	Niagara Cardonvillo #180	115	21.67	77.5	11/0/05 11:36	11/9/05 11:36	Lichtning	Lightging	0
T1780	Dackard - Gardenville #180	115	20.13	724	11/9/05 11:36	11/9/05 11:36	Lightning	Lightning	0
T1100	Dunkirk - Falconer #162	115	25.15	81.2	11/9/05 17:10	11/10/05 15:27	Vegetation		1 337
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	11/13/05 2:44	11/13/05 15:13		Splice	749
T1530	Lockport - Mortimer #111	115	66.82	78.1	11/13/05 10:57	11/13/05 10:58	System Protection	Relay	0
T1540	Lockport - Mortimer #113	115	66,63	77.9	11/13/05 10:57	11/14/05 4:15	Line Equipment	Suspension Hardware	1,037
T1550	Lockport - Mortimer #114	115	60,3	58.0	11/13/05 10:57	11/13/05 10:58	System Protection	Relay	0
T5920	Woodlawn - State Campus #12	115	11.43	75.1	11/16/05 9:59	11/16/05 10:00	Unknown	Unknown	0
T1720	Niagara - Packard #62	230	3.47	49.0	11/16/05 18:34	11/16/05 19:15	System Protection	Relay	40
T1800	Packard - Huntley #78	230	12.14	51.9	11/16/05 18:34	11/18/05 3:11	Line Equipment	Insulator	1,957
T3190	Dennison - Colton #5	115	28.45	30.1	11/19/05 4:26	11/19/05 4:26	Substation Equipment	Lightning Arrestor	0
T3100	Boundary Road - Dennison #1	115	0.02	#N/A	11/19/05 4:29	11/19/05 15:30	Substation Equipment	Lightning Arrestor	661
T3110	Boundary Road - Dennison #2	115	0.03	#N/A	11/19/05 4:29	11/19/05 4:29	Substation Equipment	Lightning Arrestor	0
T3180	Dennison - Colton #4	115	31.41	33.2	11/19/05 4:29	11/19/05 4:29	Substation Equipment	Lightning Arrestor	0
T3190	Dennison - Colton #5	115	28.45	30.1	11/19/05 4:29	11/19/05 15:13	Substation Equipment	Lightning Arrestor	644
T1540	Lockport - Mortimer #113	115	66.63	77.9	11/25/05 0:53	11/25/05 0:55	Substation Equipment	Reclosing Equipment	2
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	11/25/05 0:58	11/25/05 0:58	Line Equipment	Suspension Hardware	0
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	11/27/05 8:41	11/27/05 20:26	Line Equipment	Suspension Hardware	704
T1780	Packard - Gardenville #182	115	29.13	72.4	11/27/05 11:25	11/27/05 11:26	Other	Animal	2
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	11/28/05 14:59	11/28/05 17:15	Substation Equipment	ther Substation Equipme	136
T1210	Gardenville - Buffalo River Switch #145	115	12.61	47.8	11/28/05 18:03	11/28/05 18:04	Unknown	Unknown	0
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	11/29/05 8:34	11/29/05 15:26	Vegetation	Tree Fell	411
T3180	Dennison - Colton #4	115	31.41	33.2	11/29/05 10:23	11/29/05 10:24	Weather	Wind	0
T3150	Colton - Browns Falls #2	115	30.49	71.0	11/29/05 10:47	11/29/05 10:47	Weather	Wind	0
T3170	Colton - Malone #3	115	20,85	70.1	11/29/05 11:38	11/29/05 19:57	Vegetation	Tree Growth	499
T5330	Leeds - Pleasant Valley #92	345	38.84	47.9	11/30/05 10:00	11/30/05 10:00	Other	Human Error	0
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	12/21/05 13:51	12/21/05 14:50	Other	Vehicle	59
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	12/24/05 16:46	12/24/05 16:46	Unknown	Unknown	0
T1530	Lockport - Mortimer #111	115	66.82	78,1	12/25/05 10:09	12/25/05 10:10	Unknown	Unknown	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	12/25/05 14:51	12/26/05 15:26	Line Equipment	Splice	1,475
T5900	Whitehall - Mohican #13	115	25.81	77.6	12/26/05 19:23	12/26/05 19:24	Unknown	Unknown	00
T1510	Lockport - Batavia #112	115	34.13	76.6	12/28/05 16:00	12/31/05 0:27	Line Equipment	Splice	3,387
T1560	Mortimer - Hook Road #1	115	21.35	81.8	12/29/05 7:34	12/29/05 7:34	Unknown	Unknown	0
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	1/3/06 7:16	1/3/06 7:17	Unknown	Unknown	0
T1660	Niagara - Gardenville #180	115	31.67	77.5	1/4/06 9:50	1/4/06 9:50	Other	Animal	0
T1660	Niagara - Gardenville #180	115	31.67	77.5	1/4/06 10:00	1/4/06 10:01	Other	Animal	0
T1230	Gardenville - Depew #54	115	7.26	53.9	1/10/06 10:28	1/10/06 10:51	Other	Animal	23

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T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/10/06 10.28         1/10/06 10.51         Other         Animal         23           T1280         Gardenville - Senoca 881         115         2.42         60.8         1/10/06 10.28         1/10/06 10.51         Other         Animal         24           T1380         Huntley - Gardenville #45         115         6.16         55.6         1/10/06 10.28         1/10/06 10.28         Other         Animal         24           T1660         Misgara - Gardenville #45         115         51.17         71.71         1/10/06 10.28         1/10/06 13.2         Other         Animal         534           T1520         Lockport - Montime #111         115         61.68         7.61         1/16/06 3.37         1/16/06 3.37         Une Supment         Insulator         221           T320         Taylorville - Boonville #5         115         31.13         7.4         1/16/06 6.10         Une Supment         Mind         1           T320         Taylorville - Boonville #5         115         31.13         7.4         1/16/06 6.10         Une Supment         Supt         Supt         Supt         Supt         Supt         Supment         Supt         Supt <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>010001</th></td<>										010001
Tr270         Gardenville - Dunkik # 42         115         55.8.8         61.2         11/10/06 10.28         11/10/06 10.51         Other         Animal         23           T1290         Gardenville #39         115         2.42         60.8         11/10/06 10.28         11/10/06 10.25         Other         Animal         24           T1300         Huntley-Gardenville #39         115         2.4.41         77.1         11/10/06 10.28         11/10/06 10.20         Other         Animal         24           T1800         Kansington-Gardenville #10         115         3.1.67         77.5         11/10/06 10.28         11/10/06 12.20         Other         Animal         24           T1830         Lockport-Montimer #111         115         66.62         78.1         11/16/06 4.39         11/14/06 3.30         Undershift         Line Equipment         Splice         0           T330         Taylorville-Boonville #5         115         31.13         79.4         11/18/06 6.10         Undershift         Undershift         1.4           T330         Taylorville-Boonville #5         115         31.13         79.4         11/18/06 6.10         Undershift         Undershift         0           T3300         Taylorville-Boonville #5         115										
T1270         Gardenville - Dunkire H12         115         55.88         81.2         1/10/06 10.28         1/10/06 10.51         Other         Animal         23           T1290         Gardenville + Senea #81         115         2.62         55.80         1/10/06 10.28         1/10/06 10.29         Other         Animal         24           T1390         Huntley - Gardenville + 30         115         2.41         77.1         1/10/06 10.28         1/10/06 10.22         Other         Animal         24           T1800         Kensington - Gardenville + 30         115         31.67         77.5         1/10/06 10.28         1/10/06 10.22         Other         Animal         23           T1320         Cotton - Brownite + 51         115         31.13         77.4         1/10/06 10.28         1/10/06 10.27         Line Egupment         Instattor         1/4           T320         Cotton - Brownite + 51         115         31.13         79.4         1/18/06 510         Ural State Wire         Splce         0           T320         Taylonille - Boonnite + 51         115         31.13         79.4         1/18/06 510         Ural State Wire         Splce         0           T320         Taylonille - Boonnite + 55         115         32.57										
T1290         Gardenvile - Senec. 811         115         2.62         50.8         117/006 10.28         117/006 10.49         Other         Animal         2.1           T1390         Hundley - Gardenville 845         115         6.16         55.6         117/006 10.28         117/006 10.28         Other         Animal         2.1           T1800         Misgara - Gardenville 845         115         9.167         7.7         117/006 10.28         117/006 10.28         Other         Animal         2.3           T1520         Lockport - Mortiner #111         115         61.62         7.6         117/006 10.28         117/016 5.0         Une Equipment         Sales         7.1         117/0166 10.28         Weather         Wind         1.4         1.4           T1530         Lockport - Mortine #11         115         30.14         7.1         117/006 10.28         117/016 5.10         Une Equipment         Sales         0.1         1.1	T1270	Gardenville - Dunkirk #142	115	55.38	81.2	1/10/06 10:28	1/10/06 10:51	Other	Animal	23
Titspo         Huntley - Garderwile #39         115         24.41         77.1         1/10/06 10.28         1/10/06 10.52         Other         Anmail         21.           T1480         Kensington - Garderwille #30         115         616         75.56         1/10/06 10.22         Other         Anmail         534           Tisso         Lockport         Monital #56         1115         31.67         77.5         1/10/06 10.22         Other         Anmail         534           Tisso         Lockport         Monital #56         115         31.13         78.4         1/16/06 4.39         1/17/06 5.30         Line Equipment         State Wire         1.491           Tisso         Colton - Brownik #61 #2         115         31.13         77.4         1/16/06 5.10         1/16/06 5.10         Line Equipment         State Wire         1.491           Tisso         Taylorille - Boonville #5         115         31.13         77.4         1/18/06 7.10         1/18/06 6.10         Line Equipment         State Wire         0           Tisso         Taylorille - Boonville #5         115         31.13         77.4         1/18/06 7.20         Weather         Wind         0           Tisso         Taylorille - Boonville #5         115         31.13	T1290	Gardenville - Seneca #81	115	2.62	50.8	1/10/06 10:28	1/10/06 10:51	Other	Animal	24
Trisdo         Kensington - Gardenville #45         115         6.16         55.6         1/10/06 10.22         Other         Animal         24           T1660         Niagata - Gardenville #16         115         31.67         77.5         1/10/06 10.22         1/10/06 12.2         Other         Animal         534           T320         Taylorville - Boonville #5         115         31.67         78.1         1/10/06 10.28         1/10/06 12.2         Other         Animal         534           T1500         Colon - Boonville #5         115         31.13         78.4         1/16/06 3.37         1/16/06 3.38         Weather         Wind         1           T3300         Taylorville - Boonville #5         115         31.13         78.4         1/18/06 8.10         1/18/06 8.10         Weather         Wind         0           T3200         Taylorville - Boonville #5         115         31.13         79.4         1/18/06 7.20         1/18/06 8.10         Weather         Nind         0         0           T3200         Taylorville - Boonville #5         115         31.13         79.4         1/18/06 7.20         1/18/06 7.20         Weather         Line Equipment         Issulator         1/18/06 7.20           T3200         Taylorville - B	T1390	Huntley - Gardenville #39	115	24.41	77.1	1/10/06 10:28	1/10/06 10:49	Other	Animal	21
Trisco         Niagara - Gardenville #180         115         31,77         77.5         1/10/06 19.28         Utice Equipment         Annal         534           T3320         Tayloville - Boowille #3         1115         31,13         79.4         1/14/06 9.30         Line Equipment         Insulator         281           T3320         Calton - Brown Falls #2         115         30,49         71.0         1/16/06 3.37         1/18/06 5.10         Line Equipment         Splice         0           T3320         Tayloville - Boowille #5         115         31.13         79.4         1/18/06 5.10         Line Equipment         Splice         0           T3320         Tayloville - Boowille #5         115         31.13         79.4         1/18/06 5.10         Unles Equipment         Splice         0           T3320         Tayloville - Boowille #5         115         31.13         79.4         1/18/06 7.20         1/18/06 1.10         Line Equipment         Insulator         405           T3320         Tayloville - Boowille #5         115         31.13         79.4         1/18/06 7.20         1/18/06 1.01         Line Equipment         Insulator         405           T3330         Tayloville - Boowille #5         115         31.13         79.4	T1480	Kensington - Gardenville #45	115	6.16	55,6	1/10/06 10:28	1/10/06 10:52	Other	Animal	24
Taylorville         Pair Normal         Pair Normal	T1660	Niagara - Gardenville #180	115	31.67	77.5	1/10/06 10:28	1/10/06 19:22	Other	Animal	534
T1530         Lockport - Mortimer #111         115         66.82         78.1         1/16/06.339         1/17/06.530         Line Equipment         Static Wire         1.491           T3150         Colton - Browns Falls #2         115         30.49         71.0         1/18/06.338         Weather         Wind         1           T3320         Taylorville - Boorville #5         115         37.35         80.8         1/18/06.10         1/18/06.610         Weather         Wind         0           T3320         Taylorville - Boorville #5         115         31.13         79.4         1/18/06.610         Line Equipment         Splice         0           T3320         Taylorville - Boorville #5         115         31.13         79.4         1/18/06.720         1/18/06.720         Weather         Ice         0         0           T3320         Taylorville - Boorville #5         115         32.82         48.7         1/18/06.720         1/18/06.720         Weather         Ice         0	T3320	Taylorville - Boonville #5	115	31.13	79.4	1/14/06 9:06	1/14/06 13:47	Line Equipment	Insulator	281
T3150         Colton - Browns Falls #2         115         30.49         71.0         11/18/06 6:10         Unkers         Weather         Wind         1           T3200         Taylorville - Boorville #6         115         37.35         80.8         11/18/06 6:10         Unkers         Weather         Wind         0           T3320         Taylorville - Boorville #5         115         37.13         79.4         11/18/06 6:10         11/18/06 6:10         Line Equipment         Splice         0           T3320         Taylorville - Boorville #5         115         37.13         79.4         11/18/06 7.20         11/18/06 7.20         Weather         Loc         0           T3320         Taylorville - Boorville #2         115         32.75         80.8         11/18/06 7.20         11/18/06 7.20         Weather         Loc         0           T3300         Black River         Taylorville #2         115         32.67         13.4         11/19/06 3.33         11/18/06 7.20         Weather         Loc         0           T3300         Coton - Battle Hill #7         115         32.67         43.4         11/19/06 3.33         11/31/06 15.52         Unknown         Unknown         0           T3300         Cototon -Battle Hill #7	T1530	Lockport - Mortimer #111	115	66.82	78.1	1/16/06 4:39	1/17/06 5:30	Line Equipment	Static Wire	1,491
Taylor Ville - Boonville #5         115         31.13         79.4         //18/06.610         //18/06.610         Line Equipment         Splice         0           T3320         Taylorville - Boonville #5         115         31.13         79.4         //18/06.610         1/18/06.611         Line Equipment         Splice         0           T3320         Taylorville - Boonville #5         115         31.13         79.4         //18/06.720         //18/06.611         Line Equipment         Issuer         Apjace         0           Taylorville - Boonville #5         115         32.12         79.4         //18/06.720         //18/06.720         Weather         Ice         0           T3300         Taylorville #6         115         32.27         43.4         //18/06.720         Weather         Ice         0           T3400         Homer Hill =Bonent Road #157         115         32.27         43.4         //18/06.512         Unknown         Unknown         0           T3200         Colton - Battle Hill #7         115         32.7         43.4         Unknown         Unknown         0           T1200         Indeck Oswego - Liphnouse Hill #2         115         82.5         87.2         2/11/06.75.2         2/1106.65.6         Unknown	T3150	Colton - Browns Falls #2	115	30.49	71.0	1/18/06 3:37	1/18/06 3:38	Weather	Wind	1
Taylorville - Boonville #6         115         37.35         80.8         1/18/06 6:10         1/18/06 6:10         Weather         Wind         0           T3320         Taylorville - Boonville #5         115         31.13         79.4         1/18/06 6:10         1/18/06 14.04         Line Equipment         Splice         0           Taylorville - Boonville #5         115         31.13         79.4         1/18/06 7.20         1/18/06 14.04         Line Equipment         Insulator         405           T3320         Taylorville - Boonville #5         115         32.82         48.7         1/18/06 7.20         1/18/06 7.20         Weather         Ice         0           T3060         Black River - Taylorville #2         115         32.82         48.7         1/18/06 9.38         Other         Human Error         4           T3030         Colton - Battle Hill #7         115         32.58         74.5         1/31/06 15.52         Unknown         Unknown         0           T12300         Garderoville - Homer Hill #152         115         82.6         87.2         2/11/06 6:55         Unknown         Unknown         0           T1240         Huntley - Praxit #46         115         9.83         50.9         2/11/06 6:31         2/11606 6:31	T3320	Taylorville - Boonville #5	115	31.13	79.4	1/18/06 6:10	1/18/06 6:10	Line Equipment	Splice	0
T320         Taylorville - Boonville #5         115         31.13         79.4         1/18/06 6:10         1/18/06 4:104         Line Equipment         Splice         0           T3320         Taylorville - Boonville #5         115         31.13         79.4         1/18/06 7:20         1/18/06 4:04         Line Equipment         Insulator         405           T3300         Taylorville - Boonville #2         115         32.82         48.7         1/18/06 7:20         1/18/06 9:38         Other         Human Him         Loc         0           T3400         Homer Hill - Bennet Road #167         115         32.57         43.4         1/19/06 9:33         Other         Human Error         4           T3300         Colton - Battle Hill #7         115         34.76         74.5         1/31/06 15.52         1/31/06 15.52         Unknown         Unknown         0           T3200         Moleck Oswego - Lighthouse Hill #2         115         42.6         48.0         2/4/06 23.30         External         Foreign Unlity         3           T1420         Humtle - Homer Hill #152         115         8.7         77.6         2/1/106 6:55         2/11/06 6:31         Unknown         Unknown         0           T420         Boonville - Rome Hill #152         <	T3330	Taylorville - Boonville #6	115	37.35	80.8	1/18/06 6:10	1/18/06 6:10	Weather	Wind	0
T3320         Taylorville -Boenville #5         115         31.13         79.4         1/18/06 1/20         1/18/06 1/20         Line Equipment         Insulator         405           T3330         Taylorville -Boenville #6         115         37.35         80.8         1/18/06 7:20         1/18/06 7:20         Weather         Ice         0           T3360         Black River Taylorville #2         115         32.82         48.7         1/18/06 21.07         Weather         Ice         0           T3300         Colton - Battle Hill #7         115         32.76         74.5         1/13/06 15.52         1/18/06 13.20         Unknown         Unknown         0           T3300         Colton - Battle Hill #7         115         25.81         77.6         22/06 7.34         Unknown         Unknown         0           T2300         Index Oswego - Lighthouse Hill #2         115         42.6         48.0         21/106 5:52         1/11/06 5:52         Unknown         Unknown         0         0           T1200         Gardenville -Homer Hill #162         115         2.6         7.7         21/106 7:05         21/106 7:06         Unknown         Unknown         0           T1200         Back Mills - Logene Hill #152         115         2.7	T3320	Taylorville - Boonville #5	115	31.13	79.4	1/18/06 6:10	1/18/06 6:11	Line Equipment	Splice	0
T3300         Taylorville #6 00rville #6         115         37.35         80.8         1/18/06 7:20         Weather         Ice         0           T3060         Black River Taylorville #2         115         32.82         48.7         1/18/06 21:07         Weather         Ice         0           T3400         Homer Hill - Bennett Road #157         115         52.57         43.4         1/19/06 9:33         Other         Human Error         4           T3300         Colton - Battle Hill #7         115         32.76         7.4.5         1/13/106 15:52         Unknown         Unknown         0           T3300         Indeck Oswego - Lighthouse Hill #2         115         42.5         48.0         2/4/06 23:38         2/4/06 23:40         External         Foreign Utility         3           T1420         Gardenville - Homer Hill #152         115         82.5         67.2         2/11/06 7:05         2/11/06 7:01         Unknown         Unknown         0           T4200         Huntley - Praxai #46         115         9.83         50.9         2/11/06 7:03         2/11/06 7:01         Unknown         Unknown         0           T420         Boonville - Rome #4         115         26.71         76.6         2/15/06 6:31         2/15/06 6:3	T3320	Taylorville - Boonville #5	115	31.13	79.4	1/18/06 7:20	1/18/06 14:04	Line Equipment	Insulator	405
T3060         Black River - Taylorville #2         115         32.82         48.77         1/18/06 21:07         Weather         Ice         0           T1340         Homer Hill - Bennett Road #157         115         52.57         43.4         1/19/06 9:33         1/19/06 9:38         Other         Human Error         4           T3030         Colton - Battle Hill #7         115         32.76         74.5         1/31/06 15:52         Unknown         Unknown         0           T2300         Indeck Oswego - Lighthouse Hill #2         115         42.6         48.0         2/4/06 23:38         2/4/06 23:40         External         Foreign Utility         3           T12300         Gardenville - Homer Hill #152         115         82.5         87.2         2/11/06 6:55         Unknown         Unknown         0           T4420         Huntley - Praxiar #46         115         9.83         50.9         2/11/06 6:55         Unknown         Unknown         Unknown         0           T5280         Johnson Road - Maplewood #12         115         27.7         #NA         2/16/06 9:23         2/17/06 4:32         Weather         Wind         0           T1600         Niagara - Gardenville #18         115         44.03         77.7         2/17/	T3330	Taylorville - Boonville #6	115	37.35	80.8	1/18/06 7:20	1/18/06 7:20	Weather	Ice	0
T1340         Homer Hill - Bennett Road #157         115         52.57         43.4         1/19/06 9:33         1/19/06 9:38         Other         Human Error         4           T3030         Colton - Battle Hill #77         115         34.76         74.5         1/13/06 15:52         Unknown         Unknown         0           T3030         Whitehall - Mohican #13         115         25.81         77.6         2/3/06 7:33         2/3/06 7:34         Unknown         Unknown         0           T2300         Index Oswego - Lighthouse Hill #2         115         42.6         48.0         2/4/06 23:38         2/4/06 23:40         External         Foreign Utility         3           T1280         Gardenville - Homer Hill #152         115         82.6         87.2         2/11/06 7:05         2/11/06 6:56         Unknown         Unknown         5           T4420         Huntley - Praxait #46         115         2.6.7         76.6         2/15/06 6:31         Unknown         Unknown         0         0           T3080         Browns Falls - Taylorville #3         115         2.6.77         86.4         2/17/06 5:38         2/17/06 5:38         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115	T3060	Black River - Taylorville #2	115	32.82	48.7	1/18/06 21:07	1/18/06 21:07	Weather	Ice	0
T3030         Colton - Battle Hill #7         115         34,76         74,5         1/31/06 15:52         Unknown         Unknown         0           T5900         Whitehall - Mohican #13         115         25.61         77.6         2/3/06 7:33         2/3/06 7:34         Unknown         Unknown         0           T3200         Index Oxego - Lighthouse Hill #2         115         42.6         48.0         2/3/06 7:33         2/3/06 7:34         Unknown         Unknown         0           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         2/1/106 6:55         2/11/06 7:05         Unknown         Unknown         0           T420         Huntley - Fraxair #46         115         9.83         50.9         2/11/06 7:05         2/11/06 7:10         Unknown         Unknown         0           T420         Boonville - Romer Hill #152         115         2.7         #N/A         2/16/06 9:23         2/16/06 9:24         Other         Animal         0           T3080         Browns Fails - Taylorville #3         115         2.7         #N/A         2/17/06 5:38         2/17/06 5:38         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03<	T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	1/19/06 9:33	1/19/06 9:38	Other	Human Error	4
T5900         Whitehall - Mohican #13         115         25.81         77.6         2/3/06 7:33         2/3/06 7:34         Unknown         Unknown         0           T2300         Index Oswego - Lighthouse Hill #2         115         42.6         48.0         2/4/06 23:38         2/4/06 6:56         Unknown         Unknown         0           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         2/11/06 6:55         2/11/06 6:55         Unknown         Unknown         0           T1420         Huntley - Praxair #46         115         9.83         50.9         2/11/06 7:05         2/11/06 6:31         Unknown         Unknown         Somword         0           T5290         Johnson Road - Maplewood #12         115         2.7         #N/A         2/16/06 9:23         2/16/06 9:24         Other         Animal         0           T3080         Browns Falls - Taylorville #3         115         26.7         7.6         2/17/06 4:32         2/17/06 5:38         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         34.03         77.7         2/17/06 6:32         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154	T3030	Colton - Battle Hill #7	115	34.76	74.5	1/31/06 15:52	1/31/06 15:52	Unknown	Unknown	0
T2300         Indeck Oswego - Lighthouse Hill #2         115         42.6         48.0         2/4/06 23:88         2/4/06 23:40         External         Foreign Utility         3           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         2/11/06 6:56         2/11/06 6:56         Unknown         Unknown         0           T1420         Huntley - Praxii #46         115         9.83         50.9         2/11/06 7:05         2/11/06 7:05         Unknown         Unknown         5           T4040         Boonville - Rome #4         115         26.71         76.6         2/15/06 6:31         2/16/06 9:24         Other         Animal         0           T3080         Browns Falls - Taylorville #3         115         26.71         78.6         2/17/06 4:32         2/17/06 4:32         Weather         Mind         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:32         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03	T5900	Whitehall - Mohican #13	115	25.81	77.6	2/3/06 7:33	2/3/06 7:34	Unknown	Unknown	0
T1280         Gardenville - Homer Hill #152         115         82.5         67.2         2/11/06 6:55         2/11/06 6:56         Unknown         Unknown         0           T1420         Huntley - Praxair #46         115         9.83         50.9         2/11/06 7:05         2/11/06 7:10         Unknown         Unknown         5           T4040         Boonville - Rome #4         115         26.7         76.6         2/15/06 6:31         2/16/06 9:24         Other         Animal         0           T3080         Browns Falls - Taylorville #3         115         26.77         86.4         2/17/06 4:32         2/17/06 4:32         Weather         Wind         0           T1600         Niagara - Gardenville #180         115         31.67         77.5         2/17/06 6:32         2/17/06 5:38         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154	T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	2/4/06 23:38	2/4/06 23:40	External	Foreign Utility	3
T1420         Huntley - Praxair #46         115         9.83         50.9         2/11/06 7:05         2/11/06 7:10         Unknown         Unknown         5           T4040         Boonville - Rome #4         115         28.71         76.6         2/15/06 6:31         2/15/06 6:31         Line Equipment         Conductor         0           T5290         Johnson Road - Maplewood #12         115         2.7         #N/A         2/16/06 9:23         2/16/06 9:24         Other         Animal         0           T3080         Browns Falls - Taylorville #3         115         26.77         86.4         2/17/06 4:32         Weather         Wind         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 5:38         2/17/06 3:24         Unknown         Unknown         130           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:24         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03	T1280	Gardenville - Homer Hill #152	115	82.5	87.2	2/11/06 6:55	2/11/06 6:56	Unknown	Unknown	0
T4040         Boonville - Rome #4         115         26.71         76.6         2/15/06 6:31         2/15/06 6:31         Line Equipment         Conductor         0           T5290         Johnson Road - Maplewood #12         115         2.7         #N/A         2/16/06 9:23         2/16/06 9:24         Other         Animal         0           T3080         Browns Falls - Taylorville #3         115         26.77         86.4         2/17/06 4:32         Weather         Wind         0           T1170         Falconer - Homer Hill #154         115         24.03         77.7         2/17/06 5:38         2/17/06 8:22         Weather         Wind         0           T160         Niagara - Gardenville #180         115         31.67         77.5         2/17/06 6:32         2/17/06 8:22         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         9.52	T1420	Huntley - Praxair #46	115	9.83	50.9	2/11/06 7:05	2/11/06 7:10	Unknown	Unknown	5
T5290       Johnson Road - Maplewood #12       115       2.7       #N/A       2/16/06 9:23       2/16/06 9:24       Other       Animal       0         T3080       Browns Falls - Taylorville #3       115       26.77       86.4       2/17/06 4:32       2/17/06 4:32       Weather       Wind       0         T1170       Falconer - Homer Hill #154       115       44.03       77.7       2/17/06 5:38       2/17/06 5:38       Vegetation       Tree Fell       0         T1170       Falconer - Homer Hill #154       115       44.03       77.7       2/17/06 6:13       2/17/06 6:22       Vegetation       Tree Fell       0         T1170       Falconer - Homer Hill #154       115       44.03       77.7       2/17/06 6:22       2/17/06 6:23       Vegetation       Tree Fell       0         T1170       Falconer - Homer Hill #154       115       44.03       77.7       2/17/06 6:28       2/17/06 6:28       Vegetation       Tree Fell       0         T1170       Falconer - Homer Hill #154       115       44.03       77.7       2/17/06 6:58       2/17/06 6:59       Line Equipment       Static Wire       0         T1180       Mortimer - Golah #110       115       9.52       59.5       2/17/06 7:03       2/17/06 7:04 <td>T4040</td> <td>Boonville - Rome #4</td> <td>115</td> <td>26.71</td> <td>76.6</td> <td>2/15/06 6:31</td> <td>2/15/06 6:31</td> <td>Line Equipment</td> <td>Conductor</td> <td>0</td>	T4040	Boonville - Rome #4	115	26.71	76.6	2/15/06 6:31	2/15/06 6:31	Line Equipment	Conductor	0
T3080         Browns Falls - Taylorville #3         115         26.77         86.4         2/17/06 4:32         2/17/06 4:32         Weather         Wind         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 5:38         2/17/06 5:38         Vegetation         Tree Fell         0           T1660         Niagara - Gardenville #180         115         31.67         77.5         2/17/06 6:22         2/17/06 6:22         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:22         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         2/17/06 6:28         Vegetation         Tree Fell         0           T1170         Falconer - Golah #110         115         9.52         59.5         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110	T5290	Johnson Road - Maplewood #12	115	2.7	#N/A	2/16/06 9:23	2/16/06 9:24	Other	Animal	0
T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 5:38         2/17/06 5:38         Vegetation         Tree Fell         0           T1660         Niagara - Gardenville #180         115         31.67         77.5         2/17/06 6:13         2/17/06 8:24         Unknown         Unknown         130           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         Vegetation         Tree Fell         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:03         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9	T3080	Browns Falls - Taylorville #3	115	26.77	86.4	2/17/06 4:32	2/17/06 4:32	Weather	Wind	0
T1660Niagara - Gardenville #18011531.6777.52/17/06 6:132/17/06 8:24UnknownUnknown130T1170Falconer - Homer Hill #15411544.0377.72/17/06 6:222/17/06 6:22VegetationTree Fell0T1170Falconer - Homer Hill #15411544.0377.72/17/06 6:222/17/06 6:23VegetationTree Fell0T1170Falconer - Homer Hill #15411544.0377.72/17/06 6:282/17/06 6:28VegetationTree Fell0T1170Falconer - Homer Hill #15411544.0377.72/17/06 6:282/17/06 6:29VegetationTree Fell0T1580Mortimer - Golah #1101159.5259.52/17/06 6:582/17/06 6:59Line EquipmentStatic Wire0T1580Mortimer - Golah #1101159.5259.52/17/06 7:032/17/06 7:04Line EquipmentStatic Wire0T1580Mortimer - Golah #1101159.5259.52/17/06 7:052/17/06 23:18Line EquipmentStatic Wire974T1170Falconer - Homer Hill #15411544.0377.72/17/06 7:322/17/06 7:33External0T1170Falconer - Golah #1101159.5259.52/17/06 7:322/17/06 7:33External0T1170Falconer - Homer Hill #15411525.1188.02/17/06 7:322/17/06 7:33External0T1860Pannell (Sta.122) - Geneva (Border C	T1170	Falconer - Homer Hill #154	115	44.03	77.7	2/17/06 5:38	2/17/06 5:38	Vegetation	Tree Fell	0
T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:22         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         2/17/06 6:28         Vegetation         Tree Fell         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 6:58         2/17/06 6:59         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:03         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 7:04         Line Equipment         Static Wire         974           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:32         2/17/06 7:33         Line Equipment         Static Wire         0           T180	T1660	Niagara - Gardenville #180	115	31.67	77.5	2/17/06 6:13	2/17/06 8:24	Unknown	Unknown	130
T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:22         2/17/06 6:23         Vegetation         Tree Fell         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         2/17/06 6:28         Vegetation         Tree Fell         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 6:58         2/17/06 6:59         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:03         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 23:18         Line Equipment         Static Wire         0           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:32         2/17/06 7:33         External         0           T1860         Pannell (Sta.122) - Geneva	T1170	Falconer - Homer Hill #154	115	44.03	77.7	2/17/06 6:22	2/17/06 6:22	Vegetation	Tree Fell	0
T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 6:28         2/17/06 6:28         Vegetation         Tree Fell         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 6:58         2/17/06 6:59         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:03         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 23:18         Line Equipment         Static Wire         974           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:32         2/17/06 7:33         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 7:33         External         0           T1860         Pannell (Sta.122) - Geneva (Border C	T1170	Falconer - Homer Hill #154	115	44.03	77.7	2/17/06 6:22	2/17/06 6:23	Vegetation	Tree Fell	0
T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 6:58         2/17/06 6:59         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:03         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 23:18         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 23:18         Line Equipment         Static Wire         974           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:32         2/17/06 7:33         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 7:33         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 17:17         Unknown         Unknown         584           T1860         Pannell (Sta.122) -	T1170	Falconer - Homer Hill #154	115	44.03	77.7	2/17/06 6:28	2/17/06 6:28	Vegetation	Tree Fell	0
T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:03         2/17/06 7:04         Line Equipment         Static Wire         0           T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 23:18         Line Equipment         Static Wire         974           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:26         2/18/06 14:28         Vegetation         Tree Fell         1,862           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 7:33         External         0           T1570         Mortimer - Elbridge #2         115         71.99         42.0         2/17/06 7:32         2/17/06 17:17         Unknown         Unknown         584           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Bord	T1580	Mortimer - Golah #110	115	9.52	59.5	2/17/06 6:58	2/17/06 6:59	Line Equipment	Static Wire	0
T1580         Mortimer - Golah #110         115         9.52         59.5         2/17/06 7:05         2/17/06 23:18         Line Equipment         Static Wire         974           T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:26         2/18/06 14:28         Vegetation         Tree Fell         1,862           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 7:33         External         0           T1570         Mortimer - Elbridge #2         115         71.99         42.0         2/17/06 7:32         2/17/06 17:17         Unknown         Unknown         584           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4<	T1580	Mortimer - Golah #110	115	9.52	59.5	2/17/06 7:03	2/17/06 7:04	Line Equipment	Static Wire	0
T1170         Falconer - Homer Hill #154         115         44.03         77.7         2/17/06 7:26         2/18/06 14:28         Vegetation         Tree Fell         1,862           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 7:33         External         0           T1570         Mortimer - Elbridge #2         115         71.99         42.0         2/17/06 7:32         2/17/06 17:17         Unknown         Unknown         584           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         <	T1580	Mortimer - Golah #110	115	9.52	59.5	2/17/06 7:05	2/17/06 23:18	Line Equipment	Static Wire	974
T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 7:32         2/17/06 7:33         External         0           T1570         Mortimer - Elbridge #2         115         71.99         42.0         2/17/06 7:32         2/17/06 17:17         Unknown         Unknown         584           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         Foreign Utility         1,738	T1170	Falconer - Homer Hill #154	115	44.03	77.7	2/17/06 7:26	2/18/06 14:28	Vegetation	Tree Fell	1,862
T1570         Mortimer - Elbridge #2         115         71.99         42.0         2/17/06 7:32         2/17/06 17:17         Unknown         Unknown         584           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         0	T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	2/17/06 7:32	2/17/06 7:33	External		0
T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:20         2/17/06 8:21         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         Foreign Utility         1,738	T1570	Mortimer - Elbridge #2	115	71.99	42.0	2/17/06 7:32	2/17/06 17:17	Unknown	Unknown	584
T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:24         2/17/06 8:25         External         0           T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         2/17/06 8:26         2/18/06 13:24         External         0	T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	2/17/06 8:20	2/17/06 8:21	External		0
T1860 Pannell (Sta. 122) - Geneva (Border City) #4 115 25.11 88.0 2/17/06 8:26 2/18/06 13:24 External Foreign Utility 1,738	T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	2/17/06 8:24	2/17/06 8:25	External		0
	T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	2/17/06 8:26	2/18/06 13:24	External	Foreign Utility	1,738

Annual fransmission Circuit interruptions	Annual	Transmission	Circuit	Interruptions
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T2240	General Electric - Geres Lock #8	115	9.69	76.2	2/17/06 9:02	2/17/06 9:02	Line Equipment	Static Wire	0
T2270	Geres Lock - Solvay #2	115	1.32	80.5	2/17/06 9:02	2/17/06 9:02	Weather	Wind	0
T1660	Niagara - Gardenville #180	115	31.67	77.5	2/17/06 9:14	2/17/06 9:14	Weather	Wind	0
T3060	Black River - Taylorville #2	115	32.82	48.7	2/17/06 9:15	2/17/06 9:16	Weather	Wind	0
T2100	Clay - Teall #11	115	13.85	58.9	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2650	Teall - Dewitt #4	115	10.97	45.3	2/17/06 9:20	2/17/06 12:40	Line Equipment	Switch	200
T2660	Teall - Carr Street #6	115	4.03	42.8	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2670	Teall - Oneida #2	115	28.54	80.3	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2680	Teall - Oneida #5	115	30.59	78.2	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2000	Ash - Teall #7	115	3.45	#N/A	2/17/06 9:20	2/17/06 12:42	Weather	Wind	202
T2140	Curtis Street - Teall #13	115	33.47	64.9	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2690	Temple - Dewitt #10	115	6.87	41.1	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2040	Clay - Dewitt #3	115	20.46	60.7	2/17/06 9:20	2/18/06 7:04	Line Equipment	Static Wire	1,304
T2090	Clay - Teall #10	115	15.72	69.8	2/17/06 9:20	2/17/06 9:20	Weather	Wind	0
T2240	General Electric - Geres Lock #8	115	9.69	76.2	2/17/06 9:42	2/17/06 9:42	Line Equipment	Static Wire	0
T2270	Geres Lock - Solvay #2	115	1.32	80.5	2/17/06 9:42	2/17/06 21:48	Line Equipment	Static Wire	725
T3340	Taylorville - Moshier #7	115	11.21	79,9	2/17/06 9:43	2/19/06 20:32	Line Equipment	Static Wire	3,528
T3140	Colton - Browns Falls #1	115	30.45	71.0	2/17/06 9:46	2/18/06 23:44	Unknown	Unknown	2,277
T3150	Colton - Browns Falls #2	115	. 30.49	71.0	2/17/06 9:46	2/17/06 9:47	Weather ·	Wind	0
T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	2/17/06 9:47	2/17/06 9:47	Weather	Wind	0
T4040	Boonville - Rome #4	115	26.71	76.6	2/17/06 9:48	2/17/06 9:49	Weather	Wind	0
T3300	Ogdensburg - McIntyre #2	115	2,45	32.9	2/17/06 9:51	2/17/06 9:51	Weather	Wind	0
T4040	Boonville - Rome #4	115	26.71	76.6	2/17/06 9:53	2/17/06 9:54	Weather	Wind	0
T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	2/17/06 9:56	2/17/06 9:57	Weather	Wind	0
T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	2/17/06 10:02	2/17/06 10:02	Weather	Wind	0
T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	2/17/06 10:03	2/17/06 10:03	Weather	Wind	0
T5900	Whitehall - Mohican #13	115	25.81	77.6	2/17/06 10:16	2/17/06 10:17	Weather	Wind	0
T5440	Mohican - Butler #18	115	7.43	#N/A	2/17/06 10:17	2/17/06 10:17	Weather	Wind	0
T5710	Spier - Butler #4	115	5.74	79.0	2/17/06 10:17	2/17/06 10:17	Weather	Wind	0
T5690	Rotterdam - New Scotland #19	115	17.03	80.3	2/17/06 10:20	2/18/06 18:41	Vegetation	Tree Fell	1,941
T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	2/17/06 10:23	2/17/06 10:23	Weather	Wind	0
T6180	Corning - Battle Hill #4	115	25.2	78.8	2/17/06 10:27	2/17/06 10:28	Weather	Wind	0
T6180	Corning - Battle Hill #4	115	25.2	78.8	2/17/06 10:51	2/17/06 10:51	Weather	Wind	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	2/17/06 11:22	2/17/06 11:23	Vegetation	Tree Fell	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	2/17/06 11:25	2/17/06 21:54	Vegetation	Tree Fell	629
T5750	Spier - Rotterdam #1	115	54.31	20.0	2/17/06 11:27	2/17/06 11:27	Weather	Wind	0
T5030	Alps - Berkshire #393	345	8.77	39.0	2/17/06 11:37	2/17/06 12:56	External	Foreign Utility	79

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•									
75760		445	64.94	00.0	0/47/00 40:00	2/48/06 7-24	Reality of the second second	Trop Foll	1 169
15/50	Spier - Rotterdam #1	115	54.31	20.0	2/17/06 12:02	2/16/06 7:31	Vegetation		1,100
15/60	Spier - Rotterdam #2	115	51.21	62.0	2/1//06 12:02	2/17/06 12:03	Vegetation	Tree Fell	1 141
15/60	Spier - Rotterdam #2	115	51.21	62.0	2/17/06 12:00	2/10/00 /.0/	Vegetation	Mind	0
12800	Watkins Road - Ingnams #2	115	15.64	#N/A	2/1//06 14:29	2/17/06 14:29	Weather	Wind Mind	
15440	Monican - Butler #18	115	7.43	#N/A	2/1//06 14:35	2/17/06 14:35	Veather	VVInd	
15270	Ingnams - Stoner #9	115	20.1	72.0	2/1//06 15:08	2/17/06 15:09	Veatile		2 5 2 3
15390	Meco - Rotterdam #10	115	37.69	66.9	2/1//06 15:08	2/19/06 9:22	Vegetation		2,535
T5100	Clinton - Marshville #12	115	1.61	66,9	2/19/06 14:11	2/19/06 15:38	Substation Equipment	Lightning Arrestor	00
T5780	St. Johnsville - Marshville #11	115	9.88	44.4	2/19/06 14:11	2/19/06 15:38	Substation Equipment	Lightning Arrestor	00
	Front St Rosa Road #11	115	4.04	4/.4	2/22/06 20:35	2/24/06 23:27		Cross Arm / Davit Arm	3,052
T2760	Independence - Scriba #25	345	2.8	9.0	2/28/06 10:02	3/1/06 15:12	Other	Human Error	1,750
<u>T5390</u>	Meco - Rotterdam #10	115	37.69	66.9	3/6/06 21:58	3/6/06 21:59	Unknown	Uriknown	1
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	3/8/06 6:08	3/8/06 6:08	Unknown	Unknown	0
T5910	Whitehall - Cedar #6	115	24.25	70.9	3/8/06 15:23	3/8/06 15:23	Unknown	Unknown	0
	Queensbury - Cedar #10	115	3.63	70.9	3/8/06 15:23	3/8/06 15:23	Unknown	Unknown	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	3/9/06 9:37	3/9/06 9:37	Unknown	Unknown	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	3/10/06 14:51	3/10/06 14:52	Unknown	Unknown	0
T1630	Mountain - Niagara #120	115	0,98	49.0	3/12/06 5:40	3/12/06 5:40	Unknown	Unknown	0
T1620 .	Mountain - Lockport #103	115	19.86	76.8	3/12/06 5:40	3/12/06 5:41	Unknown	Unknown	0
T5290	Johnson Road - Maplewood #12	115	2.7	#N/A	3/12/06 10:05	3/12/06 10:06	Other	Animal	0
T6360	Grooms Road - Forts Ferry #13	115	10	36.8	3/12/06 1 <u>0:05</u>	3/12/06 10:06	Configuration	Configuration	0
	Forts Ferry - Johnson Rd #14	115	1.9	36.8	3/12/06 10:05	3/12/06 10:06	Other	Animal	0
T6150	Hook Road - Elbridge #7	115	54.75	82.6	3/13/06 5:57	3/13/06 5:57	Unknown	Unknown	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	3/13/06 7:16	3/13/06 7:35	Substation Equipment	Reclosing Equipment	19
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	3/13/06 9:24	3/13/06 9:25	Lightning	Lightning	1
T1540	Lockport - Mortimer #113	115	66,63	77.9	3/14/06 5:19	3/14/06 21:24	Line Equipment	Suspension Hardware	965
T3330	Taylorville - Boonville #6	115	37.35	80.8	3/16/06 7:26	3/16/06 7:26	Other	Human Error	0
T5870	Warrensburg - North Creek #5	115	23.37	21.0	3/18/06 2:27	3/18/06 4:09	System Protection	Relay	102
T5770	Spier - West #9	115	16.6	64.8	3/18/06 2:27	3/18/06 2:28	Vegetation	Tree Fell	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85,0	3/18/06 2:27	3/18/06 4:09	Substation Equipment	Reclosing Equipment	101
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	3/21/06 6:05	3/21/06 6:05	Unknown	Unknown	0
T5260	Inghams - St. Johnsville #6	115	7.5	61.7	3/23/06 12:00	3/23/06 12:00	Substation Equipment	Insulator	0
T5780	St. Johnsville - Marshville #11	115	9.88	44.4	3/23/06 12:00	3/23/06 12:00	Substation Equipment	Insulator	0
T2100	Clay - Teall #11	115	13.85	58,9	3/28/06 15:06	3/28/06 15:06	System Protection	Relay	0
T2100	Clay - Teall #11	115	13,85	58.9	3/28/06 15:38	3/28/06 15:48	System Protection	Relay	11
T3000	Alcoa - Dennison #12	115	2.47	32.0	3/29/06 0:31	3/29/06 0:31	External	Foreign Utility	0
T3100	Boundary Road - Dennison #1	115	0.02	#N/A	3/29/06 0:31	3/29/06 0:31	External	Foreign Utility	0

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					$ \begin{array}{c} & & & \\ & & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ $				
T3160	Colton - Townline #9	115	18.61	54.9	3/29/06 0:31	3/29/06 0:31	External	Foreign Utility	0
T3270	M.E.F Alcoa #3	115	1.7	#N/A	3/29/06 0:31	3/29/06 1:54	External	Foreign Utility	83
T3400	North Ogdensburg - McIntyre #9	115	5.51	#N/A	3/29/06 0:31	3/29/06 0:31	External	Foreign Utility	0
T3410	O.E.F North Ogdensburg #1	115	0.86	#N/A	3/29/06 0:31	3/29/06 2:24	External	Foreign Utility	113
T1780	Packard - Gardenville #182	115	29.13	72.4	3/29/06 15:34	3/29/06 16:00	Line Equipment	Splice	26
T1780	Packard - Gardenville #182	115	29.13	72.4	3/29/06 16:02	3/29/06 16:58	Substation Equipment	Lightning Arrestor	56
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	4/3/06 6:30	4/3/06 6:30	Unknown	Unknown	0
T3050	Black River - North Carthage #1	115	15.29	75.0	4/3/06 14:04	4/3/06 14:04	Unknown	Unknown	0
T3050	Black River - North Carthage #1	115	15.29	75.0	4/4/06 10:50	4/4/06 10:51	Unknown	Unknown	0
T4280	Volney - Marcy #19	345	65.3	25.6	4/11/06 14:19	4/11/06 14:19	Line Equipment	Suspension Hardware	0
T5980	New Scotland - Albany #8	115	8.57	20.1	4/12/06 11:58	4/12/06 11:59	Vegetation	Tree Fell	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	4/13/06 19:32	4/13/06 19:33	Lightning	Lightning	0
T4030	Boonville - Porter #2	115	27.1	86.1	4/14/06 6:01	4/14/06 6:02	Unknown	Unknown	0
T.5100	Clinton - Marshville #12	115	1.61	66,9	4/18/06 17:29	4/18/06 17:29	Other	Human Error	0
T1160	Falconer - Homer Hill #153	115	43.93	78.2	4/20/06 13:10	4/20/06 18:37	Line Equipment	Insulator	327
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	4/21/06 10:42	4/21/06 20:08	Line Equipment	Splice	566
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	4/25/06 15:56	4/26/06 4:46	Line Equipment	Splice	770
T1270	Gardenville - Dunkirk #142	115	55,38	81.2	4/28/06 0:52	4/28/06 13:01	Line Equipment	Splice	728
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	4/28/06 0:53	4/28/06 17:53	Line Equipment	Splice	1,020
T2540	Scriba - Volnev #20	345	8.81	23.0	5/1/06 20:12	5/1/06 20:13	Substation Equipment	ther Substation Equipme	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	5/4/06 8:02	5/4/06 8:02	Configuration	Configuration	0
T5820	Ticonderoga - Haque Road #4	115	1.35	70.2	5/4/06 8:02	5/4/06 8:02	Configuration	Configuration	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	5/4/06 8:02	5/4/06 8:02	Unknown	Unknown	0
T2090	Clay - Teall #10	115	15.72	69.8	5/8/06 16:52	5/8/06 16:53	Unknown	Unknown	0
T2540	Scriba - Volney #20	345	8,81	23.0	5/8/06 20:05	5/8/06 20:05	Substation Equipment	ther Substation Equipme	0
T4020	Boonville - Porter #1	115	27.1	86.3	5/9/06 0:36	5/9/06 0:37	Unknown	Unknown	0
T4240	Porter - Vallev #4	115	17.58	34.5	5/9/06 12:44	5/9/06 12:44	Unknown	Unknown	0
T5270	Inghams - Stoner #9	115	26.1	72.0	5/9/06 16:58	5/10/06 10:51	Other	Logger	1.073
T5800	Stoner - Rotterdam #12	115	29.83	72.0	5/9/06 16:58	5/9/06 16:58	Configuration	Configuration	0
T1270	Gardenville - Dunkirk #142	115	55 38	81.2	5/10/06 6:25	5/10/06 6:25	Unknown	Unknown	0
T1170	Falconer - Homer Hill #154	115	44 03	77.7	5/11/06 11:04	5/11/06 11:05	Unknown	Unknown	1
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	5/14/06 4:02	5/14/06 4:02	Substation Equipment	Transformer	0
T4280	Volney - Marcy #19	345	65.3	25.6	5/15/06 8:02	5/15/06 8:03	Other	Human Error	0
T4200	Porter - Rotterdam #30	230	71.53	50.5	5/15/06 11.14	5/15/06 11:15	Other	Human Error	0
T1250	Gardenville - Dunkirk #74	230	47 22	49.5	5/16/06 9:55	5/16/06 10:26	System Protection	Wiring	31
T1090	Denkirk - Falconer #161	115	35.04	81.2	5/16/06 10:05	5/16/06 10:07	Unknown	Unknown	1
T2320	Lighthouse Hill - Clav #7	115	26.39	79.2	5/17/06 0:43	5/17/06 8:00	System Protection	Relay	437
L_12320	Lighthouse thin - Oldy #/		20.33	13.2		0,11100 0.00	- oyacan riocoada	1	-101

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T2170	Elbridge - Geres Lock #3	115	11.24	76.2	5/18/06 10:00	5/18/06 19:44	Other	Vehicle	583
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	5/19/06 10:27	5/19/06 10:28	Other	Logger	0
T1110	Dunkirk - South Ripley #88	230	31.38	48.0	5/19/06 17:07	5/19/06 20:31	System Protection	Wiring	204
T1240	Gardenville - Dunkirk #73	230	47.22	49.5	5/19/06 17:07	5/19/06 20:31	System Protection	Wiring	204
T1100	Dunkirk - Falconer #162	115	35.51	81.2	5/23/06 9:01	5/23/06 9:01	Unknown	Unknown	0
T5770	Spier - West #9	115	16.6	64.8	5/24/06 15:34	5/24/06 16:54	Configuration	Shared Breaker	81
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	5/24/06 15:34	5/25/06 21:03	Vegetation	Tree Fell	1,769
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	5/29/06 7:05	5/29/06 7:06	Lightning	Lightning	0
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	5/29/06 7:11	5/29/06 7:12	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	5/29/06 7:38	5/29/06 7:38	Lightning	Lightning	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	5/30/06 5:17	5/30/06 5:18	Unknown	Unknown	0
T3320	Taylorville - Boonville #5	115	31.13	79.4	5/30/06 14:02	5/30/06 14:02	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	5/30/06 14:02	5/30/06 14:02	Lightning	Lightning	0
T5240	Inghams - East Springfield #7	115	13.9	82.8	5/30/06 16:12	5/30/06 16:12	Unknown	Unknown	0
T5240	Inghams - East Springfield #7	115	13.9	82.8	5/30/06 16:15	5/30/06 16:15	Unknown	Unknown	0
T1620	Mountain - Lockport #103	115	19.86	76.8	5/30/06 16:41	5/31/06 4:30	System Protection	Relay	709
T5630	Rotterdam - Bear Swamp E205	230	43.78	47.7	5/30/06 16:55	5/30/06 16:55	Unknown	Unknown	0
T1630	Mountain - Niagara #120	115	0.98	49.0	5/30/06 23:36	5/31/06 4:42	Substation Equipment	Bushing	305
T1060	Beck - Lockport #104	115	19.07	71.6	5/30/06 23:38	5/31/06 5:00	System Protection	Relay	322
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	5/31/06 3:13	5/31/06 3:14	Unknown	Unknown	0
T1560	Mortimer - Hook Road #1	115	21.35	81.8	5/31/06 10:39	5/31/06 10:48	Unknown	Unknown	9
T4040	Boonville - Rome #4	115	26,71	76.6	5/31/06 11:25	5/31/06 11:26	Lightning	Lightning	0
T4060	Boonville - Rome #3	115	24.86	79.0	5/31/06 11:25	5/31/06 11:26	Lightning	Lightning	0
T6140	Fenner - Cortland #3	115	34.55	22.1	5/31/06 20:07	5/31/06 20:07	Lightning	Lightning	0
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	5/31/06 21:00	5/31/06 22:20	Lightning	Lightning	79
T6270	North Carthage - Taylorville #8	115	11.6	48.7	6/1/06 0:47	6/1/06 0:47	Unknown	Unknown	0
T1090	Dunkirk - Falconer #161	115	35.04	81.2	6/1/06 2:33	6/1/06 2:33	Lightning	Lightning	0
T4160	Oneida - Yahnundasis #6	115	19.52	52.3	6/1/06 5:33	6/1/06 5:34	Unknown	Unknown	1
T2230	Fulton Co-Gen - Clay #4	115	20.9	61,0	6/3/06 13:31	6/3/06 13:31	Unknown	Unknown	0
T1610	Mortimer (Sta.82) - Quaker (Sta.121) #23	115	17.23	86.0	6/4/06 15:09	6/5/06 0:21	Other	Logger	552
T4160	Oneida - Yahnundasis #6	115	19.52	52.3	6/5/06 17:16	6/5/06 23:27	Other	Logger	370
T5920	Woodlawn - State Campus #12	115	11.43	75.1	6/6/06 4:55	6/6/06 4:56	Unknown	Unknown	0
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	6/6/06 9:37	6/6/06 9:40	System Protection	pmmunications Equipme	3
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	6/6/06 9:43	6/6/06 9:43	System Protection	pmmunications Equipme	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	6/9/06 14:27	6/9/06 14:27	Lightning	Lightning	0
T2230	Fulton Co-Gen - Clay #4	115	20.9	61.0	6/9/06 17:37	6/9/06 17:37	Unknown	Unknown	0
T3120	Coffeen - Black River #3	115	10.66	48.6	6/10/06 22:26	6/11/06 1:55	External	Customer Equipment	209

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TEOAO	Tissadesen Deniblia #0	115	00.0	70.0	6/14/06 7:44	6111106 7:44	Configuration	Configuration	
15810	Ticonderoga - Republic #2	115	23.3	70.2	6/11/06 7:44	6/11/06 7:44	Configuration	Configuration	0
15820	Hiconderoga - Hague Road #4	115	1.35	70.2	6/11/06 7:44	6/11/06 7:44	Coniguration	Usknown	
15830	liconderoga - vynitenali #3	115	22.01	79.6	6/11/06 7:44	6/11/06 / 44 8/18/06 10:00		Unknown	0
11530	Lockport - Montimer #111	245	00.02	/0.1	6/16/06 10.22	6/10/06 10.23	System Protection	Bolov	240
12060		345	15.07	40.0	6/16/06 11:07	6/16/06 13:10	System Protection	Linknown	245
12150	Devviit - LaFayette #22	345	0.49	31.0	6/10/00 11:07	6/10/06 17.35	Unknown	Unknown	
13330	Layforville - Boonville #6	115	37.35	80.8	6/17/06 7:35	0/1//00 /.30 8/40/06 44:57		Lightping	0
12230	Futton Co-Gen - Clay #4	115	20.9	70.0	6/19/06 11.3/ 6/10/06 4E:40	6/19/06 11.57	Lightning	Lightning	0
15910	Vynitehall - Cedar #6	115	24.25	70.9	6/19/06 15:40	6/19/06 15:40	Lightning	Configuration	0
15970	Queensbury - Cedar #10	115	3.63	70.9	6/19/06 15:40	6/19/06 15:40	Coniguration	Comguration	
15000	Arsenal - Reynolds Road #31	115	6.24	58.5	6/20/06 17:02	6/20/06 17:02	Unknown	Unknown	0
12320		115	26.39	/9.2	6/21/06 13.23	6/21/06 13.23	Unknown	Unknown	
11410	Huntley - Gardenville #80	230	20.43	52.1	6/25/06 15:11	6/25/06 15:12		Unknown	
T6180	Corning - Battle Hill #4	115	25.2	/8.8	6/26/06 2:49	6/26/06 2:50	Unknown	Unknown	0
12610	South Oswego - Indeck (Oswego) #6	115	4.58	/3.8	6/26/06 14:44	6/26/06 14:45	Unknown	Unknown	0
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	6/26/06 14:44	6/26/06 14:44	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	6/27/06 17:09	6/2//06 17:10	Unknown	Unknown	0
T3040	Black River - Lighthouse Hill #6	115	35.22	/3.5	6/2//06 17:09	6/2//06 17:10	Unknown	Unknown	0
T5300	Krumkill - Albany #7	115	6.24	40.0	6/29/06 13:36	6/29/06 13:37	Lightning	Lightning	0
T5370	McKownville - Krumkill #8	115	2.31	39.6	6/29/06 13:36	6/29/06 13:36	Configuration	Configuration	0
T5380	McKownville - Patroon #6	115	2.5	39,6	6/29/06 13:36	6/29/06 13:37	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	6/29/06 16:53	6/29/06 16:53	Lightning	Lightning	0
T1780	Packard - Gardenville #182	115	29.13	72.4	6/30/06 14:55	6/30/06 14:56	Unknown	Unknown	1
T5120	Firehouse Road - North troy #15	115	5.04	36.8	6/30/06 18:20	6/30/06 18:20	Unknown	Unknown	0
T5530	North Troy - Hoosick #5	115	17.83	52.0	6/30/06 18:20	6/30/06 18:20	Unknown	Unknown	0
T5550	North Troy - Wynantskill #14	115	8.62	73.5	6/30/06 18:20	6/30/06 19:53	Substation Equipment	Reclosing Equipment	93
T6060	Mohican - North Troy #3	115	37.39	79.0	6/30/06 18:20	6/30/06 18:20	Unknown	Unknown	0
T <u>3210</u>	Lake Colby - Lake Placid #3	115	10.64	31.0	7/2/06 2:43	7/2/06 2:43	Configuration	Configuration	0
T2230	Fulton Co-Gen - Clay #4	115	20.9	61.0	7/2/06 5:42	7/2/06 5:42	Lightning	Lightning	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	7/2/06 6:05	7/2/06 6:06	Unknown	Unknown	0
T4250	Rome - Oneida #1	115	12.31	64.3	7/2/06 8:56	7/2/06 8:56	Unknown	Unknown	0
T5920	Woodlawn - State Campus #12	115	11.43	75.1	7/2/06 9:24	7/2/06 9:24	Unknown	Unknown	0
T5630	Rotterdam - Bear Swamp E205	230	43.78	47.7	7/2/06 9:35	7/3/06 17:00	Lightning	Lightning	1,885
T1080	Dunkirk - Falconer #160	115	59.83	35.8	7/2/06 11:58	7/2/06 11:59	Lightning	Lightning	0
T2600	South Oswego - Geres Lock #9	115	32	60,8	7/2/06 16:31	7/2/06 16:32	Lightning	Lightning	0
T2140	Curtis Street - Teall #13	115	33.47	64.9	7/2/06 16:32	7/2/06 16:32	Lightning	Lightning	00
T6180	Corning - Battle Hill #4	115	25.2	78.8	7/4/06 3:40	7/4/06 3:40	Unknown	Unknown	Q

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T3320	Taylorville - Boonville #5	115	31.13	79,4	7/4/06 5:24	7/4/06 5:24	Lightning	Lightning	0
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	7/4/06 5:51	7/4/06 5:51	Unknown	Unknown	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	7/4/06 6:11	7/4/06 6:11	Unknown	Unknown	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	7/7/06 2:06	7/7/06 2:07	Unknown	Unknown	0
T1570	Mortimer - Elbridge #2	115	71.99	42.0	7/8/06 5:09	7/8/06 5:09	Unknown	Unknown	0
T2600	South Oswego - Geres Lock #9	115	32	60.8	7/8/06 11:16	7/8/06 11:17	Unknown	Unknown	0
T5750	Spier - Rotterdam #1	115	54.31	20.0	7/9/06 23:31	7/9/06 23:32	Lightning	Lightning	0
T1320	Golah - North Lakeville #116	115	16.68	38.0	7/10/06 19:35	7/10/06 19:36	Lightning	Lightning	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	7/10/06 20:08	7/10/06 20:08	Lightning	Lightning	0
T3120	Coffeen - Black River #3	115	10.66	48.6	7/10/06 20:21	7/10/06 20:21	Lightning	Lightning	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	7/10/06 20:43	7/10/06 20:44	Lightning	Lightning	0
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	7/10/06 20:43	7/10/06 20:44	Lightning	Lightning	0
T2280	Geres Lock - Solvay #14	115	1.45	60.4	7/10/06 23:01	7/10/06 23:01	Lightning	Lightning	0
T1500	Lockport - Batavia #108	115	35,63	71.2	7/11/06 16:52	7/11/06 16:56	Substation Equipment	<b>Reclosing Equipment</b>	4
T2060	Clay - DeWitt #13	345	15.07	40.0	7/13/06 13:16	7/13/06 13:36	System Protection	Wiring	20
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	7/13/06 21:01	7/13/06 21:03	Other	Human Error	3
T5790	State Campus - Menands #15	115	5.09	75,1	7/14/06 19:58	7/14/06 19:58	External	Customer Equipment	0
T1870	Quaker Road (Sta. 121) - Sleight Road #13	115	13.85	86.6	7/15/06 5:42	7/15/06 5:42	Lightning	Lightning	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	7/15/06 9:08	7/15/06 10:43	Other	Logger	95
T5430	Mohican - Battenkill #15	115	15.12	79.0	7/16/06 8:43	7/16/06 8:45	Unknown	Unknown	2
T2230	Fulton Co-Gen - Clay #4	115	20.9	61.0	7/20/06 9:45	7/20/06 9:45	External	Customer Equipment	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	7/21/06 3:52	7/21/06 3:52	Unknown	Unknown	0
T3080	Browns Falls - Taylorville #3	115	26.77	86.4	7/25/06 8:46	7/25/06 8:47	Lightning	Lightning	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	7/25/06 8:46	7/25/06 8:47	Lightning	Lightning	0
T3080	Browns Falls - Taylorville #3	115	26,77	86.4	7/25/06 8:48	7/25/06 8:49	Lightning	Lightning	1
T3090	Browns Falls - Taylorville #4	115	26.79	38,8	7/25/06 8:48	7/25/06 8:49	Lightning	Lightning	1
T3180	Dennison - Colton #4	115	31.41	33.2	7/25/06 15:22	7/25/06 15:22	Lightning	Lightning	0
T3190	Dennison - Colton #5	115	28.45	30.1	7/25/06 15:22	7/25/06 15:22	Lightning	Lightning	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	7/25/06 19:42	7/25/06 19:42	Lightning	Lightning	0
T1780	Packard - Gardenville #182	115	29.13	72.4	7/27/06 9:48	7/27/06 9:49	Unknown	Unknown	0
· T2130	Cortland - Lapeer #1	115	7.77	80.0	7/27/06 17:07	7/27/06 17:07	Unknown	Unknown	0
T5270	Inghams - Stoner #9	115	26.1	72.0	7/27/06 17:43	7/27/06 17:43	Lightning	Lightning	0
T5800	Stoner - Rotterdam #12	115	29.83	72.0	7/27/06 17:43	7/27/06 17:44	Lightning	Lightning	0
T2590	South Oswego - Fulton Co-Gen #7	115	13.2	66.6	7/28/06 6:48	7/28/06 6:49	Lightning	Lightning	0
T3140	Colton - Browns Falls #1	115	30.45	71.0	7/29/06 14:49	7/31/06 21:53	Line Equipment	Splice	3,304
T3150	Colton - Browns Falls #2	115	30.49	71.0	7/29/06 14:49	7/29/06 18:56	Substation Equipment	Circuit Breaker	247
T3070	Browns Falls - Newton Falls Pap. Co. #6	115	3.87	38.8	7/29/06 14:49	7/29/06 16:52	Substation Equipment	Circuit Breaker	122

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	Browns Falls - Taylorville #3	115	26.77	86.4	7/29/06 14:49	7/29/06 16:52	Substation Equipment	Circuit Breaker	122
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	7/29/06 14:49	7/29/06 16:52	Substation Equipment	Circuit Breaker	122
T4040	Boonville - Rome #4	115	26.71	76.6	7/29/06 14:52	7/29/06 14:52	Lightning	Lightning	0
T2040	Clay - Dewitt #3	115	20.46	60.7	7/29/06 15:34	7/29/06 15:34	Lightning	Lightning	_0
T2650	Teall - Dewitt #4	115	10.97	45.3	7/29/06 15:34	7/29/06 15:35	Lightning	Lightning	0
T5240	Inghams - East Springfield #7	115	13.9	82.8	7/29/06 16:32	7/29/06 16:32	Lightning	Lightning	0
T1240	Gardenville - Dunkirk #73	230	47.22	49.5	7/29/06 22:06	7/29/06 22:09	Unknown	Unknown	3
T1100	Dunkirk - Falconer #162	115	35.51	81.2	7/29/06 23:41	7/29/06 23:43	Unknown	Unknown	1
T3170	Colton - Malone #3	115	20,85	70,1	8/1/06 2:54	8/1/06 2:54	Lightning	Lightning	0
T3060	Black River - Taylorville #2	115	32.82	48.7	8/1/06 21:01	8/1/06 22:35	Substation Equipment	Reclosing Equipment	94
T5240	Inghams - East Springfield #7	115	13.9	82.8	8/2/06 13:23	8/2/06 13:24	Lightning	Lightning	0
T2050	Clay - Dewitt #5	115	21.8	40.0	8/2/06 14:07	8/2/06 14:07	Lightning	Lightning	0
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	8/2/06 17:31	8/2/06 17:32	Unknown	Unknown	0
T4260	Terminal - Schuyler #7	115	4.7	47.8	8/4/06 2:39	8/10/06 13:57	Line Equipment	Splice	9,317
T2540	Scriba - Volney #20	345	8.81	23.0	8/9/06 17:26	8/9/06 17:26	Other	Human Error	0
T5110	Curry Road - Wolf Road #8	115	7.89	75.1	8/20/06 2:10	8/20/06 2:11	Lightning	Lightning	1
T5640	Rotterdam - Curry Road #11	115	7.1	75.1	8/20/06 2:10	8/20/06 2:11	Configuration	Miscellaneous	1
T5700	Rotterdam - Woodlawn #35	115	13.6	75.1	8/20/06 2:10	8/20/06 2:11	Lightning	Lightning	1
T5120	Firehouse Road - North troy #15	115	5.04	36.8	8/20/06 2:33	8/20/06 2:34	Lightning	Lightning	0
T5060	Battenkill - North Troy #10	115	23.42	79.0	8/20/06 4:36	8/20/06 4:36	Unknown	Unknown	0
T5430	Mohican - Battenkill #15	115	15,12	79.0	8/20/06 4:36	8/20/06 4:36	Unknown	Unknown	0
T2750	Clay - General Electric (Electronics Park) #14	115	6.48	86.3	8/20/06 13:45	8/20/06 13:46	Line Equipment	Static Wire	0
T1890	Southeast Batavia - Golah #119	115	28.39	58.1	8/23/06 11:53	8/23/06 11:54	Unknown	Unknown	1
T4200	Porter - Rotterdam #30	230	71.53	50.5	8/25/06 21:13	8/25/06 21:13	Substation Equipment	Circuit Breaker	0
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	8/29/06 6:20	9/1/06 9:23	Line Equipment	Cross Arm / Davit Arm	4,503
T1890	Southeast Batavia - Golah #119	115	28.39	58,1	8/29/06 10:25	8/29/06 13:40	Unknown	Unknown	195
T3120	Coffeen - Black River #3	115	10.66	48.6	8/31/06 9:47	8/31/06 17:27	Other	Vehicle	459
T1070	Beck - Packard #76	230	4.55	52.6	9/1/06 3:24	9/20/06 12:42	External	Foreign Utility	27,918
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	9/1/06 13:11	9/1/06 13:14	Substation Equipment	Reclosing Equipment	3
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25,11	88.0	9/6/06 14:56	9/6/06 14:57	Lightning	Lightning	1
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	9/7/06 18:10	9/8/06 6:20	Other	Vehicle	730
T5810	Ticonderoga - Republic #2	115	23.3	70.2	9/9/06 14:14	9/9/06 14:14	Lightning	Lightning	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	9/9/06 14:31	9/9/06 14:31	Configuration	Configuration	0
T5820	Ticonderoga - Hague Road #4	115	1,35	70.2	9/9/06 14:31	9/9/06 14:31	Configuration	Configuration	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	9/9/06 14:31	9/9/06 14:31	Lightning	Lightning	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	9/10/06 14:30	9/10/06 14:33	Unknown	Unknown	3
T2060	Clay - DeWitt #13	345	15.07	40.0	9/11/06 11:54	9/11/06 12:58	Other	Human Error	64

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T4250	Rome - Oneida #1	115	12,31	64.3	9/14/06 2:50	9/14/06 2:50	Unknown	Unknown	0
T4040	Boonville - Rome #4	115	26.71	76.6	9/16/06 6:46	9/16/06 6:47	Unknown	Unknown	0
T6150	Hook Road - Elbridge #7	115	54.75	82.6	9/17/06 2:16	9/17/06 2:16	Unknown	Unknown	0
T1860	Pannell (Sta.122) - Geneva (Border City) #4	115	25,11	88.0	9/18/06 1:54	9/18/06 1:55	Unknown .	Unknown	0
T4190	Porter - Watkins Road #5	115	11.41	83.9	9/19/06 3:29	9/19/06 3:30	Unknown	Unknown	0
T2800	Watkins Road - Inghams #2	115	15.64	#N/A	9/19/06 6:36	9/19/06 6:37	Unknown	Unknown	0
T5480	New Scotland - Leeds #93	345	25.75	47.9	9/23/06 14:59	9/23/06 14:59	Other	Human Error	0
T3030	Colton - Battle Hill #7	115	34.76	74.5	9/24/06 10:44	9/24/06 10:44	Substation Equipment	Circuit Breaker	0
T3140	Colton - Browns Fails #1	115	30.45	71.0	9/24/06 10:44	9/24/06 18:18	Vegetation	Tree Broken Limb	454
T3160	Colton - Townline #9	115	18.61	54,9	9/24/06 10:44	9/24/06 10:44	Substation Equipment	Circuit Breaker	0
T3180	Dennison - Colton #4	115	31.41	33.2	9/24/06 10:44	9/24/06 10:44	Substation Equipment	Circuit Breaker	0
T5390	Meco - Rotterdam #10	115	37.69	66.9	9/25/06 13:35	9/25/06 13:36	Unknown	Unknown	1
T5750	Spier - Rotterdam #1	115	54,31	20.0	9/29/06 2:27	9/29/06 2:28	Unknown	Unknown	0
T6180	Corning - Battle Hill #4	115	25.2	78.8	9/29/06 7:19	9/29/06 7:20	Unknown	Unknown	0
T2030	Auburn (State St.) - Elbridge #5	115	10.34	86.9	9/29/06 8:51	9/29/06 8:51	Unknown_	Unknown	0
T6150	Hook Road - Elbridge #7	115	54,75	82.6	10/1/06 11:33	10/1/06 11:34	Unknown	Unknown	0
T1260	Gardenville - Dunkirk #141	115	56,73	81.2	10/4/06 13:10	10/4/06 13:11	Other	Human Error	1
T2670	Teall - Oneida #2	115	28.54	80,3	10/4/06 19:47	10/4/06 19:48	Unknown	Unknown	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	10/9/06 4:51	10/9/06 4:52	Unknown	Unknown	0
T1820	Packard - Huntley #130	115	21.32	58.2	10/12/06 17:48	10/12/06 17:49	Weather	Weather	0
T1470	Kensington - Gardenville #44	115	6.2	55.6	10/12/06 20:51	10/12/06 20:52	Weather	Weather	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	10/12/06 20:52	10/14/06 1:10	Weather	Storm	1,698
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	10/12/06 23:12	10/17/06 8:27	Line Equipment	Tower (Steel Structure)	6,315
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	10/12/06 23:12	10/17/06 15:15	Line Equipment	Tower (Steel Structure)	6,723
T1090	Dunkirk - Falconer #161	115	35.04	81.2	10/12/06 23:12	10/13/06 2:15	Weather	Storm	182
T1500	Lockport - Batavia #108	115	35,63	71.2	10/12/06 23:20	10/12/06 23:20	Weather	Weather	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	10/12/06 23:58	10/15/06 17:50	Line Equipment	Conductor	3,951
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	10/13/06 0:58	10/13/06 18:00	Line Equipment	Static Wire	1,022
T1780	Packard - Gardenville #182	115	29.13	72.4	10/13/06 1:26	10/16/06 20:08	Weather	Snow	5,442
T1380	Huntley - Gardenville #38	115	28,72	77.1	10/13/06 1:29	10/13/06 3:05	Weather	Snow	96
T1210	Gardenville - Buffalo River Switch #145	115	12.61	47,8	10/13/06 2:34	10/13/06 2:34	Weather	Weather	0
T1510	Lockport - Batavia #112	115	34.13	76.6	10/13/06 2:36	10/13/06 2:37	Weather	Weather	0
T1390	Huntley - Gardenville #39	115	24.41	77.1	10/13/06 2:36	10/13/06 2:37	Weather	Weather	00
T1210	Gardenville - Buffalo River Switch #145	115	12.61	47.8	10/13/06 2:41	10/13/06 2:41	Weather	Weather	0
T1210	Gardenville - Buffalo River Switch #145	115	12.61	47.8	10/13/06 2:42	10/13/06 2:42	Weather	Weather	0
T1430	Huntley - Praxair #47	115	9.35	37.9	10/13/06 2:57	10/13/06 19:37	Line Equipment	Conductor	1,000
T1390	Huntley - Gardenville #39	115	24.41	77.1	10/13/06 3:07	10/13/06 3:08	Weather	Weather	0

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		1990 - A	a in a masa Ta a a	$\sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{j=1}^{n-1} \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} $			an ang tanàna sa taona 2003. Ilay kaominina dia kaominina		
T1210	Gardenville - Buffalo River Switch #145	115	12 61	47.8	10/13/06 3:08	10/13/06 3 10	Weather	Snow	2
T1210	Gardenville - Buffalo River Switch #145	115	12.61	47.8	10/13/06 4:14	10/13/06 4:14	Weather	Weather	0
T1300	Gardenville - Sepeca #82	115	2.72	50.8	10/13/06 4:16	10/13/06 4:16	Weather	Weather	0
	Gardenville - Buffalo River Switch #145	115	12.61	47.8	10/13/06 4:26	10/13/06 17:32	Line Equipment	Conductor	786
T1450	Huntley - Lockport #37	115	24.35	22.4	10/13/06 4:30	10/14/06 23:45	Line Equipment	Static Wire	2,595
T1660	Niagara - Gardenville #180	115	31.67	77.5	10/13/06 4:50	10/13/06 18:00	Vegetation	Tree Fell	789
T1230	Gardenville - Depew #54	115	7.26	53.9	10/13/06 4:50	10/13/06 4:52	Weather	Storm	1
T1390	Huntley - Gardenville #39	115	24.41	77.1	10/13/06 4:50	10/13/06 4:52	Weather	Storm	2
T1420	Huntley - Praxair #46	115	9.83	50.9	10/13/06 4:57	10/15/06 17:35	Line Equipment	Insulator	3,637
T1500	Lockport - Batavia #108	115	35.63	71.2	10/13/06 5:01	10/15/06 12:15	Vegetation	Tree Fell	3,313
T1440	Huntley - Lockport #36	115	24.35	64.8	10/13/06 5:35	10/15/06 0:38	Line Equipment	Static Wire	2,582
T1390	Huntley - Gardenville #39	115	24.41	77.1	10/13/06 5:44	10/13/06 7:46	Weather	Snow	122
T1820	Packard - Huntley #130	115	21.32	58.2	10/13/06 5:44	10/14/06 16:05	Weather	Snow	2,061
T1380	Huntley - Gardenville #38	1,15	28.72	77.1	10/13/06 5:44	10/13/06 7:45	Weather	Snow	121
T1000	Brunner - Sour Springs #118	115	4.6	57.6	10/13/06 6:02	10/16/06 1:48	Configuration	Тар	4,066
T1550	Lockport - Mortimer #114	115	60.3	58.0	10/13/06 6:02	10/16/06 1:48	Vegetation	Tree Fell	4,066
T1530	Lockport - Mortimer #111	115	66.82	78,1	10/13/06 7:21	10/15/06 16:30	Line Equipment	Conductor	3,429
T1540	Lockport - Mortimer #113	115	66.63	77.9	10/13/06 9:30	10/13/06 9:31	Weather	Snow	1
T6020	Walck Road - Huntley #133	115	10.39	35.0	10/13/06 9:35	10/14/06 18:25	Vegetation	Tree Fell	1,969
T1410	Huntley - Gardenville #80	230	20.43	52.1	10/13/06 9:48	10/13/06 15:06	Weather	Snow	318
T1240	Gardenville - Dunkirk #73	230	47.22	49.5	10/13/06 10:28	10/13/06 10:35	Other	Miscellaneous	7
T1390	Huntley - Gardenville #39	115	24.41	77.1	10/13/06 10:41	10/15/06 10:46	Line Equipment	Static Wire	2,885
T1300	Gardenville - Seneca #82	115	2.72	50.8	10/13/06 11:45	10/14/06 9:59	Line Equipment	Static Wire	1,334
T1660	Niagara - Gardenville #180	115	31,67	77.5	10/13/06 19:51	10/14/06 1:50	Vegetation	Tree Fell	359
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/14/06 2:07	10/14/06 6:29	Configuration	Тар	261
T3170	Colton - Malone #3	115	20.85	70.1	10/14/06 2:07	10/14/06 6:29	Substation Equipment	Lightning Arrestor	261
T3230	Malone - Lake Colby #5	115	43.82	43.0	10/14/06 2:07	10/14/06 6:29	Unknown	Unknown	261
T3360	Willis - Malone #1	115	0.03	52.0	10/14/06 2:07	10/14/06 6:29	Substation Equipment	Lightning Arrestor	261
T1300	Gardenville - Seneca #82	115	2.72	50.8	10/14/06 19:23	10/14/06 20:06	Unknown	Unknown	43
T1380	Huntley - Gardenville #38	115	28.72	77.1	10/14/06 19:23	10/14/06 20:06	Unknown	Unknown	43
T1470	Kensington - Gardenville #44	115	6.2	55.6	10/14/06 19:23	10/14/06 20:06	Unknown	Unknown	43
T1300	Gardenville - Seneca #82	115	2.72	50.8	10/15/06 19:50	10/15/06 20:10	Unknown	Unknown	21
T1380	Huntley - Gardenville #38	115	28.72	77.1	10/15/06 19:50	10/15/06 20:09	Unknown	Unknown	19
T1470	Kensington - Gardenville #44	115	6.2	55.6	10/15/06 19:50	10/15/06 20:11	Unknown	Unknown	21
T1420	Huntley - Praxair #46	115	9.83	50.9	10/17/06 2:39	10/17/06 16:44	Line Equipment	Insulator	844
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/19/06 9:57	10/19/06 10:00	Substation Equipment	Switch - Manual	2
T3230	Malone - Lake Colby #5	115	43.82	43.0	10/19/06 9:57	10/19/06 10:00	Substation Equipment	Switch - Manual	2

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T3360	Willis - Malone #1	115	0,03	52.0	10/19/06 9:57	10/19/06 10:00	Configuration	Miscellaneous	3
T1080	Dunkirk - Falconer #160	115	59.83	35.8	10/19/06 13:14	10/19/06 13:38	External	Generator	24
T1100	Dunkirk - Falconer #162	115	35.51	81.2	10/19/06 13:14	10/19/06 13:37	External	Generator	22
T1260	Gardenville - Dunkirk #141	115	56.73	81,2	10/19/06 13:14	10/19/06 13:37	External	Generator	23
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/20/06 18:01	10/20/06 18:01	Configuration	Configuration	0
T3230	Malone - Lake Colby #5	115	43.82	43.0	10/20/06 18:01	10/20/06 18:01	Other	Logger	0
T3340	Taylorville - Moshier #7	115	11.21	79.9	10/20/06 18:57	10/20/06 18:59	Unknown	Unknown	1
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/20/06 19:59	10/21/06 1:26	Vegetation	Tree Fell	327
T3230	Malone - Lake Colby #5	115	43,82	43.0	10/20/06 19:59	10/20/06 19:59	Unknown	Unknown	0
T6020	Walck Road - Huntley #133	115	10.39	35.0	10/22/06 22:13	10/23/06 18:52	Line Equipment	Static Wire	1,239
T1230	Gardenville - Depew #54	115	7.26	53.9	10/25/06 12:06	10/25/06 12:08	Unknown	Unknown	2
T1230	Gardenville - Depew #54	115	7.26	53.9	10/28/06 23:11	10/28/06 23:12	Unknown	Unknown	0
T1820	Packard - Huntley #130	115	21.32	58.2	10/28/06 23:17	10/29/06 18:20	Vegetation	Tree Broken Limb	1,142
T2220	FitzPatrick - Lighthouse Hill #3	115	26,83	44.9	10/29/06 3:28	10/29/06 3:28	Unknown	Unknown	0
T2660	Teall - Carr Street #6	115	4.03	42.8	10/29/06 8:53	10/29/06 8:54	Line Equipment	Static Wire	0
T1420	Huntley - Praxair #46	115	9.83	50.9	10/29/06 9:47	10/29/06 10:06	Line Equipment	Static Wire	19
T1420	Huntley - Praxair #46	115	9.83	50,9	10/29/06 11:12	10/29/06 11:12	Line Equipment	Static Wire	0
T2740	Carr Street - Dewitt #15	115	3.06	#N/A	10/29/06 11:21	10/29/06 11:21	Line Equipment	Static Wire	0
T2660	Teall - Carr Street #6	115	4.03	42.8	10/29/06 11:21	10/29/06 11:21	Line Equipment	Static Wire	0
T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	10/29/06 12:44	10/29/06 12:44	Unknown	Unknown	0
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/29/06 19:27	10/29/06 19:27	Unknown	Unknown	0
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/29/06 19:27	10/29/06 19:28	Unknown	Unknown	0
T3210	Lake Colby - Lake Placid #3	115	10.64	31.0	10/29/06 19:28	10/29/06 19:29	Unknown	Unknown	1
T1480	Kensington - Gardenville #45	115	6.16	55.6	11/8/06 15:10	11/8/06 15:11	Substation Equipment	ther Substation Equipme	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	11/13/06 1:31	11/13/06 1:32	Unknown	Unknown	0
T5130	Front St Rosa Road #11	115	4.04	47.4	11/13/06 8:29	11/13/06 8:30	Other	Animal	0
T1230	Gardenville - Depew #54	115	7.26	53.9	11/16/06 11:53	11/16/06 11:53	Other	Human Contact	<u> </u>
T3340	Taylorville - Moshier #7	115	11.21	79.9	11/16/06 17:21	11/16/06 17:21	Unknown	Unknown	0
T2040	Clay - Dewitt #3	115	20.46	60.7	11/30/06 15:09	11/30/06 15:09	Line Equipment	Static Wire	0
T2650	Teall - Dewitt #4	115	10.97	45.3	11/30/06 15:09	11/30/06 15:16	Line Equipment	Static Wire	7
T2690	Temple - Dewitt #10	115	6.87	41.1	11/30/06 15:09	11/30/06 15:10	Substation Equipment	Circuit Breaker	0
T2090	Clay - Teall #10	115	15.72	69.8	11/30/06 15:09	11/30/06 15:09	Line Equipment	Static Wire	0
T1160	Falconer - Homer Hill #153	115	43.93	78.2	12/1/06 14:55	12/4/06 20:46	Vegetation	Tree Fell	4,671
T1170	Falconer - Homer Hill #154	115	44.03	77.7	12/1/06 14:55	12/6/06 15:25	Vegetation	Tree Fell	7,230
T1270	Gardenville - Dunkirk #142	115	55,38	81.2	12/1/06 15:36	12/1/06 17:15	Unknown	Unknown	100
T1420	Huntley - Praxair #46	115	9.83	50.9	12/1/06 15:54	12/1/06 16:16	Line Equipment	Static Wire	21
T1300	Gardenville - Seneca #82	115	2.72	50.8	12/1/06 16:20	12/2/06 20:09	Weather	Storm	1,668

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T1420	Huntley - Praxair #46	115	9.83	50.9	12/1/06 16:25	12/1/06 16:36	Line Equipment	Static Wire	11
T3100	Boundary Road - Dennison #1	115	0.02	#N/A	12/1/06 16:35	12/1/06 16:35	Unknown	Unknown	0
T1420	Huntley - Praxair #46	115	9.83	50.9	12/1/06 16:40	12/1/06 16:41	Line Equipment	Static Wire	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	12/1/06 18:27	12/1/06 18:27	Weather	Storm	0
T1440	Huntley - Lockport #36	115	24.35	64.8	12/1/06 18:57	12/1/06 18:57	Weather	Wind	0
T6020	Walck Road - Huntley #133	115	10.39	35.0	12/1/06 18:57	12/2/06 9:33	Weather	Storm	876
T1430	Huntley - Praxair #47	115	9.35	37.9	12/1/06 18:59	12/1/06 18:59	Weather	Storm	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	12/1/06 19:34	12/1/06 19:34	Weather	Storm	0
T1790	Packard - Huntley #77	230	12.14	51,9	12/1/06 20:09	12/3/06 19:53	Weather	Storm	2,864
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	12/1/06 20:20	12/1/06 20:21	Weather	Storm	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	12/1/06 20:37	12/1/06 20:37	Weather	Storm	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	12/1/06 20:46	12/1/06 20:47	Weather	Storm	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	12/1/06 20:48	12/1/06 20:49	Weather	Storm	0
T1230	Gardenville - Depew #54	115	7.26	53.9	12/1/06 21:41	12/6/06 19:23	Other	Miscellaneous	7,062
T1780	Packard - Gardenville #182	115	29.13	72.4	12/1/06 21:41	12/7/06 13:51	Weather	Storm	8,170
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	12/1/06 21:41	12/1/06 23:11	Substation Equipment	Circuit Breaker	90
T1660	Niagara - Gardenville #180	115	31.67	77,5	12/1/06 21:41	12/1/06 21:52	Weather	Storm	11
T1380	Huntley - Gardenville #38	115	28.72	77,1	12/1/06 21:41	12/8/06 14:35	Substation Equipment	Circuit Breaker	9,653
T1470	Kensington - Gardenville #44	115	6.2	55.6	12/1/06 21:41	12/2/06 2:56	Substation Equipment	Circuit Breaker	315
T3060	Black River - Taylorville #2	115	32.82	48.7	12/1/06 23:02	12/1/06 23:02	Unknown	Unknown	0
T3060	Black River - Taylorville #2	115	32.82	48.7	12/2/06 3:10	12/2/06 3:10	Unknown	Unknown	0
T6060	Mohican - North Troy #3	115	37.39	79.0	12/2/06 6:52	12/2/06 17:28	Vegetation	Tree Fell	635
T5060	Battenkill - North Troy #10	115	23.42	79.0	12/2/06 12:13	12/2/06 12:14	Substation Equipment	Transformer	0
T5540	North Troy - Reynolds Road #16	115	11.57	73.5	12/2/06 12:13	12/2/06 12:13	Substation Equipment	Transformer	Ó
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	12/9/06 4:19	12/9/06 4:20	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	12/9/06 5:32	12/9/06 5:32	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	12/9/06 5:46	12/9/06 5:46	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	12/9/06 5:47	12/11/06 13:15	Unknown	Unknown	3,328
T3120	Coffeen - Black River #3	115	10.66	48.6	12/9/06 5:49	12/9/06 5:49	System Protection	ommunications Equipme	0
T3120	Coffeen - Black River #3	115	10.66	48.6	12/9/06 5:55	12/9/06 5:55	System Protection	ommunications Equipme	0
T3120	Coffeen - Black River #3	115	10.66	48.6	12/9/06 6:10	12/9/06 6:11	System Protection	ommunications Equipme	0
T3120	Coffeen - Black River #3	115	10.66	48.6	12/9/06 6:17	12/9/06 8:07	System Protection	pmmunications Equipme	109
T3130	Coffeen - West Adams #2	115	14.15	24.6	12/9/06 6:17	12/9/06 8:09	Configuration	Miscellaneous	111
T3350	Thousand Islands - Coffeen #4	115	27.72	38,9	12/9/06 6:17	12/9/06 8:11	Configuration	Miscellaneous	113
T5920	Woodlawn - State Campus #12	115	11.43	75,1	12/11/06 6:57	12/11/06 6:58	Unknown	Unknown	0
T5250	Inghams - Meco #15	115	30.9	66.9	12/15/06 16:23	12/15/06 16:24	Lightning	Lightning	0
T5270	Inghams - Stoner #9	115	26.1	72.0	12/15/06 16:23	12/15/06 16:23	Lightning	Lightning	0

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		1978 - 18 A			Call and the second second	$\mathcal{T}_{ab}^{a}(\lambda) [h_{1}(\lambda)] = \sum_{i=1}^{n} (\lambda_{i}(\lambda)) [h_{1}(\lambda)] $		Alexand Alexandre State	
TE100	Clipton Marshville #12	115	1.61	66.9	12/15/06 16:23	12/15/06 16:24	Lightning	Lightning	0
T5800	Stoper - Botterdam #12	115	20.83	72.0	12/15/06 16:23	12/15/06 16:24	Lightning	Lightning	0
T1270	Gardenville - Dunkirk #142	115	55 38	81.2	12/22/06 7:12	12/22/06 7:13		Unknown	1
T6150	Hook Boad - Elbridge #7	115	54.75	82.6	1/1/07 7:26	1/1/07 7:26	Unknown	Unknown	0
T5460	New Scotland - Bethlehem #4	115	5.69	21.0	1/2/07 10:59	1/2/07 11:00	System Protection	Relay	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	1/5/07 9:40	1/5/07 9:41	Other	Human Error	0
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	1/5/07 13:34	1/5/07 13:36	Other	Logger	1
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	1/5/07 19:16	1/6/07 13:51	Line Equipment	Splice	1,115
T1870	Quaker Road (Sta. 121) - Sleight Road #13	115	13.85	86.6	1/5/07 20:53	1/6/07 10:02	Line Equipment	Splice	789
T6150	Hook Road - Elbridge #7	115	54.75	82.6	1/5/07 21:36	1/5/07 21:36	Line Equipment	Insulator	0
T5630	Rotterdam - Bear Swamp E205	230	43.78	47.7	1/15/07 9:07	1/16/07 9:35	Line Equipment	Guy	1,467
T5440	Mohican - Butler #18	115	7.43	#N/A	1/15/07 9:08	1/16/07 21:49	Vegetation	Tree Fell	2,201
T5710	Spier - Butler #4	115	5.74	79.0	1/15/07 9:08	1/15/07 9:45	Unknown	Unknown	37
T4030	Boonville - Porter #2	115	27.1	86.1	1/15/07 10:09	1/16/07 21:02	Line Equipment	Splice	2,093
T5100	Clinton - Marshville #12	115	1.61	66.9	1/15/07 11:53	1/15/07 12:55	Unknown	Unknown	62
T5250	Inghams - Meco #15	115	30.9	66.9	1/15/07 11:53	1/17/07 4:11	Line Equipment	Cross Arm / Davit Arm	2,418
T4200	Porter - Rotterdam #30	230	71.53	50,5	1/15/07 12:38	1/16/07 4:39	Vegetation	Tree Fell	960
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	1/16/07 9:40	1/16/07 9:40	Other	Logger	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 18:14	1/16/07 18:15	Unknown	Unknown	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 18:33	1/16/07 18:33	Unknown	Unknown	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 18:34	1/16/07 18:34	Unknown	Unknown	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 18:37	1/16/07 18:39	Unknown	Unknown	22
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 18:44	1/16/07 18:46	Unknown	Unknown	2
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 18:46	1/16/07 18:47	Unknown	Unknown	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 19:07	1/16/07 19:08	Unknown	Unknown	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/16/07 19:10	1/16/07 19:11	Unknown	Unknown	0
T2140	Curtis Street - Teall #13	115	33.47	64.9	1/17/07 3:03	1/18/07 18:28	Line Equipment	Guy	2,365
T5760	Spier - Rotterdam #2	115	51.21	62.0	1/18/07 10:42	1/18/07 10:48	Unknown	Unknown	6
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	1/20/07 20:41	1/21/07 16:01	Line Equipment	Splice	1,160
T1350	Homer Hill - Dugan Road #155	115	1.74	39.7	1/21/07 18:06	1/22/07 20:30	Line Equipment	Splice	1,584
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	1/21/07 20:34	1/21/07 20:39	Other	Miscellaneous	5
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	1/22/07 1:23	1/22/07 1:24	Other	Miscellaneous	0
T3360	Willis - Malone #1	115	0.03	52.0	2/1/07 11:16	2/1/07 11:16	Substation Equipment	Switch - Manual	0
T1120	DuPont - Packard #183	115	3.53	50.5	2/4/07 9:40	2/5/07 14:48	Weather	lce	1,748
T1010	Adams - Packard #187	115	7.21	41.8	2/5/07 5:29	2/8/07 22:18	Weather	lce	5,328
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	2/5/07 7:21	2/5/07 10:58	Unknown	Unknown	216
T1730	Niagara - Packard #191	115	3.71	49.0	2/14/07 10:08	2/14/07 15:09	Other	Human Error	301

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T5870         Warrensburg - North Creek #5         115         23.37         21.0         2/14/07 12:38         2/15/07 15:20         Unknown         Unknown           T6150         Hook Road - Elbridge #7         115         54.75         82.6         2/19/07 9:04         2/19/07 9:05         Line Equipment         Splice	1,601 0 0 1,381 0 0
T5870         Warrensburg - North Creek #5         115         23.37         21.0         2/14/07 12:38         2/15/07 15:20         Unknown         Unknown           T6150         Hook Road - Elbridge #7         115         54.75         82.6         2/19/07 9:04         2/19/07 9:05         Line Equipment         Splice	1,601 0 1,381 0 0
T5870         Warrensburg - North Creek #5         115         23.37         21.0         2/14/07 12:38         2/15/07 15:20         Unknown         Unknown           T6150         Hook Road - Elbridge #7         115         54.75         82.6         2/19/07 9:04         2/19/07 9:05         Line Equipment         Splice	1,601 0 1,381 0 0
T6150         Hook Road - Elbridge #7         115         54.75         82.6         2/19/07 9:04         2/19/07 9:05         Line Equipment         Splice	0 0 1,381 0 0
	0 1,381 0 0
T1080 Dunkirk - Falconer #160 115 59.83 35.8 2/19/07 16:17 2/19/07 16:18 Substation Equipment Switch - Circuit Switcher	1,381 0 0
T6150 Hook Road - Elbridge #7 115 54.75 82.6 2/26/07 21:47 2/27/07 20:48 Line Equipment Insulator	0
T2230 Fulton Co-Gen - Clay #4 115 20.9 61.0 3/2/07 4:11 3/2/07 4:12 Unknown Unknown	0
T2090 Clay - Teall #10 115 15.72 69.8 3/2/07 5:56 3/2/07 5:56 Line Equipment Static Wire	
T2090 Clay - Teall #10 115 15.72 69.8 3/2/07 6:06 3/2/07 6:06 Line Equipment Static Wire	0
T2090         Clay - Teall #10         115         15.72         69.8         3/2/07 6:13         3/2/07 6:14         Line Equipment         Static Wire	0
T2090 Clay - Teal/#10 115 15.72 69.8 3/2/07 7:02 3/2/07 7:03 Line Equipment Static Wire	1
T2090 Clay - Teall #10 115 15.72 69.8 3/2/07 9:19 3/2/07 9:20 Line Equipment Static Wire	0
T1250 Gardenville - Dunkirk #74 230 47.22 49.5 3/5/07 8:13 3/5/07 8:14 Unknown Unknown	0
T2040 Clay - Dewitt #3 115 20.46 60.7 3/5/07 16:18 3/5/07 16:18 Unknown Unknown	0
T2090 Clay - Teall #10 115 15.72 69.8 3/5/07 16:18 3/5/07 16:18 Unknown Unknown	0
T1600 Mortimer - Pannell Road #25 115 15.72 83.8 3/6/07 10:45 3/7/07 5:05 Line Equipment Splice	1,100
T6350 Chases Lake - Porter #11 230 43.3 51.0 3/6/07 11:50 3/6/07 11:50 System Protection pmmunications Equipme	0
T1210 Gardenville - Buffalo River Switch #145 115 12.61 47.8 3/14/07 8:07 3/14/07 8:07 Unknown Unknown	0
T1210 Gardenville - Buffalo River Switch #145 115 12.61 47.8 3/22/07 17:59 3/22/07 17:59 Unknown Unknown	0
T6150 Hook Road - Elbridge #7 115 54.75 82.6 3/23/07 7:27 3/23/07 7:27 Line Equipment Insulator	0
T6150 Hook Road - Elbridge #7 115 54.75 82.6 3/24/07 23:38 3/27/07 10:25 Line Equipment Insulator	3,526
T1540 Lockport - Mortimer #113 115 66.63 77.9 3/26/07 15:06 3/26/07 15:08 Unknown Unknown	1
T1550 Lockport - Mortimer #114 115 60.3 58.0 3/26/07 15:06 3/26/07 15:08 Unknown Unknown	1
T2120 Coffeen - Black River - Lighthouse Hill #5 115 40.2 69.1 3/26/07 17:05 3/26/07 17:06 Unknown Unknown	0
T5080 aFarge Building Materials - Pleasant Valley # 115 62.47 67.9 3/30/07 22:58 3/30/07 22:58 Other Miscellaneous	0
T5940 Feura Bush - North Catskill #2 115 23.19 67.9 3/30/07 22:58 3/31/07 21:26 Line Equipment Conductor	1,347
T2260 Geneva (Border City) - Elbridge #15 115 31.35 86.9 4/3/07 6:43 4/3/07 6:43 Unknown Unknown	0
T5030 Alps - Berkshire #393 345 8.77 39.0 4/7/07 17:23 4/7/07 19:18 External Foreign Utility	114
T5030 Alps - Berkshire #393 345 8.77 39.0 4/9/07 2:37 4/9/07 21:13 External Foreign Utility	1,116
T1380 Huntley - Gardenville #38 115 28.72 77.1 4/11/07 11:05 4/11/07 11:05 Other Human Error	0
T5820 Ticonderoga - Hague Road #4 115 1.35 70.2 4/15/07 19:21 4/18/07 12:59 Vegetation Tree Fell	3,938
T5770 Spier - West #9 115 16.6 64.8 4/15/07 20:17 4/16/07 6:47 Substation Equipment Reclosing Equipment	629
T5880 Warrensburg - Scofield Road #10 115 10.46 85.0 4/15/07 20:17 4/15/07 20:18 Unknown Unknown	0
T3100 Boundary Road - Dennison #1 115 0.02 #N/A 4/16/07 6:33 4/16/07 6:33 Unknown Unknown	0
T3100 Boundary Road - Dennison #1 115 0.02 #N/A 4/16/07 7:01 4/16/07 7:02 Unknown Unknown	0
T3100 Boundary Road - Dennison #1 115 0.02 #N/A 4/16/07 7:05 4/16/07 7:05 Unknown Unknown	0
T2300 Indeck Oswego - Lighthouse Hill #2 115 42.6 48.0 4/16/07 10:39 4/16/07 10:39 Unknown Unknown	0
T5120 Firehouse Road - North troy #15 115 5.04 36.8 4/16/07 11:15 4/16/07 11:16 Unknown Unknown	0
T2300 Indeck Oswego - Lighthouse Hill #2 115 42.6 48.0 4/16/07 11:37 4/16/07 12:03 Substation Equipment Reclosing Equipment	26

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70610	South Courses Indesk (Courses) #C	445	4.50	70.0	4/40/07 45:00	1110/07 10:05			
T2010	South Oswego - Indeck (Oswego) #6	115	4.58	/3.8	4/16/07 15:33	4/16/07 16:05	Substation Equipment	Reclosing Equipment	31
12260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	4/16/07 16:01	4/16/07 16:01	Unknown	Unknown	0
16150	Hook Road - Elbridge #/	115	54.75	82.6	4/16/07 16:56	4/16/07 16:56	Unknown	Unknown	0
11570	Mortimer - Elbridge #2	115	71.99	42.0	4/16/07 21:00	4/17/07 13:08	Substation Equipment	Reclosing Equipment	968
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	4/18/07 7:08	4/18/07 7:09	Unknown	Unknown	0
T1270	Gardenville - Dunkirk #142	115	55.38	<u> </u>	4/22/07 6:18	<u>4/22/07 6:19</u>	Unknown	Unknown	1
T2680	Teall - Oneida #5	115	30.59	78.2	<u>· 4/23/07 12:19</u>	4/23/07 12:20	Substation Equipment	Transformer	0
T4150	Oneida - Porter #7	115	21.29	81.2	4/23/07 12:19	4/23/07 12:20	Substation Equipment	Transformer	0
T3110	Boundary Road - Dennison #2	115	0,03	#N/A	4/23/07 12:54	4/23/07 12:54	External	Foreign Utility	0
T3110	Boundary Road - Dennison #2	115	0.03	#N/A	4/23/07 13:12	<u>4/23/07 13</u> :12	External	Foreign Utility	0
T3110	Boundary Road - Dennison #2	115	0.03	#N/A	4/23/07 13:14	4/23/07 13:14	External	Foreign Utility	0
T3110	Boundary Road - Dennison #2	115	0.03	#N/A	4/23/07 13:26	4/23/07 13:26	External	Foreign Utility	0
T3110	Boundary Road - Dennison #2	115	0.03	#N/A	4/23/07 13:30	4/23/07 13:30	External	Foreign Utility	0
T3100	Boundary Road - Dennison #1	115	0.02	#N/A	4/23/07 13:35	4/23/07 13:48	External	Foreign Utility	12
T1100	Dunkirk - Falconer #162	115	35.51	81.2	4/23/07 18:32	4/23/07 18:34	Unknown	Unknown	1
T4040	Boonville - Rome #4	115	26.71	76.6	4/23/07 20:32	4/25/07 0:44	Line Equipment	Conductor	1,692
T4060	Boonville - Rome #3	115	24.86	79.0	4/23/07 20:32	4/25/07 0:18	Line Equipment	Conductor	1,665
T1100	Dunkirk - Falconer #162	115	35.51	81.2	4/23/07 23:43	4/23/07 23:43	External	Customer Equipment	0
T1100	Dunkirk - Falconer #162	115	35.51	81.2	4/26/07 23:44	4/27/07 0:10	External	Customer Equipment	26
T1080	Dunkirk - Falconer #160	115	59.83	35.8	4/26/07 23:45	4/27/07 0:10	Substation Equipment	Circuit Breaker	25
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	4/26/07 23:45	4/27/07 0:10	Substation Equipment	Circuit Breaker	25
T2720	Volney - Clay #6	345	18.5	35.0	4/27/07 2:58	4/27/07 2:59	System Protection	ommunications Equipme	0
T5280	Long Lane - LaFarge Building Materials #6	115	7.69	67.9	5/1/07 8:00	5/1/07 13:37	Unknown	Unknown	336
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	5/5/07 6:37	5/5/07 6:37	Unknown	Unknown	0
T5130	Front St Rosa Road #11	115	4.04	47.4	5/5/07 7:27	5/5/07 7:27	Unknown	Unknown	0
T1170	Faiconer - Homer Hill #154	115	44.03	77.7	5/7/07 7:33	5/7/07 7:34	Unknown	Unknown	1
T1660	Niagara - Gardenville #180	115	31.67	77.5	5/7/07 16:32	5/8/07 14:11	System Protection	Relay	1,298
T1100	Dunkirk - Falconer #162	115	35.51	81.2	5/8/07 11:13	5/8/07 11:14	Substation Equipment	Switch - Motor Operated	0
T1870	Quaker Road (Sta. 121) - Sleight Road #13	115	13.85	86.6	5/8/07 11:43	5/9/07 3:00	Line Equipment	Splice	916
T6010	Wolf Road - Menands #10	115	4,64	75.1	5/11/07 8:14	5/11/07 8:14	Other	Animal	0
T5570	Reynolds Road - Greenbush #9	115	4,86	72.6	5/11/07 8:14	5/11/07 8:14	Other	Animal	0
T4220	Porter - Schuyler #13	115	6.63	59.2	5/11/07 9:58	5/11/07 9:58	Unknown	Unknown	0
T1640	Mountain - Niagara #121	115	1.12	50.2	5/11/07 19:41	5/11/07 19:41	Substation Equipment	ther Substation Equipme	0
T1650	Mountain - Niagara #122	115	1.12	49.1	5/11/07 19:41	5/11/07 19:41	Substation Equipment	ther Substation Equipme	0
T5240	Inghams - East Springfield #7	115	13.9	82.8	5/15/07 16:34	5/15/07 16:34	Unknown	Unknown	0
T1610	Mortimer (Sta.82) - Quaker (Sta.121) #23	115	17.23	86.0	5/15/07 21:31	5/15/07 21:31	Vegetation	Tree Fell	0
T1870	Quaker Road (Sta. 121) - Sleight Road #13	115	13 85	86.6	5/15/07 21:34	5/15/07 21 35	Lightning	Lightning	0
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T1610	Mortimer (Sta 82) - Quaker (Sta 121) #23	115	17.23	86.0	5/15/07 21:44	5/16/07 7:30	Vegetation	Tree Fell	585
T1450	Huntley - Lockport #37	115	24 35	22.4	5/15/07 22:50	5/15/07 22:50	Lightning	Lichtning	
T1500	Lockport - Batavia #108	115	35.63	71.2	5/15/07 22:50	5/15/07 22:50		Lightning	
T1510	Lockport - Batavia #112	115	34,13	76.6	5/15/07 22:50	5/15/07 22:50	Lightning	Lightning	0
T1520	Lockport - Hinman #100	115	0.2	33.1	5/15/07 22:50	5/15/07 22:50	Lightning	Lightning	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	5/15/07 22:50	5/15/07 22:50	Lightning	Lightning	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	5/15/07 22:50	5/15/07 22:50	Lightning	Lightning	0
T1620	Mountain - Lockport #103	115	19.86	76.8	5/15/07 22:50	5/15/07 22:50	Lightning	Lightning	0
T1690	Niagara - Lockport #101	115	18.55	39.1	5/15/07 22:50	5/15/07 22:51	Lightning	Lightning	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	5/16/07 1:14	5/16/07 1:25	Lightning	Lightning	10
T3040	Black River - Lighthouse Hill #6	115	35.22	73.5	5/16/07 1:14	5/16/07 1:15	Lightning	Lightning	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	5/18/07 5:27	5/18/07 5:29	Line Equipment	Static Wire	2
T1170	Falconer - Homer Hill #154	115	44.03	77.7	5/21/07 5:34	5/21/07 5:34	Unknown	Unknown	0
T1850	Packard - Urban (Erie St.) #181	115	22,8	72.9	5/21/07 14:26	5/21/07 14:27	Unknown	Unknown	0
T4090	Edic - Porter #17	230	0.42	48.2	5/22/07 7:42	5/22/07 11:04	Other	Human Error	201
T4100	Edic - Porter #20	115	0.47	27.0	5/22/07 7:42	5/22/07 7:43	Other	Human Error	0
T6020	Walck Road - Huntley #133	115	10.39	35.0	5/22/07 8:11	5/22/07 8:12	Line Equipment	Static Wire	0
T2410	Oneida - Fenner #8	115	10.85	22.1	5/25/07 16:12	5/25/07 16:13	Unknown	Unknown	0
T1360	Homer Hill - West Olean #156	115	1.74	72.9	5/26/07 3:59	5/26/07 4:00	Unknown	Unknown	0
T1510	Lockport - Batavia #112	115	34.13	76.6	5/26/07 16:09	5/26/07 16:10	Unknown	Unknown	0
T1170	Falconer - Homer Hill #154	115	44.03	77.7	5/27/07 16:54	5/27/07 16:55	Lightning	Lightning	1
T1160	Falconer - Homer Hill #153	115	43.93	78.2	5/27/07 20:16	5/27/07 20:17	Line Equipment	Insulator	1
T1160	Falconer - Homer Hill #153	115	43.93	78.2	5/27/07 20:24	5/27/07 20:26	Line Equipment	Insulator	1
T1160	Falconer - Homer Hill #153	115	43.93	78.2	5/27/07 20:28	5/27/07 20:30	Line Equipment	Insulator	1
T1170	Falconer - Homer Hill #154	115	44.03	77.7	5/27/07 20:29	5/28/07 13:13	Line Equipment	Insulator	1,004
T5810	Ticonderoga - Republic #2	115	23.3	70.2	5/29/07 6:42	5/29/07 6:42	Unknown	Unknown	0
T5820	Ticonderoga - Hague Road #4	115	1.35	70.2	5/29/07 6:42	5/29/07 6:42	Unknown	Unknown	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	5/29/07 6:42	5/29/07 6:42	Unknown	Unknown	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	5/29/07 6:47	5/29/07 6:47	Unknown	Unknown	0
T5820	Ticonderoga - Hague Road #4	115	1.35	70.2	5/29/07 6:47	5/29/07 6:47	Unknown	Unknown	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	5/29/07 6:47	5/29/07 6:47	Unknown	Unknown	0
T2670	Teall - Oneida #2	115	28.54	80.3	5/30/07 21:05	5/30/07 21:06	Unknown	Unknown	0
T1610	Mortimer (Sta.82) - Quaker (Sta.121) #23	115	17.23	86.0	6/3/07 1:12	6/3/07 10:03	Vegetation	Tree Fell	531
T1780	Packard - Gardenville #182	115	29,13	72.4	6/3/07 8:54	6/3/07 8:56	Other	Animal	2
T1780	Packard - Gardenville #182	115	29,13	72.4	6/3/07 8:59	6/3/07 9:01	Other	Animat	2
T1780	Packard - Gardenville #182	115	29.13	72.4	6/3/07 9:01	6/3/07 9:03	Other	Animal	2
T1780	Packard - Gardenville #182	115	29.13	72.4	6/3/07 9:18	6/3/07 9:19	Other	Animal	2
JJA-49	9								
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T2260	Geneva (Border City) - Elbridge #15	115	31 35	86.0	6/3/07 14:43	6/2/07 14:42			
T1870	Quaker Road (Sta 121) - Sleight Road #13	115	13.85	86.6	6/3/07 15:10	6/3/07 14.43 8/3/07 22:20	Unknown		0
T1780	Packard - Gardenville #182	115	29.13	724	6/3/07 20:15	6/3/07 22:30	External	Foreign Utility	440
T1780	Packard - Gardenville #182	115	29.13	72.4	6/3/07 20:13	6/3/07 20:10	Other	Animal	1
T1780	Packard - Gardenville #182	115	29.13	72.4	6/3/07 20:10	6/3/07 20:20	Other	Animal	2
T1780	Packard - Gardenville #182	115	29.13	72.4	6/3/07 20:32	6/3/07 20:33	Other	Animal	2
T1780	Packard - Gardenville #182	115	29.13	72.4	6/3/07 20:02	6/3/07 20:44	Other	Animal	2
T5340	Maplewood - Arsenal #15	115	2 15	68.0	6/5/07 12:58	6/5/07 12:58	Substation Equipment	Animar	1
T5290	Johnson Road - Maplewood #12	115	27	#N/A	6/5/07 12:58	6/5/07 12:58	Substation Equipment	Transformer	0
T5030	Alps - Berkshire #393	345	8.77	39.0	6/5/07 13:53	6/5/07 12:54	Substation Equipment	Transformer	0
T2140	Curtis Street - Teall #13	115	33.47	64.9	6/8/07 20:12	6/8/07 20:12	Clikitown		0
T2580	South Oswego - Curtis St. #10	115	12.21	75.6	6/8/07 20:12	6/8/07 20:12	Substation Equipment	Lightning Arrestor	0
T4040	Boonville - Rome #4	115	26.71	76.6	6/8/07 21:08	6/9/07 11:00	Substation Equipment	Lightning Arrestor	
T4060	Boonville - Rome #3	115	24.86	79.0	6/9/07 21:08	6/9/07 21:09	System Protection	Relay	841
T4060	Boonville - Rome #3	115	24.86	79.0	6/8/07 21:00	6/8/07 21:00		Unknown	0
T1020	Adams - Packard #188	115	6.41	43.4	6/12/07 4:17	6/12/07 6:02	Other		0
T1020	Adams - Packard #188	115	641	43.4	6/12/07 6:10	6/12/07 6:10	Unknown	Animai	105
T5240	Inghams - East Springfield #7	115	13.9	82.8	6/12/07 14:09	6/12/07 14:00		Unknown	0
T5890	Whitehall - Blissville #7	115	5.96	52.0	6/12/07 14:57	6/12/07 14:03	Unknown	Unknown	0
T5240	Inghams - East Springfield #7	115	13.9	82.8	6/12/07 16:29	6/12/07 16:29	Unknown	Unknown	0
T4300	Yahnundasis - Porter #3	115	13.21	50.9	6/12/07 17:00	6/12/07 17:01	Unknown	Unknown	0
T4150	Oneida - Porter #7	115	21.29	81.2	6/12/07 18:48	6/12/07 18:48	Unknown	Unknown	0
T4160	Oneida - Yahnundasis #6	115	19.52	52.3	6/12/07 18:48	6/12/07 18:49	Linknown	Unknown	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	6/12/07 20:09	6/12/07 20:10	Liokaoum	Unknown	
T5810	Ticonderoga - Republic #2	115	23.3	70.2	6/13/07 3:23	6/13/07 3:24	Linknown	Unknown	<u> </u>
T1090	Dunkirk - Falconer #161	115	35.04	81.2	6/13/07 13:52	6/14/07 12:34	Vegetation		1 261
T1100	Dunkirk - Falconer #162	115	35.51	81.2	6/13/07 13:52	6/13/07 13:53	Vegetation	Tree Fell	1,301
T5900	Whitehall - Mohican #13	115	25.81	77.6	6/14/07 5:36	6/14/07 5:37	Unknown	linkoown	·····
T5440	Mohican - Butler #18	115	7.43	#N/A	6/16/07 16:30	6/16/07 17:32		Liphtning	62
T5710	Spier - Butler #4	115	5.74	79.0	6/16/07 16:30	6/18/07 16:18	Line Equipment	Lightning	02
T6070	Spier - Mohican #7	115	9.46	79.0	6/16/07 16:30	6/16/07 16:30	Lightning	Lightning	2,868
T5740	Spier - Queensbury #17	115	10.93	61.6	6/16/07 16:36	6/16/07 16:36	Lightang	Lightning	
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	6/19/07 16:09	6/19/07 16 10	Lightning	Lichtning	
T1260	Gardenville - Dunkirk #141	115	56,73	81.2	6/19/07 16 19	6/20/07 1 24	Line Equipment	Solice	<u> </u>
T4150	Oneida - Porter #7	115	21.29	81.2	6/19/07 16:23	6/19/07 16:23	tinknown	Linknown	
T4220	Porter - Schuyler #13	115	6.63	59.2	6/19/07 16:27	6/20/07 2:15	Vegetation		U
T5390	Meco - Rotterdam #10	115	37.69	66.9	6/19/07 18:02	6/19/07 18:04			
								UTIKHOWH	Z

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TAAGO	Folgener Hemoritill #152	445	42.02	78.0	6/10/07 18:10	6/01/07 B-05	Magatation		0.000
11100	Faiconer - Homer Hill #153	115	43.93	78.2	6/19/07 18:19	6/21/07 8:25	Vegetation		2,285
15770	Spier - vvest #9	115	10.0	64.8	6/19/07 18:30	6/19/07 18:31		Unknown	0
15660	Variensburg - Sconeid Road #10	115	10.46	85.0	6/19/07 18:30	0/19/07 18:31	Unknown	Unknown	0
T1530	Lockport - Montimer #111	115	00.82	/8.1	6/20/07 6:57	6/20/07 6:57	Unknown	Unknown	0
15940	Nortimos Pennell Based #26	115	23.19	67.9	6/21/07 17:10	6/21/07 17:25		Unknown	15
T1000	Pennell (Sta 100) Consult (Pander City) #4	115	10.72	03.0	6/22/07 10:53	0/22/07 10:54	Other	Miscellaneous	0
11000	Pannell (Sta. 122) - Geneva (Border City) #4	115	23.11	00.U	6/26/07 46:50	6/26/07 9:21	Other	Animal	0
T4050	Condenville Hemer Hill #151	115	32.82	40./	6/20/07 10:59	6/20/07 17:00	Unknown	Animai	0
T5070	Gardenville - Homer Hill #151	115	82.0	87.1	6/27/07 45:44	6/27/07 45:44	Unknown	Unknown	0
15270	Ingnams - Stoner #9	115	20.1	72.0	6/2//07 15:11	6/27/07 15:11	Lightning	Lightning	0
10000	Stoner - Rotterdam #12	115	29.83	72.0	6/2//07 15.11	6/27/07 10:12	Lightning	Lightning	0
12130	Contand - Lapeer #1	110	7.77	60.0	0/2//0/ 10:0/	0/2//0/ 10:0/	Unknown	Unknown	0
15260	Ingnams - St. Johnsville #6	115	7.5	61.7	6/2//07 16:25	6/27/07 46:05		Unknown	0
15/60	St. Johnsville - Marshville #11	115	9.88	44.4	0/2//07 10.20	0/27/07 10:25	Unknown	Unknown	0
15060	North Trou Payrolds Pood #16	115	23.42	79.0	6/2//07 16:42	6/27/07 18:11		Lightning	69
15540	North Troy - Reynolds Road #16	115	11.57	/3.5	0/2//07 10:42	6/2//07 18:1/		Lightning	95
15/00	Rotterdam - vvoodlawn #35	115	13.6	/5.1	6/2//07 17:10	6/2//07 17:11			1
15350	Maplewood - Menands #19	115	5.41	63.6	6/2//07 17:39	6/28/07 23:19	Vegetation		1,780
15550	North Troy - vvyhantskill #14	115	8.62	/3.5	6/2//07 17:47	6/27/07 17:48	Unknown	Unknown	0
11850	Packard - Urban (Erie St.) #181	115	22.8	/2.9	6/28/07 12:10	6/28/07 12:11	Vegetation	Tree Broken Limb	0
12/10	Filden - Cortland #18	115	34.81	40.0	//1/0/ 6:19	//1/0/ 6:20	Line Equipment	Guy	0
15240	Inghams - East Springfield #/	115	13.9	82.8	//2/07 6:14	7/2/07 6:15	Unknown	Unknown	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	//2/07 19:54	7/2/07 19:55	Unknown	Unknown	0
T5870	Warrensburg - North Creek #5	115	23.37	21.0	7/6/07 16:03	7/6/07 16:04	Lightning	Lightning	2
T5750	Spier - Rotterdam #1	115	54.31	20.0	7/6/07 18:01	7/6/07 18:01	Lightning	Lightning	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/6/07 18:01	7/6/07 18:01	Lightning	Lightning	0
T5950	Indeck Corinth - Spier #18	115	3.8	#N/A	7/6/07 18:01	7/6/07 18:40	Lightning	Lightning	39
T1890	Southeast Batavia - Golah #119	115	28.39	58.1	7/8/07 12:03	7/8/07 12:04	Lightning	Lightning	1
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	7/8/07 19:01	7/8/07 19:01	Unknown	Unknown	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	7/9/07 3:18	7/9/07 3:18	Lightning	Lightning	0
T4060	Boonville - Rome #3	115	24.86	79.0	7/9/07 3:41	7/9/07 3:42	Lightning	Lightning	0
T4040	Boonville - Rome #4	115	26.71	76.6	7/9/07 3:41	7/9/07 3:42	Lightning	Lightning	0
T4060	Boonville - Rome #3	115	24.86	79.0	7/9/07 4:03	7/9/07 4:04	Lightning	Lightning	0
T4040	Boonville - Rome #4	115	26.71	76.6	7/9/07 4:03	7/9/07 4:04	Lightning	Lightning	0
T4250	Rome - Oneida #1	115	12.31	64.3	7/9/07 4:03	7/9/07 4:04	Unknown	Unknown	0
T4030	Boonville - Porter #2	115	27.1	86.1	7/9/07 4:18	7/9/07 16:59	Line Equipment	Insulator	761
T3130	Coffeen - West Adams #2	115	14.15	24.6	7/9/07 4:39	7/9/07 4:39	Unknown	Unknown	0

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T2170	Colton Malone #3	115	20.95	70.1	7/0/07 5-20	7/0/07 5:20	Linknoup	Unknown	
T5130	Eront St - Rosa Road #11	115	20.85	10.1	7/9/07 5.20	7/9/07 5:20	Unknown	Unknown	0
T5130	Front St Rosa Road #11	115	4.04	47.4	7/9/07 8:56	7/9/07 6:56	Unknown	Unknown	0
T5400	Menands - Reynolds Road #2	115	2 49	72.6	7/9/07 6:56	7/9/07 6:57	Linknown	Linknown	0
T5400	Menands - Reynolds Road #2	115	2.45	72.0	7/9/07 6:58	7/9/07 6:59	Unknown	Unknown	0
T5040	Altamont - New Scotland #20	115	8 48	80.3	7/9/07 6:58	7/9/07 6:59	Lightning	Lightning	0
T5620	Rotterdam - Altamont #17	115	8 53	69.3	7/9/07 6:58	7/9/07 8:59	Lightning	Lightning	0
T5690	Rotterdam - New Scotland #19	115	17.03	80.3	7/9/07 6:58	7/9/07 6:59	Uokoown	Unknown	0
T3380	Alcoa - North Ogdensburg #13	115	35.08	32.8	7/9/07 18:12	7/9/07 18:12	Lightning	Lightning	0
T3170	Colton - Malone #3	115	20.85	70.1	7/9/07 18:54	7/9/07 18:55	Unknown	Unknown	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	7/9/07 20:50	7/9/07 20:50	Lightning	Lightning	0
T5220	Hoosick - Bennington #6	115	4.16	52.0	7/10/07 7:04	7/11/07 2:38	Line Equipment	Cross Arm / Davit Arm	1 173
T5530	North Troy - Hoosick #5	115	17.83	52.0	7/10/07 7:04	7/11/07 2:38	Line Equipment	Cross Arm / Davit Arm	1,173
T5770	Spier - West #9	115	16.6	64.8	7/10/07 19:09	7/10/07 19:10	Weather	Weather	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	7/10/07 19:09	7/10/07 19:10	Weather	Weather	0
T5770	Spier - West #9	115	16.6	64.8	7/10/07 19:10	7/12/07 1:31	Vegetation	Tree Fell	1.820
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	7/10/07 19:10	7/11/07 4:30	Vegetation	Tree Fell	559
T5550	North Troy - Wynantskill #14	115	8.62	73.5	7/10/07 19:21	7/10/07 19:21	Configuration	Configuration	0
T5930	Wynantskill - Reynolds Road #13	115	4.26	73.5	7/10/07 19:21	7/10/07 20:07	Configuration	Miscellaneous	46
T5540	North Troy - Reynolds Road #16	115	11.57	73.5	7/10/07 19:21	7/10/07 20:07	Configuration	Miscellaneous	46
T5970	Queensbury - Cedar #10	115	3.63	70.9	7/10/07 19:22	7/10/07 19:25	Weather	Snow	3
T5910	Whitehall - Cedar #6	115	24.25	70.9	7/10/07 19:22	7/10/07 19:22	Weather	Weather	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/10/07 19:22	7/10/07 20:07	Line Equipment	Conductor	44
T5910	Whitehall - Cedar #6	115	24.25	70.9	7/10/07 19:24	7/10/07 19:25	Weather	Weather	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/10/07 20:07	7/10/07 20:08	Line Equipment	Conductor	2
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/10/07 20:10	7/10/07 20:10	Line Equipment	Conductor	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/10/07 20:12	7/12/07 1:18	Line Equipment	Conductor	1,746
T3320	Taylorville - Boonville #5	115	<u>31.13</u>	79.4	7/11/07 15:44	7/11/07 15:45	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	7/11/07 15:44	7/11/07 15:45	Lightning	Lightning	0
T5760	Spier - Rotterdam #2	115	51.21	62.0	7/12/07 3:28	7/12/07 3:28	Substation Equipment	Lightning Arrestor	0 .
T5770	Spier - West #9	115	16.6	64.8	7/12/07 10:13	7/12/07 10:16	Other	Human Error	2
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	7/12/07 10:13	7/12/07 10:16	Other	Human Error	2
T5770	Spier - West #9	115	16.6	64.8	7/12/07 10:22	7/12/07 10:22	Other	Human Error	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	7/12/07 10:22	7/12/07 10:22	Other	Human Error	0
T4110	Levitt - Rome #8	115	22.88	41.4	7/13/07 2:33	7/13/07 2:33	Lightning	Lightning	0
T1170	Falconer - Homer Hill #154	115	44.03	77.7	7/14/07 17:07	7/14/07 17:08	Unknown	Unknown	1
T5940	Feura Bush - North Catskill #2	115	23.19	67.9	7/16/07 12:32	7/17/07 5:26	Line Equipment	Conductor	1,014

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T2630	South Oswego - Nine Mile Pt. #1 #1	115	12.96	68.8	7/17/07 4:39	7/17/07 4:40	Unknown	Unknown	0
T3170	Colton - Malone #3	115	20.85	70.1	7/22/07 13:32	7/22/07 16:49	Other	Logger	197
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	7/23/07 18:48	7/24/07 14:13	Unknown	Unknown	1,165
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	7/24/07 10:53	7/25/07 9:47	Line Equipment	Conductor	1,374
T4200	Porter - Rotterdam #30	230	71.53	50,5	7/25/07 9:53	7/25/07 10:08	Other	Human Error	15
T4210	Porter - Rotterdam #31	230	72.16	58.2	7/25/07 9:53	7/25/07 13:04	Other	Human Error	191
T1540	Lockport - Mortimer #113	115	66.63	77.9	7/27/07 2:24	7/27/07 2:25	Unknown	Unknown	1
T3150	Colton - Browns Falls #2	115	30.49	71.0	7/27/07 13:19	7/27/07 13:19	Lightning	Lightning	0
T3170	Colton - Malone #3	115	20.85	70.1	7/27/07 18:46	7/27/07 18:46	Unknown	Unknown	0
T1450	Huntley - Lockport #37	115	24.35	22.4	7/30/07 6:27	7/30/07 6:27	Unknown	Unknown	0
T5900	Whitehall - Mohican #13	115	25.81	77.6	7/31/07 5:39	7/31/07 5:40	Unknown	Unknown	1
T3130	Coffeen - West Adams #2	115	14.15	24.6	8/3/07 1:07	8/3/07 1:07	Lightning	Lightning	0
T3130	Coffeen - West Adams #2	115	14.15	24.6	8/3/07 2:30	8/3/07 2:30	Lightning	Lightning	0
T3120	Coffeen - Black River #3	115	10.66	48.6	8/3/07 2:51	8/3/07 2:52	Lightning	Lightning	0
T5260	Inghams - St. Johnsville #6	115	7.5	61.7	8/3/07 13:56	8/3/07 13:57	Unknown	Unknown	0
T4280	Volney - Marcy #19	345	65.3	25.6	8/3/07 16:44	8/3/07 16:44	Unknown	Unknown	0
T5450	New Scotland - Alps #2	345	30.81	39.0	8/3/07 17:43	8/5/07 0:33	Line Equipment	Cross Arm / Davit Arm	1,850
T2410	Oneida - Fenner #8	115	10.85	22.1	8/3/07 19:20	8/3/07 19:20	System Protection	Relay	0
T6140	Fenner - Cortland #3	115	34.55	22.1	8/3/07 19:20	8/3/07 19:20	Lightning	Lightning	0
T4020	Boonville - Porter #1	115	27.1	86.3	8/3/07 21:06	8/3/07 21:37	Unknown	Unknown	30
T4030	Boonville - Porter #2	115	27.1	86,1	8/3/07 21:09	8/3/07 21:10	Unknown	Unknown	0
T4040	Boonville - Rome #4	115	26.71	76.6	8/4/07 5:46	8/4/07 5:47	Unknown	Unknown	0
T1100	Dunkirk - Falconer #162	115	35.51	81.2	8/6/07 17:20	8/6/ <u>07</u> 17:21	Unknown	Unknown	1
T2260	Geneva (Border City) - Elbridge #15	115	31.35	86.9	8/8/07 19:47	8/8/07 19:47	Unknown	Unknown	0
T5810	Ticonderoga - Republic #2	115	23.3	70.2	8/9/07 22:36	8/9/07 22:37	Unknown	Unknown	0
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	8/10/07 22:03	8/10/07 22:03	Unknown	Unknown	0
T6060	Mohican - North Troy #3	115	37.39	79.0	8/13/07 18:42	8/14/07 21:38	Other	Logger	1,616
T5430	Mohican - Battenkill #15	115	15.12	79.0	8/13/07 18:43	8/14/07 22:31	Other	Logger	1,668
T6070	Spier - Mohican #7	115	9,46	79.0	8/13/07 18:43	8/13/07 18:44	System Protection	Relay	0
T1560	Mortimer - Hook Road #1	115	21.35	81.8	8/16/07 3:32	8/16/07 3:33	Unknown	Unknown	0
	Hook Road - Elbridge #7	115	54.75	82.6	8/16/07 5:08	8/16/07 5:08	Unknown	Unknown	0
T3100	Boundary Road - Dennison #1	115	0.02	#N/A	8/16/07 15:36	8/16/07 15:39	Unknown	Unknown	2
T1530	Lockport - Mortimer #111	115	66.82	78.1	8/18/07 6:25	8/18/07 6:26	Unknown	Unknown	0
T1570	Mortimer - Elbridge #2	115	71.99	42.0	8/23/07 14:33	8/23/07 14:34	Lightning	Lightning	0
T6150	Hook Road - Elbridge #7	115	54,75	82.6	8/23/07 14:33	8/23/07 14:33	Lightning	Lightning	0
T2410	Oneida - Fenner #8	115	10.85	22.1	8/23/07 15:30	8/23/07 15:30	Lightning	Lightning	0
T4150	Oneida - Porter #7	115	21.29	81.2	8/23/07 16:00	8/23/07 16:01	Lightning	Lightning	0

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21.2									
T4160	Oneida - Yahnundasis #6	115	19.52	52.3	8/23/07 16:00	8/23/07 16:01	Lightning	Lightning	1 1
T6140	Fenner - Cortland #3	115	34.55	22.1	8/24/07 22:50	8/24/07 22:50	Lightning	Lightning	0
T2040	Clay - Dewitt #3	115	20.46	60.7	8/25/07 13:02	8/25/07 13:03	Lightning	Lightning	0
T4110	Levitt - Rome #8	115	22.88	41.4	8/25/07 14:49	8/25/07 14:49	Lightning	Lightning	0
T3330	Taylorville - Boonville #6	115	37.35	80.8	8/25/07 15:02	8/25/07 15:03	Lightning	Lightning	0
T4020	Boonville - Porter #1	115	27.1	86.3	8/25/07 15:04	8/25/07 15:05	Unknown	Unknown	0
T4030	Boonville - Porter #2	115	27.1	86.1	8/25/07 15:10	8/25/07 15:10	Unknown	Unknown	0
T5870	Warrensburg - North Creek #5	115	23.37	21.0	8/25/07 16:22	8/25/07 16:23	Lightning	Lightning	1
T5770	Spier - West #9	115	16.6	64.8	8/25/07 16:27	8/25/07 16:28	Lightning	Lightning	0
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	8/25/07 16:27	8/25/07 16:38	Configuration	Shared Circuit	11
T5770	Spier - West #9	115	16.6	64.8	8/25/07 16:31	8/25/07 16:32	Lightning	Lightning	0
T5980	New Scotland - Albany #8	115	8.57	20.1	8/25/07 18:12	8/25/07 19:39	Lightning	Lightning	86
T5120	Firehouse Road - North troy #15	115	5.04	36.8	8/25/07 20:07	8/25/07 20:08	Unknown	Unknown	0
T5060	Battenkill - North Troy #10	115	23.42	79.0	8/25/07 20:28	8/25/07 20:29	Unknown	Unknown	0
T6060	Mohican - North Troy #3	115	37.39	79.0	8/25/07 20:28	8/25/07 20:29	Unknown	Unknown	0
T5750	Spier - Rotterdam #1	115	54.31	20.0	8/25/07 21:29	8/25/07 21:30	Unknown	Unknown	0
T5280	Long Lane - LaFarge Building Materials #6	115	7.69	67.9	8/25/07 22:57	8/25/07 22:57	Lightning	Lightning	0
T5940	Feura Bush - North Catskill #2	115	23.19	67.9	8/25/07 22:57	8/26/07 0:48	Lightning	Lightning	111
T5630	Rotterdam - Bear Swamp E205	230	43.78	47.7	8/26/07 0:50	8/26/07 22:16	Vegetation	Tree Fell	1,285
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	8/27/07 0:24	8/27/07 0:24	Unknown	Unknown	0
T2680	Teall - Oneida #5	115	30,59	78.2	8/27/07 9:58	8/27/07 9:58	Unknown	Unknown	0
T5730	Spier - Queensbury #5	115	10.41	56.6	8/29/07 14:04	8/29/07 17:25	Unknown	Unknown	201
T5900	Whitehall - Mohican #13	115	25.81	77.6	8/30/07 0:49	8/30/07 0:50	Unknown	Unknown	0
T1860	Pannell (Sta. 122) - Geneva (Border City) #4	115	25.11	88.0	8/31/07 8:55	8/31/07 8:55	Unknown	Unknown	0
T5940	Feura Bush - North Catskill #2	115	23.19	67.9	9/1/07 3:55	9/1/07 4:26	Unknown	Unknown	31
T1600	Mortimer - Pannell Road #25	115	15.72	83.8	9/2/07 23:39	9/2/07 23:39	Unknown	Unknown	0
T1580	Mortimer - Golah #110	115	9.52	59.5	9/11/07 22:07	9/12/07 8:12	Vegetation	Tree Fell	604
T1530	Lockport - Mortimer #111	115	66.82	78.1	9/24/07 14:35	9/24/07 14:35	Unknown	Unknown	0
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	9/25/07 15:00	9/25/07 15:21	System Protection	Relay	21
T1230	Gardenville - Depew #54	115	7.26	53.9	9/25/07 22:21	9/25/07 22:22	Unknown	Unknown	0
T1520	Lockport - Hinman #100	115	0.2	33.1	9/25/07 23:18	9/26/07 2:35	External	Foreign Utility	197
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	9/26/07 1:22	9/26/07 1:23	Lightning	Lightning	0
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	9/26/07 3:45	9/26/07 3:46	Lightning	Lightning	0
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	9/26/07 3:45	9/26/07 3:48	Lightning	Lightning	3
T2300	Indeck Oswego - Lighthouse Hill #2	115	42.6	48.0	9/26/07 19:03	9/26/07 19:05	System Protection	Relay	2
T1350	Homer Hill - Dugan Road #155	115	1.74	39.7	9/26/07 19:38	9/26/07 19:38	Lightning	Lightning	0
T6270	North Carthage - Taylorville #8	115	11.6	48.7	9/27/07 15:14	9/27/07 15:15	Unknown	Unknown	0

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#### JJA-49 Atatchment 1 Sheet 1

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									Offeet 1
T6070	Managehung Marth Caroli 45	115	00.07		0/07/07 47 40	0/07/07 47 40		11-1	
15870	Vvarrensburg - North Creek #5	115	23.37	21.0	9/27/07 17:19	9/27/07 17:19	Unknown	Unknown	0
10440	Monican - Butler #18	115	7.43	#N/A	9/2//07 17:59	9/27/07 17:59	Lightning		0
15/10	Spier - Butler #4	115	5.74	79.0	9/27/07 17:59	9/2//07 17:59	Lightning	Lightning	0
16070	Spier - Monican #/	115	9.46	/9.0	9/27/07 17:59	9/27/07 17:59	Lightning	Lightning	0
15/30	Spier - Queensbury #5	115	10.41	56.6	9/27/07 18:02	9/27/07 18:05	Lightning	Lightning	3
16060	Mohican - North Troy #3	115	37.39	79.0	9/27/07 18:07	9/27/07 18:08		Unknown	0
<u>T5770</u>	Spier - West #9	115	16.6	64.8	9/27/07 21:44	9/27/07 21:46	Configuration	NRA in place	2
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	9/27/07 21:44	9/27/07 21:46	Lightning	Lightning	2
T5880	Warrensburg - Scofield Road #10	115	10.46	85.0	9/27/07 22:15	9/27/07 22:16	Configuration	NRA in place	1
T5770	Spier - West #9	115	16.6	64.8	9/27/07 22:15	9/27/07 22:16	Lightning	Lightning	0
T1510	Lockport - Batavia #112	115	34.13	76.6	9/28/07 10:05	9/28/07 10:05	Lightning	Lightning	0
T4150	Oneida - Porter #7	115	21.29	81,2	9/29/07 12:09	9/29/07 12:09	Unknown	Unknown	0
T1140	Elm Street - Gardenville #71	230	6.13	#N/A	10/4/07 14:03	10/4/07 16:09	Substation Equipment	Transformer	125
T1820	Packard - Huntley #130	115	21.32	58.2	10/5/07 10:43	10/5/07 10:44	Other	Vehicle	0
T4040	Boonville - Rome #4	115	26.71	76.6	10/6/07 15:20	10/7/07 13:24	Line Equipment	Conductor	1,324
T4060	Boonville - Rome #3	115	24.86	79.0	10/6/07 15:20	10/6/07 15:20	Lightning	Lightning	0
T5920	Woodlawn - State Campus #12	115	11.43	75.1	10/6/07 16:48	10/6/07 16:48	Lightning	Lightning	0
T5260	Inghams - St. Johnsville #6	115	7.5	61.7	10/6/07 17:04	10/6/07 17:05	Lightning	Lightning	0
T5780	St. Johnsville - Marshville #11	115	9,88	44.4	10/6/07 17:04	10/6/07 17:05	Configuration	Configuration	0
T1610	Mortimer (Sta.82) - Quaker (Sta.121) #23	115	17.23	86.0	. 10/6/07 17:44	10/6/07 17:45	Unknown	Unknown	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	10/7/07 0:51	10/7/07 0:52	Unknown	Unknown	0
T1200	Gardenville - Bethlehem #150	115	5.83	29,4	10/7/07 1:21	10/7/07 1:21	Lightning	Lightning	0
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	10/7/07 1:35	10/7/07 1:36	Lightning	Lightning	0
T6180	Corning - Battle Hill #4	115	25.2	78.8	10/8/07 3:46	10/8/07 3:51	Lightning	Lightning	4
T3030	Colton - Battle Hill #7	115	34,76	74.5	10/8/07 3:46	10/8/07 3:47	Lightning	Lightning	0
T2180	Elbridge - Geres Lock #18	115	8,16	86.9	10/8/07 14:44	10/8/07 14:45	Other	Human Error	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	10/8/07 17:44	10/8/07 17:44	Lightning	Lightning	0
T1540	Lockport - Mortimer #113	115	66.63	77.9	10/8/07 17:44	10/8/07 17:45	Lightning	Lightning	1
T1550	Lockport - Mortimer #114	115	60.3	58.0	10/8/07 17:44	10/8/07 17:45	Lightning	Lightning	1
T4020	Boonville - Porter #1	115	27.1	86.3	10/8/07 20:48	10/8/07 20:48	Lightning	Lightning	0
T4030	Boonville - Porter #2	115	27.1	86.1	10/8/07 20:48	10/8/07 20:48	Lightning	Lightning	0
T1500	Lockport - Batavia #108	115	35,63	71.2	10/9/07 11:46	10/9/07 11:47	Lightning	Liahtning	0
T6270	North Carthage - Taylorville #8	115	11.6	48.7	10/9/07 15:19	10/9/07 15:20	Liahtning	Liahtning	0
T5630	Rotterdam - Bear Swamp E205	230	43.78	47.7	10/9/07 20:04	10/9/07 20:04	Lightning	Liahtnina	0
T1090	Dunkirk - Falconer #161	115	35.04	81.2	10/13/07 2:58	10/13/07 3:03	Unknown	Unknown	5
T1510	Lockport - Batavia #112	115	34.13	76.6	10/15/07 7:06	10/15/07 7:07	Unknown	Unknown	
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	10/19/07 12:14	10/20/07 14:31	Line Equipment	Insulator	1 577
	0.0.9					10,20,01,14,01		modiator	

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<u>T3340</u>	Taylorville - Moshier #7	115	11.21	79.9	10/19/07 16:17	10/20/07 0:26	Line Equipment	Insulator	489
T5130	Front St Rosa Road #11	115	4.04	47.4	10/25/07 7:48	10/25/07 7:48	Other	Animal	0
T5610	Rosa Road - G.E. (R&D) #14	115	1.88	#N/A	10/25/07 7:48	10/25/07 7:48	Other	Animal	0
T1340	Homer Hill - Bennett Road #157	115	52.57	43.4	10/27/07 14:25	10/27/07 14:26	Vegetation	Tree Broken Limb	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	10/29/07 18:26	10/30/07 3:48	Line Equipment	Splice	561
	Mortimer - Pannell Road #25	115	15.72	83.8	11/2/07 11:44	11/2/07 11:45	Other	Human Error	0
	Lockport - Mortimer #114	115	60.3	58.0	11/2/07 11:44	11/2/07 11:45	Other	Human Error	0
T1570	Mortimer - Elbridge #2	115	71.99	42.0	11/2/07 11:44	11/2/07 11:45	Other	Human Error	0
T1580	Mortimer - Golah #110	115	9.52	59.5	11/2/07 11:44	11/2/07 11:45	Other	Human Error	. 0
T1550	Lockport - Mortimer #114	115	60.3	58.0	11/3/07 10:52	11/3/07 10:53	Unknown	Unknown	1
T2220	FitzPatrick - Lighthouse Hill #3	115	26.83	44.9	11/4/07 2:21	11/5/07 2:09	Line Equipment	Conductor	1,428
T4260	Terminal - Schuyler #7	115	4.7	47.8	11/7/07 17:57	11/9/07 16:52	Substation Equipment	Transformer	2,815
T4070	Edic - New Scotland #14	345	83.24	48.0	11/15/07 8:16	11/15/07 13:33	Unknown	Unknown	317
T1370	Huntley - Elm Street #70	230	7.76	#N/A	11/19/07 1:33	11/19/07 9:00	External	Generator	447
T1400	Huntley - Gardenville #79	230	20.43	52.1	11/19/07 1:33	11/19/07 8:58	External	Generator	445
T1800	Packard - Huntley #78	230	12.14	51.9	11/19/07 1:33	11/19/07 8:59	External	Generator	446
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	11/27/07 17:31	11/27/07 17:32	Unknown	Unknown	1
T3280	McIntyre - Colton #8	115	37.65	72.2	12/8/07 19:53	12/8/07 19:54	Unknown	Unknown	1
T4130	Marcy - New Scotland #18	345	84.34	37.9	12/11/07 11:52	12/11/07 13:40	Unknown	Unknown	108
T1090	Dunkirk - Falconer #161	115	35.04	81.2	12/17/07 18:32	12/17/07 18:33	Substation Equipment	Switch - Motor Operated	0
T1570	Mortimer - Elbridge #2	115	71.99	42.0	12/19/07 8:47	12/19/07 21:18	Line Equipment	Splice	751
T1470	Kensington - Gardenville #44	115	6.2	55.6	12/20/07 7:15	12/20/07 8:16	Unknown	Unknown	60
T1090	Dunkirk - Falconer #161	115	35.04	81.2	12/21/07 23:11	12/21/07 23:12	Line Equipment	Static Wire	1
T1090	Dunkirk - Falconer #161	115	35.04	81.2	12/22/07 0:56	12/22/07 0:57	Line Equipment	Static Wire	0
T1090	Dunkirk - Falconer #161	115	35.04	81.2	12/22/07 1:05	12/22/07 1:06	Line Equipment	Static Wire	1
T1090	Dunkirk - Falconer #161	115	35.04	81.2	12/22/07 1:17	12/22/07 1:18	Line Equipment	Static Wire	1
T1090	Dunkirk - Falconer #161	115	35.04	81.2	12/22/07 4:36	12/22/07 9:10	Line Equipment	Static Wire	274
T3340	Taylorville - Moshier #7	115	11.21	79.9	12/29/07 8:03	12/29/07 8:08	Vegetation	Tree Fell	5
T1090	Dunkirk - Falconer #161	115	35.04	81.2	1/9/08 3:50	1/9/08 3:51	Unknown	Unknown	1
T1100	Dunkirk - Falconer #162	115	35.51	81.2	1/9/08 3:53	1/9/08 4:00	Unknown	Unknown	6
T1210	Gardenville - Buffalo River Switch #145	115	12.61	47.8	1/9/08 4:12	1/9/08 4:13	Unknown	Unknown	0
T1220	Gardenville - Buffalo River Switch #146	115	10.71	47.6	1/9/08 4:12	1/9/08 4:13	Unknown	Unknown	0
T6080	Falconer - Warren #171	115	7.99	82.0	1/9/08 4:17	1/9/08 16:54	External	Foreign Utility	757
T1850	Packard - Urban (Erie St.) #181	115	22.8	72,9	1/9/08 4:19	1/9/08 4:20	Unknown	Unknown	0
T1510	Lockport - Batavia #112	115	34.13	76.6	1/9/08 4:31	1/9/08 4:32	Unknown	Unknown	<u> </u>
T1540	Lockport - Mortimer #113	115	66.63	77.9	1/9/08 4:55	1/9/08 4:57	Unknown	Unknown	1
T1090	Dunkirk - Falconer #161	115	35.04	81.2	1/9/08 5:42	1/9/08 5:44	Unknown	Unknown	1

T1280         Gardenville - Homer Hill #152         115         82.5         87.2         119/08 6.16         119/08 6.20         Unknown         Unknown         11           T1290         Coffeen - Black River #3         115         10.66         48.8         119/08 6.42         Unknown         Unknown         0           T3120         Coffeen - Black River #3         115         10.66         48.8         119/08 6.42         Unknown         Unknown         0           T3000         Black River - Tayloxnile #2         115         32.82         48.7         119/08 9.09         Unknown         Unknown         0           T3001         Ogdenaburg - McIntyre #2         115         32.82         48.7         119/08 9.09         Unknown         Unknown         0           T3001         Ogdenaburg - McIntyre #2         115         2.46         32.9         119/08 9.59         Unknown         Unknown         0           T3140         Corning - Bate Niter - Tayloxnile #2         115         32.45         71.9         11/06 9.59         119/06 8.25         Vegatation         Tree Fell         839           T3140         Corning - Bate Xiter - Tayloxnile #2         115         32.42         71.90         119/06 10.21         Unknown         Unkno	÷						and the second sec			
T1280         Garderville - Homer Hill #152         115         82.5         87.2         1/9/08 6.16         1/9/08 11.02         Unknown         Unknown         285           T1090         Durkirk - Falconer #161         115         35.04         81.2         1/9/08 6.16         1/9/08 8.22         Unknown         Unknown         0           T3120         Coffeen - Black River #3         115         10.66         48.6         1/9/08 6.42         Unknown         Unknown         0           T3000         Black River - Tayloxule #2         115         32.82         48.7         1/9/08 9.01         Unknown         Unknown         0           T3000         Ogdenaburg - Mothlyre #2         115         32.82         48.7         1/9/08 9.01         Unknown         Unknown         0           T3000         Ogdenaburg - Mothlyre #2         115         32.82         78.8         1/9/08 9.49         Unknown         Unknown         0         113.41           T3404         Calon - Brown Fails #1         115         32.82         78.8         1/9/08 10.21         Unknown         Unknown         0         173.43           T3404         Calon - Brown Fails #1         115         31.41         33.21         1/9/08 10.21         Unknown										
11280         California: + nomer mill 1122         116         62.3         67.2         11/8/08 6.10         Unknown         Unknown         Unknown         1           11990         Dunkik: + Radomer #161         116         10.66         48.6         11/8/08 6.42         Unknown         Unknown         Unknown         0           13120         Coffeen Black River #3         115         10.66         48.6         11/8/08 6.42         Unknown         Unknown         0           13120         Coffeen Black River #3         115         32.82         48.7         11/8/08 6.45         11/9/08 6.42         Unknown         Unknown         0           13080         Black River - Taylorville #2         115         32.82         48.7         11/9/08 9.09         10/known         Unknown         0           13080         Coming - Battel Hill #4         115         32.42         7.8         11/9/08 9.49         10/known         Unknown         0           13140         Codina - Brown Falls #1         115         30.45         71.0         11/9/08 11.42         10/known         Unknown         0           13140         Codina - Brown Falls #1         115         30.48         71.0         11/9/08 11.42         Unknown         Unknown	T4000	Operate stills the second bill #4.50								
1190         Dunktik - Falconer #161         115         35.04         61.2         11/008 642         11/008 642         Unknown         Unknown         1           13120         Coffeen - Black River #3         115         10.66         48.6         11/008 642         Unknown         Unknown         0           13120         Coffeen - Black River #3         115         10.66         48.6         11/008 642         Unknown         Unknown         0           13060         Black River - Taylonille #2         115         32.82         48.7         11/008 9.08         11/9/08 9.09         Unknown         Unknown         0           13300         Ogdensburg - McIntyre #2         115         2.4.5         32.9         11/9/08 9.08         Unknown         Unknown         0           1340         Coming - Battle HII #4         115         24.5         71.8         11/9/08 9.19         11/9/08 9.29         Unknown         Unknown         0           1340         Conton - Browns Fails #1         115         32.42         48.7         11/9/08 9.29         11/9/08 2.25         Unknown         Unknown         0           1340         Conton - Browns Fails #1         115         32.42         48.7         11/9/08 12.20         Unknown	T1280	Gardenville - Homer Hill #152	115	82.5	87.2	1/9/08 6:16	1/9/08 11:02	Unknown	Unknown	285
13120         Conferent - Black River #3         115         10.85         48.85         11/2/08 64.22         11/2/08 64.22         Unknown         Unknown         0           13020         Conferent Black River #3         115         10.86         48.6         11/2/08 64.22         Unknown         Unknown         0           13020         Black River * Taylonille #2         115         32.82         48.7         11/2/08 9.00         11/2/08 9.01         Unknown         Unknown         0           13080         Black River * Taylonille #2         115         32.82         48.7         11/2/08 9.16         11/2/08 9.49         Unknown         Unknown         0           13080         Black River * Taylonille #14         115         32.2         78.8         11/2/08 9.49         Unknown         Unknown         0           13140         Coning - Battle Hill #4         115         32.45         71.0         11/2/08 91.49         Unknown         Unknown         0           13140         Colton - Browns Fails #1         115         31.41         33.2         11/2/08 11.42         Unknown         Unknown         0           13180         Demison - Colton #4         115         31.14         32.2         11/2/08 11.24         Unknown	T1090	Dunkirk - Falconer #161	115	35.04	81.2	1/9/08 6:19	1/9/08 6:20	Unknown	Unknown	1
13120         Contrast - State K (War 3)         115         10.66         48.6         1/9/08 8-45         Unknown         Unknown         Unknown         0           13060         Black River - Taylorville #2         115         32.82         48.7         119/08 9.09         Unknown         Unknown         0           13060         Black River - Taylorville #2         115         22.82         48.7         119/08 9.09         Unknown         Unknown         0           13300         Ogdensburg- Mchryer #2         115         2.45         32.9         119/08 9.49         Unknown         Unknown         0           13340         Control = Battle HIII #4         115         2.52         78.8         119/08 9.49         Unknown         Unknown         0           13340         Colton - Browns Falls #1         115         30.45         71.0         119/08 10.21         Unknown         Unknown         0           13180         Demison - Cotton #4         115         31.41         33.2         14/07 19/28 12.42         Unknown         Unknown         0           1160         Panell (Stat.122) - Geneva (Border City) #4         115         31.41         33.2         119/08 12.52         Unknown         Unknown         0	_13120 	Conteen - Black River #3	115	10.66	48.6	1/9/08 6:42	1/9/08 6:42	Unknown	Unknown	0
13060         Black River - Taylorville #2         115         32.82         48.7         179/08 9:01         Unknown         Unknown         0           13060         Black River - Taylorville #2         115         22.82         48.7         179/08 9:09         Unknown         Unknown         0           13080         Oglensburg - McIntyre #2         115         2.45         32.9         119/08 9:49         Unknown         Unknown         0           13140         Coming - Battle Hill #4         115         2.45         32.9         119/08 9:49         Unknown         Unknown         0           13140         Colton - Browns Falls #1         115         30.45         71.0         119/08 0:20         119/08 10:21         Unknown         Unknown         0           13140         Calton - Browns Falls #1         115         30.45         71.0         119/08 10:20         119/08 10:21         Unknown         Unknown         0           13180         Dennison - Colton #4         115         31.41         33.2         119/08 12:20         119/08 12:53         Unknown         Unknown         0           11500         Dennison - Colton #4         115         71.9         42.0         119/08 12:52         119/08 12:53         Unknown<	T3120	Correen - Black River #3	115	10,66	_48.6	1/9/08 6:45	1/9/08 6:45	Unknown	Unknown	0
1300         Black River - Laytonnie #2         115         32.82         48.7         17/908 9.09         Unknown         Unknown         0           13300         Ogdensburg - Michtyr #2         115         2.48         32.9         17/908 9.49         Unknown         Unknown         0           1340         Corning - Batte Hill #4         115         2.5.2         78.8         11/908 9.59         11/908 9.49         Unknown         0           1340         Colion - Browns Fails #1         115         30.45         71.0         11/908 10.20         11/908 10.21         Unknown         Unknown         0           1340         Colion - Browns Fails #1         115         30.45         71.0         11/908 10.20         11/908 10.21         Unknown         Unknown         0           1340         Dennison - Colion #4         115         31.41         33.2         11/908 12.42         11/908 12.40         Unknown         Unknown         0           11500         Mortimer - Ebnidge #2         115         71.43         35.8         11/908 12.52         11/908 12.53         Unknown         Unknown         0           11500         Lockport - Mortimer #114         115         60.3         58.0         11/308 13.25         Vegetation </td <td>13060</td> <td>Black River - Taylorville #2</td> <td></td> <td>32.82</td> <td>48.7</td> <td>1/9/08 9:00</td> <td>1/9/08 9:01</td> <td>Unknown</td> <td>Unknown</td> <td>0</td>	13060	Black River - Taylorville #2		32.82	48.7	1/9/08 9:00	1/9/08 9:01	Unknown	Unknown	0
13300         Ogdensburg - Melintyre #2         115         2.45         32.9         1/10/08 4.09         Substation Equipment         Transformer         1,134           16180         Corning - Battle Hill #4         115         2.52         78.8         1/9/08 9.49         1/9/08 9.49         Unknown         Unknown         0           13440         Colton - Browns Fails #1         115         32.62         78.7         1/9/08 10.20         1/9/08 10.21         Unknown         Unknown         0           13060         Black River - Taylorville #2         115         32.62         48.7         1/9/08 12.40         Unknown         Unknown         0           13180         Demnison - Colton #4         115         31.41         33.2         1/9/08 12.40         Unknown         Unknown         0           11500         Mortimer - Elbridge #2         116         71.99         42.0         1/9/08 12.52         1/9/08 12.53         Unknown         Unknown         0           11520         Woodlawn - State Campus #12         115         11.43         75.1         1/10/08 7.32         Unknown         Unknown         0           11550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13.26         Unknown <td>13060</td> <td>Black River - Taylorville #2</td> <td>115</td> <td>32.82</td> <td>48.7</td> <td>1/9/08 9:08</td> <td>1/9/08 9:09</td> <td>Unknown</td> <td>Unknown</td> <td>0</td>	13060	Black River - Taylorville #2	115	32.82	48.7	1/9/08 9:08	1/9/08 9:09	Unknown	Unknown	0
16180         Corning - Battle Hill #4         115         25.2         78.8         11/9/08 9:49         Unknown         Unknown         0           13340         Taylornille - Moshier #7         115         11.21         79.9         1/9/08 9:59         1/9/08 23:59         Vegetation         Tree Fell         839           13140         Colton - Browns Falls #1         115         32.45         71.0         1/9/08 10:20         1/9/08 12:40         Unknown         Unknown         0           13180         Dennison - Colton #4         115         31.41         33.2         1/9/08 12:40         1/9/08 12:43         Unknown         Unknown         0           11570         Montimer - Elbridge #2         115         71.99         42.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           11570         Montimer - Elbridge #2         115         71.3         81.8         1/19/08 12:52         1/9/08 12:53         Unknown         Unknown         0           11550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:26         1/13/08 13:26         Vegetation         Tree Fell         1.674           13250         Mokntyre - Corning #6         115         11.2	T3300	Ogdensburg - McIntyre #2	115	2.45	32.9	1/9/08 9:15	1/10/08 4:09	Substation Equipment	Transformer	1,134
T3340       Taylorville - Moshier #7       115       11.21       79.9       11/9/08 9:59       11/9/08 10:21       Urgetation       Tree Fell       839         T3140       Cotton - Browns Falls #1       115       33.45       71.0       119/08 10:20       119/08 10:20       Unknown       Unknown       0         T3800       Black River - Taylonville #2       115       32.82       48.7       119/08 12:40       Unknown       Unknown       0         T1800       Pannell (Sta: 22) - Geneva (Border City) #4       115       23.14       33.2       119/08 12:52       119/08 12:53       Unknown       Unknown       0         T1570       Mortimer - Etindinge #2       115       71.99       42.0       119/08 12:52       119/08 12:53       Unknown       Unknown       0         T1560       Mortimer - Hock Road #1       115       21.55       81.8       119/08 13:25       11/30/08 7:49       Unknown       Unknown       0         T1550       Lockport - Mortimer #114       115       60.3       58.0       11/30/08 13:25       11/30/08 7:49       Unknown       Transformer       0         T350       Lockport - Mortimer #114       115       60.3       58.0       11/30/08 13:25       Unknown       Transformer	T6180	Corning - Battle Hill #4	115	25.2	78.8	1/9/08 9:49	1/9/08 9:49	Unknown	Unknown	0
T3140       Colton - Browns Falls #1       115       30.45       71.0       1/9/08 10:20       1/9/08 10:21       Unknown       Unknown       0         T3000       Black River - Taylon/life #2       115       32.82       48.7       1/9/08 11:42       1/9/08 11:43       Unknown       Unknown       0         T1800       Dennison - Colton #4       115       31.41       33.2       1/9/08 12:52       1/9/08 12:53       Unknown       Unknown       0         T1870       Mortimer - Elbridge #2       115       71.99       42.0       1/9/08 12:52       1/9/08 12:53       Unknown       Unknown       0         T1560       Mortimer - Hook Road #1       115       21.35       81.8       1/9/08 12:52       1/9/08 12:53       Unknown       Unknown       0         T1550       Lockport - Mortimer #114       115       60.3       58.0       1/13/08 13:26       Vegetation       Tree Fell       1,674         T3500       Lockport - Mortimer #114       115       60.3       58.0       1/13/08 13:43       1/14/08 17:37       Vegetation       Tree Fell       1,674         T3400       North Ogensburg - McIntyre #9       115       51.51       #N/A       1/16/08 14:01       1/16/08 14:02       Substation Equipment	T3340	Taylorville - Moshier #7	115	11.21	79.9	1/9/08 9:59	1/9/08 23:59	Vegetation	Tree Fell	839
T3080         Black River - Taylorville #2         115         32.82         48.7         1/9/08 11:42         1/9/08 11:43         Unknown         Unknown         0           T3180         Dennison - Colton #4         115         31.41         33.2         1/9/08 12:40         Unknown         Unknown         0           T1800         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1570         Mortimer - Elordge #2         115         71.95         81.8         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1550         Mortimer - Hook Road #1         115         60.3         58.0         1/13/08 13.25         1/13/08 13.26         Vegetation         Tree Fell         1.674           T3500         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13.25         1/13/08 13.26         Vegetation         Tree Fell         1.674           T3400         North Ogdensburg - Mortingr #114         115         60.3         58.0         1/16/08 14.01         1/16/08 14.02         Substation Equipment         Transformer         0           T1550         Lockport - Morti	T3140	Colton - Browns Falls #1	115	30,45	71.0	1/9/08 10:20	1/9/08 10:21	Unknown	Unknown	0
T3180         Dennison - Colton #4         115         31.41         33.2         1/9/08 12:40         1/9/08 12:40         Unknown         Unknown         0           T1860         Panell (Sta 122) - Geneva (Border City) #4         115         25.11         88.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1570         Mortimer - Elholdge #2         115         71.99         42.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1550         Mortimer - Elholk Road #1         115         21.35         81.8         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:43         1/14/08 17:37         Vegetation         Tree Fell         1           T350         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:43         1/14/08 14:02         Substation Equipment         Transformer         0           T350         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:44         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114	<u>_</u>	Black River - Taylorville #2	<u>    115                               </u>	32.82	48.7	1/9/08 11:42	1/9/08 11:43	Unknown	Unknown	0
T1860         Pannell (Sta.122) - Geneva (Border City) #4         115         25.11         88.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1570         Mortimer - Elbridge #2         115         71.99         42.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1550         Mortimer - Hook Road #1         115         21.35         81.8         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1.674           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:24         Vegetation         Tree Fell         1.674           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:48         1/18/08 5:44         Line Equipment         Suspension Hardware         1           T1550         Lockpo	T3180	Dennison - Colton #4	115	31.41	33.2	1/9/08 12:40	1/9/08 12:40	Unknown	Unknown	0
T1570         Mortimer - Elbridge #2         115         71.99         42.0         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1560         Mortimer - Hook Road #1         115         21.35         81.8         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1.674           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/16/08 14:02         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:49         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:25         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport -	<u>T1860</u>	Pannell (Sta.122) - Geneva (Border City) #4	115	25.11	88.0	1/9/08 12:52	1/9/08 12:53	Unknown	Unknown	0
T1560         Mortimer - Hook Road #1         115         21.35         81.8         1/9/08 12:52         1/9/08 12:53         Unknown         Unknown         0           T1590         Woodlawn - State Campus #12         115         11.4.3         75.1         1/10/08 7.49         Unknown         Unknown         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1.674           T3500         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1.674           T3500         Molthyre - Corning #6         115         11.2         35.4         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115	T1570	Mortimer - Elbridge #2	115	71.99	42.0	1/9/08 12:52	1/9/08 12:53	Unknown	Unknown	0
T5920         Woodlawn - State Campus #12         115         11.43         75.1         1/10/08 7:49         Unknown         Unknown         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:23         1/14/08 17:37         Vegetation         Tree Fell         1.674           T3250         McIntyre - Corning #6         115         11.2         35.4         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T350         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:49         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3	T1560	Mortimer - Hook Road #1	115	21.35	81.8	1/9/08 12:52	1/9/08 12:53	Unknown	Unknown	0
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:25         1/13/08 13:26         Vegetation         Tree Fell         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:43         1/14/08 17:37         Vegetation         Tree Fell         1,674           T3250         Mothyre - Corning #6         115         11.2         35.4         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T3400         North Ogdensburg - Mothyre #9         115         5.51         #N/A         1/16/08 14:01         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:05         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1	T5920	Woodlawn - State Campus #12	115	11.43	75.1	1/10/08 7:49	1/10/08 7:49	Unknown	Unknown	0
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/13/08 13:43         1/14/08 17:37         Vegetation         Tree Fell         1,674           T3250         McIntyre - Corning #6         115         11.2         35.4         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T3400         North Ogdensburg - McIntyre #9         115         5.51         #N/A         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:48         1/18/08 6:06         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1 <td>T1550</td> <td>Lockport - Mortimer #114</td> <td>115</td> <td>60,3</td> <td>58.0</td> <td>1/13/08 13:25</td> <td>1/13/08 13:26</td> <td>Vegetation</td> <td>Tree Fell</td> <td>1</td>	T1550	Lockport - Mortimer #114	115	60,3	58.0	1/13/08 13:25	1/13/08 13:26	Vegetation	Tree Fell	1
T3250         McIntyre - Corning #6         115         11.2         35.4         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T3400         North Ogdensburg - McIntyre #9         115         5.51         #N/A         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:49         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:05         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1 <t< td=""><td>T1550</td><td>Lockport - Mortimer #114</td><td>115</td><td>60.3</td><td>58,0</td><td>1/13/08 13:43</td><td>1/14/08 17:37</td><td>Vegetation</td><td>Tree Fell</td><td>1.674</td></t<>	T1550	Lockport - Mortimer #114	115	60.3	58,0	1/13/08 13:43	1/14/08 17:37	Vegetation	Tree Fell	1.674
T3400         North Ogdensburg - McIntyre #9         115         5.51         #N/A         1/16/08 14:01         1/16/08 14:02         Substation Equipment         Transformer         0           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:48         1/18/08 5:49         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:05         1/18/08 6:06         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T2600         So	T3250	McIntyre - Corning #6	115	11.2	35.4	1/16/08 14:01	1/16/08 14:02	Substation Equipment	Transformer	0
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 5:48         1/18/08 5:49         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:05         1/18/08 6:06         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T1500         Lockport - Mortimer #114         115         62.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T2600         <	T3400	North Ogdensburg - McIntyre #9	115	5.51	#N/A	1/16/08 14:01	1/16/08 14:02	Substation Equipment	Transformer	0
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:05         1/18/08 6:06         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T2600         South Oswego - Geres Lock #9         115         32         60.8         1/20/08 13:09         1/21/08 19:13         Other         Logger         1,804           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1 <td>T1550</td> <td>Lockport - Mortimer #114</td> <td>115</td> <td>60.3</td> <td>58.0</td> <td>1/18/08 5:48</td> <td>1/18/08 5:49</td> <td>Line Equipment</td> <td>Suspension Hardware</td> <td>1</td>	T1550	Lockport - Mortimer #114	115	60.3	58.0	1/18/08 5:48	1/18/08 5:49	Line Equipment	Suspension Hardware	1
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/18/08 6:23         1/18/08 6:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T2600         South Oswego - Geres Lock #9         115         32         60.8         1/20/08 13:09         1/21/08 19:13         Other         Logger         1,804           T5940         Feura Bush - North Catskill #2         115         23.19         67.9         1/26/08 7:41         1/26/08 9:19         Unknown         Unknown         98           T1270         Gardenville - Dunkirk #142         115         35.04         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 4:43         Weather         Wind         1 </td <td>T1550</td> <td>Lockport - Mortimer #114</td> <td>115</td> <td>60.3</td> <td>58.0</td> <td>1/18/08 6:05</td> <td>1/18/08 6:06</td> <td>Line Equipment</td> <td>Suspension Hardware</td> <td>1</td>	T1550	Lockport - Mortimer #114	115	60.3	58.0	1/18/08 6:05	1/18/08 6:06	Line Equipment	Suspension Hardware	1
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:23         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:24         Line Equipment         Suspension Hardware         1           T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T2600         South Oswego - Geres Lock #9         115         32         60.8         1/20/08 13:09         1/21/08 19:13         Other         Logger         1,804           T5940         Feura Bush - North Catskill #2         115         23.19         67.9         1/26/08 7:41         1/26/08 9:19         Unknown         Unknown         98           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville	T1550	Lockport - Mortimer #114	115	60.3	58,0	1/18/08 6:23	1/18/08 6:24	Line Equipment	Suspension Hardware	1
T1550         Lockport - Mortimer #114         115         60.3         58.0         1/19/08 12:46         1/19/08 12:47         Line Equipment         Suspension Hardware         1           T2600         South Oswego - Geres Lock #9         115         32         60.8         1/20/08 13:09         1/21/08 19:13         Other         Logger         1,804           T5940         Feura Bush - North Catskill #2         115         23.19         67.9         1/26/08 7:41         1/26/08 9:19         Unknown         Unknown         98           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1           T1990         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:16         1/30/08 4:17         Weather         Wind         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 2:3:41         Vegetation         Tree Fell         1,146           T1270         Gardenville - Dunkirk + Falconer #161         115         35.04         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1	T1550	Lockport - Mortimer #114	115	60.3	58.0	1/19/08 12:23	1/19/08 12:24	Line Equipment	Suspension Hardware	1
T2600         South Oswego - Geres Lock #9         115         32         60.8         1/20/08 13:09         1/21/08 19:13         Other         Logger         1,804           T5940         Feura Bush - North Catskill #2         115         23.19         67.9         1/26/08 7:41         1/26/08 9:19         Unknown         Unknown         98           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:16         1/30/08 4:17         Weather         Wind         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 23:41         Vegetation         Tree Fell         1.146           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1           T1270         Garden	T1550	Lockport - Mortimer #114	115	60.3	58,0	1/19/08 12:46	1/19/08 12:47	Line Equipment	Suspension Hardware	1
T5940         Feura Bush - North Catskill #2         115         23.19         67.9         1/26/08 7:41         1/26/08 9:19         Unknown         Unknown         98           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:16         1/30/08 4:17         Weather         Wind         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 2:41         Vegetation         Tree Fell         1,146           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:34         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         35.04         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:46         2/1/08 3:03         Line Equipment         Tower (Steel Structure)         2.776           T1990<	T2600	South Oswego - Geres Lock #9	115	32	60.8	1/20/08 13:09	1/21/08 19:13	Other	Logger	1,804
T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:13         1/30/08 4:14         Line Equipment         Tower (Steel Structure)         1           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:16         1/30/08 4:17         Weather         Wind         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 23:41         Vegetation         Tree Fell         1,146           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:34         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:46         2/1/08 3:03         Line Equipment         Tower (Steel Structure)         2,776           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1820         Packard - Huntley #130         115         21.32         58.2         1/30/08 4:46         1/30/08 4:57         Weather         Wind         1	T5940	Feura Bush - North Catskill #2	115	23.19	67.9	1/26/08 7:41	1/26/08 9:19	Unknown	Unknown	98
T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:16         1/30/08 4:17         Weather         Wind         1           T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 23:41         Vegetation         Tree Fell         1.146           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:46         2/1/08 3:03         Line Equipment         Tower (Steel Structure)         2.776           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1820         Packard - Huntley #130         115         21.32         58.2         1/30/08 4:45         1/30/08 4:57         Weather         Wind         1	T1270	Gardenville - Dunkirk #142	115	55,38	81.2	1/30/08 4:13	1/30/08 4:14	Line Equipment	Tower (Steel Structure)	1
T1280         Gardenville - Homer Hill #152         115         82.5         87.2         1/30/08 4:34         1/30/08 23:41         Vegetation         Tree Fell         1.146           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:46         2/1/08 3:03         Line Equipment         Tower (Steel Structure)         2.776           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1820         Packard - Huntley #130         115         21.32         58.2         1/30/08 4:56         1/30/08 4:57         Weather         Wind         1	T1090	Dunkirk - Falconer #161	115	35.04	81.2	1/30/08 4:16	1/30/08 4:17	Weather	Wind	1
T1090         Dunkirk - Falconer #161         115         35,04         81.2         1/30/08 4:42         1/30/08 4:43         Weather         Wind         1           T1270         Gardenville - Dunkirk #142         115         55,38         81.2         1/30/08 4:46         2/1/08 3:03         Line Equipment         Tower (Steel Structure)         2,776           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1820         Packard - Huntley #130         115         21.32         58.2         1/30/08 4:56         1/30/08 4:57         Weather         Wind         1	T1280	Gardenville - Homer Hill #152	115	82.5	87.2	1/30/08 4:34	1/30/08 23:41	Vegetation	Tree Fell	1,146
T1270         Gardenville - Dunkirk #142         115         55.38         81.2         1/30/08 4:46         2/1/08 3:03         Line Equipment         Tower (Steel Structure)         2,776           T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1820         Packard - Huntley #130         115         21.32         58.2         1/30/08 4:56         1/30/08 4:57         Weather         Wind         1	T1090	Dunkirk - Falconer #161	115	35,04	81.2	1/30/08 4:42	1/30/08 4:43	Weather	Wind	1
T1090         Dunkirk - Falconer #161         115         35.04         81.2         1/30/08 4:48         1/30/08 4:49         Weather         Wind         1           T1820         Packard - Huntley #130         115         21.32         58.2         1/30/08 4:56         1/30/08 4:57         Weather         Wind         1	T1270	Gardenville - Dunkirk #142	115	55.38	81.2	1/30/08 4:46	2/1/08 3:03	Line Equipment	Tower (Steel Structure)	2,776
T1820 Packard - Huntley #130 115 21.32 58.2 1/30/08.4:56 1/30/08.4:57 Weather Wind	T1090	Dunkirk - Falconer #161	115	35.04	81.2	1/30/08 4:48	1/30/08 4:49	Weather	Wind	1
	T1820	Packard - Huntley #130	115	21.32	58.2	1/30/08 4:56	1/30/08 4:57	Weather	Wind	
T1090 Dunkirk - Falconer #161 115 35.04 81.2 1/30/08 5:15 1/30/08 5:17 Weather Wind 1	T1090	Dunkirk - Falconer #161	115	35.04	81.2	1/30/08 5:15	1/30/08 5:17	Weather	Wind	
T1540 Lockport - Mortimer #113 115 66.63 77.9 1/30/08 5:58 1/30/08 5:59 Weather Wind 1	T1540	Lockport - Mortimer #113	115	66.63	77.9	1/30/08 5:58	1/30/08 5:59	Weather	Wind	i
T1060 Beck - Lockport #104 115 19.07 71.6 1/30/08 6:01 1/30/08 12:07 Weather Wind 366	T1060	Beck - Lockport #104	115	19.07	71.6	1/30/08 6:01	1/30/08 12:07	Weather	Wind	366

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	the second s			States and the second second	$(1-1)^{-1} = (1-$	والمعود المراجع المالية المعاقد	and the second		Onect
T1620	Mountain - Lockport #103	115	19.86	76,8	1/30/08 6:01	1/30/08 6:02	Line Equipment	Static Wire	1
T1630	Mountain - Niagara #120	115	0.98	49.0	1/30/08 6:01	1/30/08 6:01	Configuration	Configuration	0
T1620	Mountain - Lockport #103	115	19.86	76.8	1/30/08 6:03	1/30/08 6:04	Line Equipment	Static Wire	1
T1630	Mountain - Niagara #120	115	0.98	49.0	1/30/08 6:03	1/30/08 6:03	Configuration	Configuration	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	1/30/08 6:08	1/30/08 6:09	Weather	Wind	0
T1620	Mountain - Lockport #103	115	19.86	76.8	1/30/08 6:12	1/30/08 6:14	Line Equipment	Static Wire	1
T1630	Mountain - Niagara #120	115	0.98	49.0	1/30/08 6:12	1/30/08 6:13	Configuration	Configuration	0
T1630	Mountain - Niagara #120	115	0.98	49.0	1/30/08 6:15	1/30/08 6:16	Configuration	Configuration	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	1/30/08 6:17	1/30/08 6:18	Weather	Wind	0
T1900	Valley (Station 44) - Ischua Switch #158	115	9.38	24.0	1/30/08 6:17	1/30/08 10:07	Vegetation	Tree Fell	230
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	1/30/08 6:17	1/30/08 7:26	Configuration	Тар	69
T1070	Beck - Packard #76	230	4.55	52.6	1/30/08 6:21	3/31/10 23:59	External	Foreign Utility	1,140,099
T1540	Lockport - Mortimer #113	115	66.63	77.9	1/30/08 6:25	1/30/08 7:51	Weather	Wind	86
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	1/30/08 6:29	1/30/08 6:30	Weather	Wind	0
T1450	Huntley - Lockport #37	115	24.35	22.4	1/30/08 6:30	1/30/08 6:30	Weather	Wind	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	1/30/08 6:31	2/1/08 14:04	Line Equipment	Insulator	3,333
T1530	Lockport - Mortimer #111	115	66.82	78.1	1/30/08 6:48	1/30/08 6:49	Weather	Wind	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	1/30/08 6:59	1/30/08 6:59	Weather	Wind	0
T3060	Black River - Taylorville #2	115	32.82	48.7	1/30/08 7:08	1/30/08 7:09	Weather	Wind	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	1/30/08 7:29	1/30/08 7:29	Weather	Wind	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	1/30/08 9:24	1/30/08 9:25	Weather	Wind	0
T1230	Gardenville - Depew #54	115	7.26	53.9	1/30/08 10:33	1/30/08 10:34	Weather	Wind	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/4/08 13:58	2/4/08 13:59	Line Equipment	Suspension Hardware	1
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	2/5/08 3:46	2/5/08 3:48	Lightning	Lightning	1
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/5/08 14:19	2/5/08 14:21	Line Equipment	Suspension Hardware	1
T1300	Gardenville - Seneca #82	115	2.72	50.8	2/6/08 16:53	2/13/08 8:40	Vegetation	Tree Fell	9,587
T1620	Mountain - Lockport #103	115	19.86	76.8	2/6/08 19:57	2/6/08 19:58	System Protection	Relay	1
T1450	Huntley - Lockport #37	115	24.35	22.4	2/6/08 19:57	2/6/08 19:57	System Protection	Relay	0
T1500	Lockport - Batavia #108	115	35.63	71.2	2/6/08 19:57	2/6/08 19:57	System Protection	Relay	0
T <u>1</u> 510	Lockport - Batavia #112	115	34.13	76.6	2/6/08 19:57	2/6/08 19:57	System Protection	Relay	0
T1520	Lockport - Hinman #100	115	0.2	33.1	2/6/08 19:57	2/6/08 19:57	System Protection	Relay	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	2/6/08 19:57	2/6/08 19:57	System Protection	Relay	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/6/08 19:57	2/6/08 19:57	System Protection	Relay	0
T1690	Niagara - Lockport #101	115	18.55	39.1	2/6/08 19:57	2/6/08 20:06	Unknown	Unknown	9
T1390	Huntley - Gardenville #39	115	24.41	77,1	2/6/08 20:08	2/7/08 17:02	Vegetation	Tree Fell	1,254
T1020	Adams - Packard #188	115	6.41	43:4	2/6/08 20:09	2/6/08 20:10	Unknown	Unknown	0
T1450	Huntley - Lockport #37	115	24.35	22.4	2/6/08 20:12	2/6/08 20:12	System Protection	Relay	0

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а.	121	$e_{i}\left(f^{(i)}_{i},\theta_{i}^{(i)}\right)=f^{(i)}_{i}\left(f^{(i)}_{i},\theta_{i}^{(i)}\right)$	1	an the state of the second	Repair a state of the second	the second s	and the second	and the second	Oncern
T1500	Lockport - Batavia #108	115	35.63	71.2	2/6/08 20:12	2/6/08 20:12	System Protection	Relav	0
T1510	Lockport - Batavia #112	115	34.13	76.6	2/6/08 20:12	2/6/08 20:13	System Protection	Relay	1
T1520	Lockport - Hinman #100	115	0.2	33.1	2/6/08 20:12	2/6/08 20:13	System Protection	Relay	0
	Lockport - Mortimer #111	115	66.82	78.1	2/6/08 20:12	2/6/08 20:13	System Protection	Relay	0
	Lockport - Mortimer #114	115	60.3	58.0	2/6/08 20:12	2/6/08 20:13	System Protection	Relay	0
T1620	Mountain - Lockport #103	115	19.86	76.8	2/6/08 20:12	2/6/08 20:13	System Protection	Relay	1
T1690	Niagara - Lockport #101	115	18.55	39.1	2/6/08 20:12	2/6/08 20:12	Unknown	Unknown	0
T1450	Huntley - Lockport #37	115	24.35	22.4	2/6/08 20:13	2/6/08 20:13	System Protection	Relay	0
T1500	Lockport - Batavia #108	115	35.63	71.2	2/6/08 20:13	2/6/08 20:13	System Protection	Relay	0
	Lockport - Hinman #100	115	0.2	33,1	2/6/08 20:13	2/6/08 20:14	System Protection	Relay	0
T1530	Lockport - Mortimer #111	115	66.82	78.1	2/6/08 20:13	2/6/08 20:14	System Protection	Relay	0
T1550	Lockport - Mortimer #114	115	60.3	58.0	2/6/08 20:13	2/6/08 20:14	System Protection	Relay	0
T1690	Niagara - Lockport #101	115	18.55	39.1	2/6/08 20:13	2/7/08 14:22	Unknown	Unknown	1,088
	Rotterdam - Bear Swamp E205	230	43.78	47.7	2/13/08 10:31	2/14/08 18:16	Vegetation	Tree Feil	1,904
T6120	Geres Lock - Onondaga Co-Gen #12	115	1.01	#N/A	2/14/08 10:27	2/14/08 10:37	System Protection	Relay	10
T2040	Clay - Dewitt #3	115	20.46	60.7	2/15/08 6:45	2/15/08 6:45	Unknown	Unkriown	0
T5920	Woodlawn - State Campus #12	115	11.43	75.1	2/16/08 6:28	2/16/08 6:28	Unknown	Unknown	0
	Fenner - Cortland #3	115	34.55	22.1	2/17/08 15:52	2/19/08 14:21	Line Equipment	Guy	2,789
T2410	Oneida - Fenner #8	115	10.85	22.1	2/17/08 15:52	2/17/08 23:35	System Protection	Relay	464
T1890	Southeast Batavia - Golah #119	115	28.39	58.1	2/17/08 18:42	2/17/08 18:43	Unknown	Unknown	1
T1280	Gardenville - Homer Hill #152	115	82.5	87.2	3/4/08 20:44	3/4/08 20:48	Weather	lce	5
T1950	Gardenville - Homer Hill #151	115	82.6	87.1	3/4/08 20:44	3/4/08 20:48	Weather	lce	4
	Huntley - Gardenville #39	115	24.41	77.1	3/4/08 21:52	3/4/08 21:52	Weather	lce	0
T1390	Huntley - Gardenville #39	115	24.41	77.1	3/4/08 22:05	3/4/08 22:06	Weather	Ice	0
T1390	Huntley - Gardenville #39	115	24.41	77.1	3/4/08 22:30	3/4/08 22:31	Weather	Ice	0
T1230	Gardenville - Depew #54	115	7.26	53.9	3/4/08 22:37	3/4/08 22:38	Weather	Ice	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	3/4/08 22:37	3/4/08 22:38	Weather	Ice	0
T1230	Gardenville - Depew #54	115	7.26	53.9	3/4/08 22:43	3/5/08 5:44	Weather	lce	420
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	3/4/08 22:45	3/4/08 22:46	Weather	Ice	0
T1850	Packard - Urban (Erie St.) #181	115_	22.8	72.9	3/4/08 22:51	3/4/08 22:51	Weather	lce	0
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	3/4/08 23:52	3/4/08 23:53	Weather	lce	0
T1470	Kensington - Gardenville #44	115	6.2	55.6	3/5/08 0:00	3/5/08 0:00	Weather	lce	0
	Kensington - Gardenville #44	115	6.2	55.6	3/5/08 0:10	3/5/08 0:12	Weather	lce	2
T1470	Kensington - Gardenville #44	115	6.2	55.6	3/5/08 0:13	3/5/08 0:13	Weather	Ice	
T1090	Dunkirk - Falconer #161	115	35.04	81.2	3/5/08 5:51	3/5/08 5:53	Substation Equipment	Transformer	1
T2030	Auburn (State St.) - Elbridge #5	115	10.34	86.9	3/5/08 10:54	3/5/08 10:55	External	Foreign Utility	0
T5570	Reynolds Road - Greenbush #9	115	4.86	72.6	3/5/08 21:55	3/6/08 0:45	Substation Equipment	Switch - Circuit Switcher	170

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#### JJA-49 Atatchment 1 Sheet 1

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TEERO	Riverside Develde Deed #4	1.10					and the second		
T1600	Riverside - Reynolds Road #4	115	7.39	72.6	3/5/08 21:55	3/5/08 21:55	Substation Equipment	Switch - Circuit Switcher	0
T1600	Niagara - Lockport #101	115	18.55	39.1	3/8/08 14:21	3/8/08 14:25	Unknown	Unknown	4
71090	Niagara - Lockport #101	115	18.55	39.1	3/8/08 15:14	3/8/08 17:20	Unknown	Unknown	127
T1740	Niagara - Packard #192	115	3.42	50.0	3/8/08 15:16	3/8/08 18:07	Unknown	Unknown	171
13320	l'aylorville - Boonville #5	115	31.13	79.4	3/8/08 20:45	3/8/08 20:45	Vegetation	Tree Fell	0
12140	Curtis Street - Teall #13	115	33.47	64.9	3/8/08 21:23	3/8/08 21:29	Vegetation	Tree Fell	6
15810	Liconderoga - Republic #2	115	23.3	70.2	3/9/08 0:27	3/9/08 0:28	External		0
T6060	Mohican - North Troy #3	115	37.39	79.0	3/9/08 0:42	3/9/08 0:43	Vegetation	Tree Fell	0
T5810	Ticonderoga - Republic #2		23.3	70.2	3/9/08 1:50	3/9/08 13:57	External	Foreign Utility	727
<u>T2140</u>	Curtis Street - Teall #13	115	33,47	64.9	3/9/08 16:24	3/9/08 17:42	Substation Equipment	Lightning Arrestor	78
T2580	South Oswego - Curtis St. #10	115	12.21	75.6	3/9/08 16:24	3/9/08 17:43	Substation Equipment	Lightning Arrestor	79
T5430	Mohican - Battenkill #15	115	15.12	79.0	3/12/08 1:52	4/10/08 13:54	Substation Equipment	Circuit Breaker	42.482
<u></u>	Spier - Mohican #7	115	9.46	79.0	3/12/08 1:52	3/12/08 4:35	Substation Equipment	Circuit Breaker	163
T1550	Lockport - Mortimer #114	115	60.3	58.0	3/16/08 6:59	3/16/08 7:00	Unknown	Unknown	1
T1850	Packard - Urban (Erie St.) #181	115	22.8	72.9	3/18/08 9:53	3/18/08 9:54	Line Equipment	Splice	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	3/18/08 12:33	3/18/08 13:42	Substation Equipment	Circuit Breaker	68
T1300	Gardenville - Seneca #82	115	2.72	50.8	3/18/08 12:33	3/18/08 13:36	Substation Equipment	Circuit Breaker	63
T1380	Huntley - Gardenville #38	115	28.72	77.1	3/18/08 12:33	3/18/08 13:36	Substation Equipment	Circuit Breaker	62
T1470	Kensington - Gardenville #44	115	6.2	55.6	3/18/08 12:33	3/18/08 13:37	Substation Equipment	Circuit Breaker	63
T5810	Ticonderoga - Republic #2	115	23.3	70.2	3/18/08 15:30	3/18/08 15:30	Configuration	Configuration	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	3/18/08 15:30	3/18/08 15:30	Other	Animal	
T5120	Firehouse Road - North troy #15	115	5.04	36.8	4/2/08 2:33	4/2/08 2:33	Unknown	Unknown	0
T1230	Gardenville - Depew #54	115	7.26	53.9	4/2/08 8:59	4/2/08 10:59	Other	Human Error	119
T1270	Gardenville - Dunkirk #142	115	55.38	81.2	4/2/08 8:59	4/2/08 11:02	Other	Human Error	122
T1290	Gardenville - Seneca #81	115	2.62	50.8	4/2/08 8:59	4/2/08 10:59	Other	Human Error	119
T1390	Huntley - Gardenville #39	115	24.41	77.1	4/2/08 8:59	4/2/08 10:07	Other	Human Error	67
T1480	Kensington - Gardenville #45	115	6.16	55.6	4/2/08 8:59	4/2/08 11:02	Other	Human Error	122
T1660	Niagara - Gardenville #180	115	31.67	77.5	4/2/08 8:59	4/2/08 11:11	Other	Human Error	122
T6060	Mohican - North Troy #3	115	37.39	79.0	4/8/08 5:01	4/8/08 19:49		Conductor	
T4260	Terminal - Schuyler #7	115	4.7	47.8	4/8/08 14:54	4/11/08 18 46	Other	Human Error	4 551
T5330	Leeds - Pleasant Valley #92	345	38.84	47.9	4/10/08 9:59	4/10/08 10:03	External	Foreign Utility	4,551
T3150	Colton - Browns Falls #2	115	30.49	71.0	4/12/08 2:47	4/12/08 2:48	Linknown		<u>&gt;</u>
T2630	South Oswego - Nine Mile Pt. #1 #1	115	12.96	68.8	4/12/08 6:14	4/12/08 6:15		Linknown	<u> </u>
T4130	Marcy - New Scotland #18	345	84.34	37.9	4/16/08 14:19	4/16/08 14:19	External	Eoroigo Litility	
T1860	Pannell (Sta. 122) - Geneva (Border Citv) #4	115	25.11	88.0	4/18/08 20:33	4/19/08 11:13	External	Foreign Utility	
T3230	Malone - Lake Colby #5	115	43.82	43.0	4/20/08 15:08	4/20/08 15:09	Hokown		880
T1500	Lockport - Batavia #108	115	35.63	71.2	4/26/08 14:48	4/26/08 17:50	Lightning	Lightning	<u> </u>
						-120100 11.39	Lightunig	Lightning	192

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#### JJA-49 Atatchment 1 Sheet 1

T6150 Hook Road - Elbridge #7 115 54 75 82.6 4/26/08 16:21 4/26/08 16:21 Lightning	
T6150 Hook Road - Elbridge #7 115 54.75 82.6 4/26/08 16:21 4/26/08 16:21 Lightning Lightning	
T6150 Hook Road - Elbridge #7 115 54.75 82.6 4/26/08 16:21 4/26/08 16:21 Lightning Lightning	_
T1570 Mortimer - Elbridge #2 115 71.99 42.0 4/26/08 16:21 4/26/08 16:21 Lightning Lightning 0	
T2560 Steight Road - Auburn (State St.) #3 115 28.09 89.0 4/28/08 7:15 4/28/08 17:26 Line Equipment Cross Arm / Davit Arm 610	
T5810 Ticonderoga - Republic #2 115 23.3 70.2 4/30/08 11:03 4/30/08 11:04 Other Animal 0	
T5060 Battenkill - North Troy #10 115 23.42 79.0 5/3/08 5:59 5/3/08 5:59 Configuration Shared Breaker 0	
T5430 Mohican - Battenkill #15 115 15.12 79.0 5/3/08 5:59 5/3/08 5:59 Unknown Unknown 0	
T1100 Dunkirk - Falconer #162 115 35.51 81.2 5/3/08 17:08 5/3/08 17:09 Unknown Unknown 2	
T3180 Dennison - Colton #4 115 31.41 33.2 5/4/08 15:47 5/4/08 15:47 External Generator 0	
T1290 Gardenville - Seneca #81 115 2.62 50.8 5/5/08 21:22 5/5/08 21:25 Substation Equipment Lightning Arrestor 2	
T1080 Dunkirk - Falconer #160 115 59.83 35.8 5/9/08 7:52 5/9/08 7:53 Unknown Unknown 0	
T3140 Colton - Browns Falls #1 115 30.45 71.0 5/10/08 0:10 5/10/08 19:03 Line Equipment Splice 1.132	2
T1160 Falconer - Homer Hill #153 115 43.93 78.2 5/11/08 12:56 5/11/08 12:57 Unknown Unknown 1	
T1170 Falconer - Homer Hill #154 115 44.03 77.7 5/11/08 12:56 5/11/08 12:57 Unknown Unknown 1	
T2360 Nine Mile Pt. #1 - FitzPatrick #4 115 0.7 44.9 5/13/08 8:05 5/16/08 4:59 External Generator 4,133	3
T2220 FitzPatrick - Lighthouse Hill #3 115 26.83 44.9 5/13/08 8:05 5/13/08 8:07 External Generator 1	
T2300 Indeck Oswego - Lighthouse Hill #2 115 42.6 48.0 5/15/08 15:17 5/15/08 15:28 Unknown Unknown 11	
T1610 Mortimer (Sta.82) - Quaker (Sta.121) #23 115 17.23 86.0 5/18/08 18:04 5/18/08 18:05 Unknown Unknown 0	
T5830 Ticonderoga - Whitehall #3 115 22.61 79.6 5/21/08 13:55 5/21/08 13:55 Other Animal 0	
T1140 Elm Street - Gardenville #71 230 6.13 #N/A 5/23/08 2:25 5/23/08 4:36 System Protection Relay 131	
T2260 Geneva (Border City) - Elbridge #15 115 31.35 86.9 5/25/08 7:30 5/25/08 7:53 Unknown Unknown 24	
T1090 Dunkirk - Falconer #161 115 35.04 81.2 5/25/08 17:28 5/25/08 17:29 Other Human Error 1	
T5330 Leeds - Pleasant Valley #92 345 38.84 47.9 5/30/08 13:59 5/30/08 13:59 Other Fire 0	
T2130         Contland - Lapeer #1         115         7.77         80.0         5/31/08         13:48         Unknown         Unknown         0	
T5830 Ticonderoga - Whitehall #3 115 22.61 79.6 5/31/08 16:00 5/31/08 16:00 Other Animal 0	
T5280 Long Lane - LaFarge Building Materials #6 115 7.69 67.9 5/31/08 20:28 5/31/08 21:05 Unknown Unknown 37	
T4270 Valley - Inghams #3 115 12.2 50.3 6/5/08 23:48 6/5/08 23:49 Unknown Unknown 1	
T4040 Boonville - Rome #4 115 26.71 76.6 6/6/08 0:37 6/6/08 0:38 Lightning Lightning 0	
T4150 Oneida - Porter #7 115 21.29 81.2 6/6/08 1:38 6/6/08 1:39 Lightning Lightning 1	
T2440 Oswego - South Oswego #5 115 1.43 #N/A 6/6/08 3:04 6/6/08 11:30 Unknown Unknown 506	
T2450 Oswego - South Oswego #8 115 1.46 35.0 6/6/08 3:04 6/6/08 3:06 Unknown Unknown 1	
T6400 South Oswego - Clay #4 115 41.1 #N/A 6/6/08 3:19 6/6/08 3:20 Unknown Unknown 0	
T2140         Curtis Street - Teall #13         115         33.47         64.9         6/6/08 3:26         6/6/08 3:26         Lightning         Lightning         0	
T2160 Dewitt - Tilden #19 115 7.89 36.6 6/6/08 4:05 6/6/08 4:06 Unknown Unknown 0	
T2710 Tilden - Cortland #18 115 34.81 40.0 6/6/08 4:05 6/6/08 4:06 Unknown Unknown 0	
T2770 O.C.R.R.A Tilden #15 115 3.97 33.8 6/6/08 4:05 6/6/08 4:06 Lightning Lightning 0	-
T2120         Coffeen - Black River - Lighthouse Hill #5         115         40.2         69.1         6/6/08 4:39         6/6/08 4:40         Lightning         Lightning         0	
T4070 Edic - New Scotland #14 345 83.24 48.0 6/6/08 5:07 6/6/08 5:13 Unknown Unknown 5	

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### JJA-49 Atatchment 1

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			1. N. 1995 (1997)	$ \nabla_{ij}  =  \nabla_{ij} ^2 +  \nabla_{i$	ana ang ana ang ana ang	ياريوني الأمريح مقامين الجويري الأنجي الحري المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع الم		$\frac{1}{2} \sum_{k=1}^{N} \frac{ K }{2k} = \frac{1}{2} \sum_{k=1}^{N} \frac{ K }{2k} $	
			10 m - 10 m	and the second second	and the second		· · · · · · · · · · · · · · · · · · ·		
T5100	Clinton - Marshville #12	115	1.61	66.9	6/6/08 6:25	6/6/08 6:25	Unknown	Unknown	0
T5250	Inghams - Meco #15	115	30.9	66.9	6/6/08 6:25	6/6/08 6:26	Lightning	Lightning	0
T5270	Inghams - Stoner #9	115	26.1	72.0	6/6/08 6:25	6/6/08 6:25	Lightning	Lightning	0
T5800	Stoner - Rotterdam #12	115	29.83	72.0	6/6/08 6:25	6/6/08 6:25	Unknown	Unknown	0
	Falconer - Homer Hill #154	115	44.03	77.7	6/6/08 8:30	6/6/08 16:16	Vegetation	Tree Fell	467
T2300	Indeck Oswego - Lighthouse Hill #2	115	42,6	48.0	6/10/08 2:49	6/10/08 2:49	Lightning	Lightning	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	6/10/08 8:43	6/10/08 8:43	Other	Animal	0
T2560	Sleight Road - Auburn (State St.) #3	115	28.09	89.0	6/10/08 10:50	6/10/08 10:50	Unknown	Unknown	0
T2610	South Oswego - Indeck (Oswego) #6	115	4.58	73.8	6/10/08 11:04	6/10/08 11:04	Unknown	Unknown	0
T2440	Oswego - South Oswego #5	115	1.43	#N/A	6/10/08 11:08	6/10/08 11:43	Unknown	Unknown	35
T2320	Lighthouse Hill - Clay #7	115	26.39	79.2	6/10/08 11:26	6/10/08 11:26	Unknown	Unknown	0
T2120	Coffeen - Black River - Lighthouse Hill #5	115	40.2	69.1	6/10/08 11:40	6/11/08 18:32	Vegetation	Tree Fell	1,851
T2130	Cortland - Lapeer #1	115	7.77	80.0	6/10/08 11:53	6/10/08 11:53	Unknown	Unknown	0
T2040	Clay - Dewitt #3	115	20.46	60.7	6/10/08 11:55	6/10/08 19:15	Unknown	Unknown	440
T2090	Clay - Teall #10	115	15.72	69.8	6/10/08 11:56	6/10/08 11:56	Unknown	Unknown	0
T3080	Browns Falls - Taylorville #3	115	26.77	86.4	6/10/08 12:05	6/10/08 23:02	Unknown	Unknown	657
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	6/10/08 12:05	6/10/08 12:05	Unknown	Unknown	0
T3090	Browns Falls - Taylorville #4	115	26.79	38.8	6/10/08 12:23	6/10/08 12:23	Unknown	Unknown	0
T3140	Colton - Browns Falls #1	115	30.45	71.0	6/10/08 12:26	6/11/08 18:42	Vegetation	Tree Fell	1,815
T3150	Colton - Browns Falls #2	115	30.49	71.0	6/10/08 12:28	6/10/08 12:28	Vegetation	Tree Fell	0
T3150	Colton - Browns Falls #2	115	30.49	71.0	6/10/08 12:50	6/11/08 20:16	Vegetation	Tree Fell	1,886
T4030	Boonville - Porter #2	115	27.1	86.1	6/10/08 12:51	6/10/08 12:51	Lightning	Lightning	0
T3160	Colton - Townline #9	115	18.61	54.9	6/10/08 12:53	6/10/08 23:39	Vegetation	Tree Fell	646
T3170	Colton - Malone #3	115	20.85	70.1	6/10/08 13:02	6/11/08 19:25	Vegetation	Tree Fell	1,823
T4060	Boonville - Rome #3	115	24,86	79.0	6/10/08 18:47	6/10/08 18:47	Unknown	Unknown	0
T5240	Inghams - East Springfield #7	115	13.9	82.8	6/10/08 19:44	6/10/08 19:45	Line Equipment	Guy	0
T6060	Mohican - North Troy #3	115	37.39	79.0	6/10/08 20:21	6/11/08 18:18	Vegetation	Tree Fell	1,316
T5570	Reynolds Road - Greenbush #9	115	4.86	72.6	6/10/08 20:21	6/10/08 20:22	Unknown	Unknown	0
T5830	Ticonderoga - Whitehall #3	115	22.61	79.6	6/10/08 20:28	6/10/08 20:29	Lightning	Lightning	0
T5910	Whitehall - Cedar #6	115	24.25	70,9	6/11/08 21:58	6/11/08 21:59	Unknown	Unknown	0
T1260	Gardenville - Dunkirk #141	115	56.73	81.2	6/13/08 18:33	6/16/08 23:25	Line Equipment	Insulator	4,612
T1890	Southeast Batavia - Golah #119	115	28.39	58.1	6/13/08 19:43	6/13/08 19:44	Lightning	Lightning	1
T1540	Lockport - Mortimer #113	115	66.63	77.9	6/14/08 0:41	6/14/08 0:43	Lightning	Lightning	1
T1550	Lockport - Mortimer #114	115	60.3	58.0	6/14/08 0:41	6/14/08 0:43	Lightning	Lightning	1
T6150	Hook Road - Elbridge #7	115	54,75	82.6	6/15/08 22:42	6/15/08 22:42	Unknown	Unknown	0
T5350	Maplewood - Menands #19	115	5.41	63.6	6/16/08 5:42	6/16/08 5:43	Other	Animal	1
T6010	Wolf Road - Menands #10	115	4.64	75.1	6/16/08 5:42	6/16/08 5:43	Other	Animal	1

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