National Grid

Niagara Mohawk Power Corporation

INVESTIGATION AS TO THE
PROPRIETY OF PROPOSED
ELECTRIC TARIFF CHANGES

Testimony and Exhibits of:

Infrastructure and Operations Panel
Exhibit __ (IOP-1) through
Exhibit __ (IOP-13)

Book 27

January 29, 2010

Submitted to:
New York Public Service Commission
Docket No. 10-E-____

Submitted by:

nationalgrid

Exhibits of
IOP

Testimony of Infrastructure and Operations Panel

Index of Exhibits

Exhibit __ (IOP-1)

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-1)

Forecast and Planned T&D Infrastructure Investment Levels by Category
FY10-FY14

Testimony of Infrastructure and Operations Panel

Schedule 1

Exhibit __ (IOP-1)
Schedule 1
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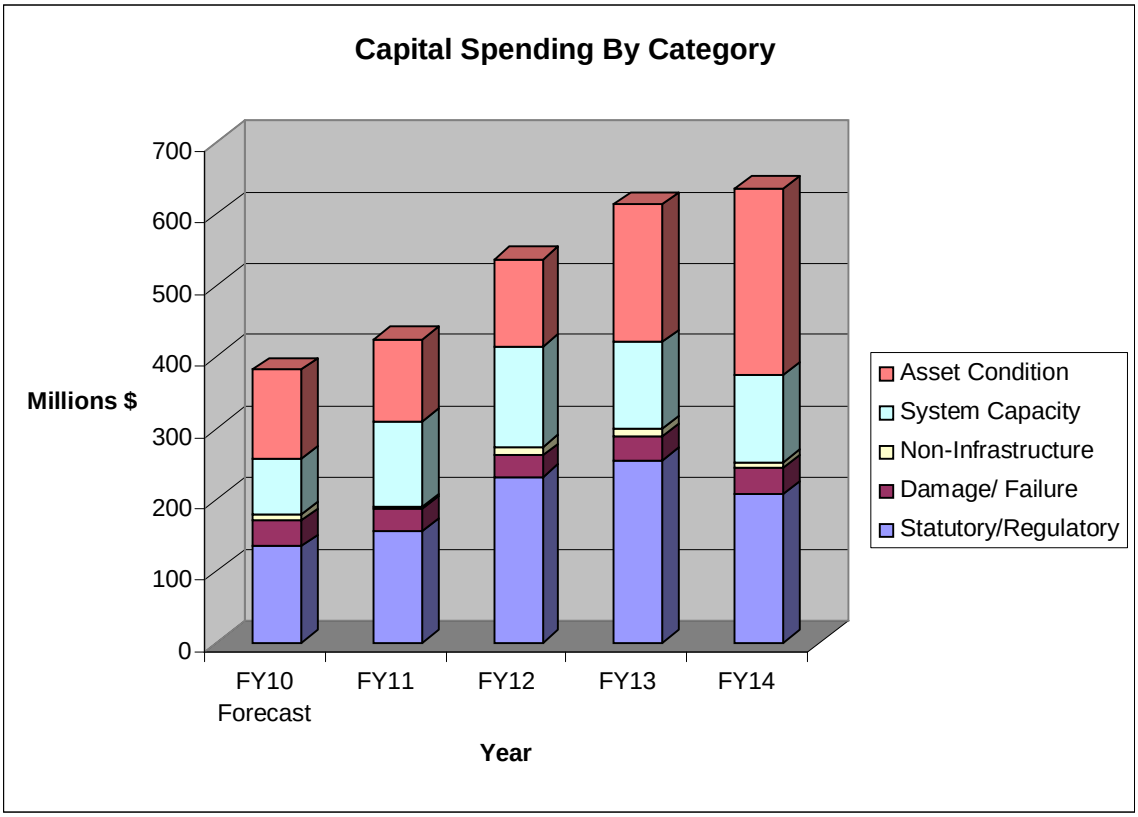
NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Infrastructure Investment Levels
By Category, FY10-to-FY14, ($Millions)



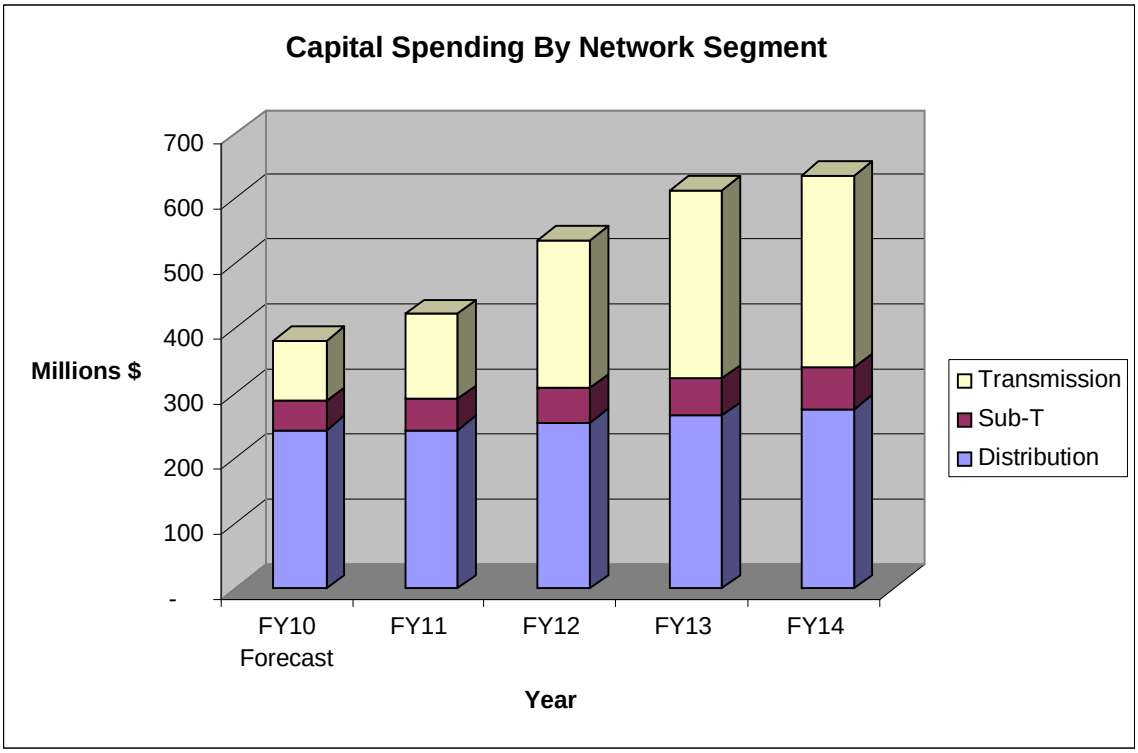
	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Statutory/Regulatory	134	157	231	256	207	**850**
Damage Failure	36	31	31	33	38	**133**
Non-Infrastructure	7	3	11	11	7	**32**
System Capacity	78	119	140	121	123	**502**
Asset Condition	123	114	123	193	260	**690**
Total	**378**	**424**	**536**	**613**	**635**	**2,207**

Testimony of Infrastructure and Operations Panel

Schedule 2

NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Infrastructure Investment Levels
By Network Segment, FY10-to-FY14, ($Millions)



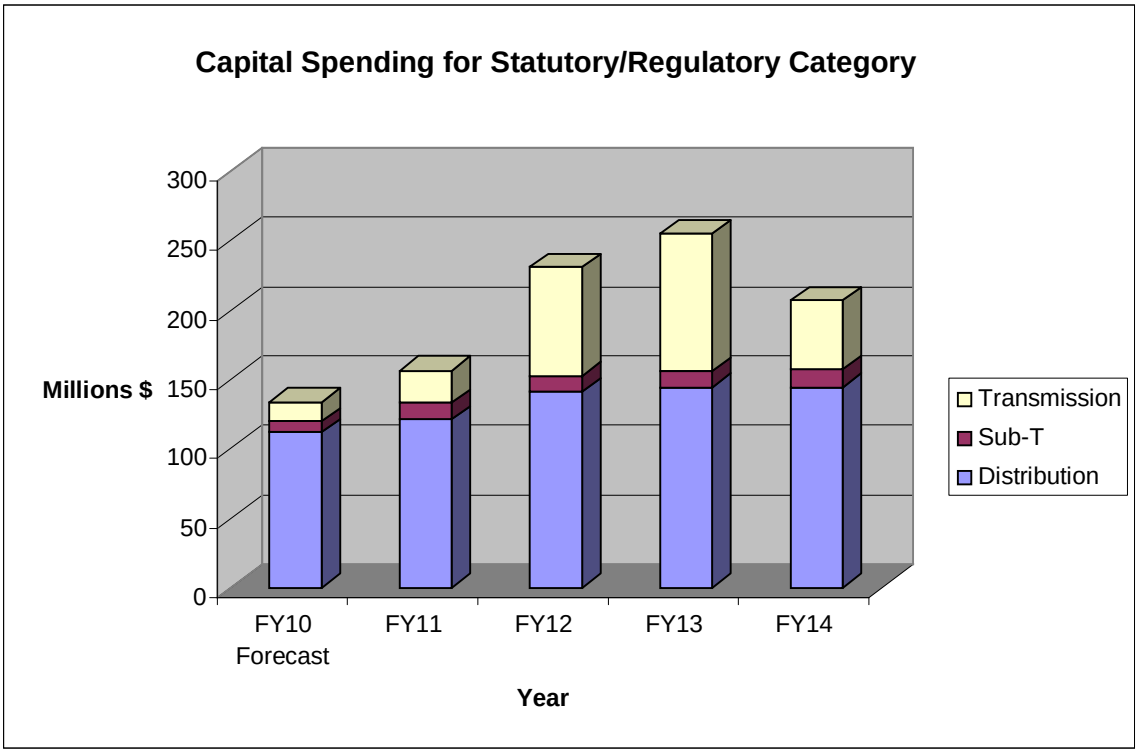
	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Distribution	243	244	255	265	275	**1,039**
Sub-T	43	48	53	58	65	**224**
Transmission	93	132	228	290	295	**945**
Total	**378**	**424**	**536**	**613**	**635**	**2,207**

Testimony of Infrastructure and Operations Panel

Schedule 3

NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Infrastructure Investment Levels
For Statutory/Regulatory Category, FY10-to-FY14, ($Millions)



	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Distribution	112	122	142	145	145	**553**
Sub-T	8	12	11	12	12	**47**
Transmission	14	23	78	99	50	**251**
Total	**134**	**157**	**231**	**256**	**207**	**850**

NIAGARA MOHAWK POWER CORPORATION

Planned T&D Infrastructure Investment Levels For Statutory/Regulatory Category By Network Segment and Program, FY10-to-FY14, ($Millions)

NETWORK SEGMENT	BUDGET CLASSIFICATION/ PROGRAM	FY11	FY12	FY13	FY14	FY11-FY14
DISTRIBUTION	Inspection & Maintenance - NY	17	29	25	22	93
	3rd Party Attachments	1	0	0	0	1
	Land and Land Rights – Dist	2	2	2	3	9
	Meters – Dist	7	8	8	9	32
	New Business – Commercial	15	16	16	17	64
	New Business – Residential	31	33	35	37	136
	Outdoor Lighting – Capital	11	12	12	10	45
	Public Requirements	11	12	13	13	49
	Transformers & Related Equipment	27	30	33	34	124
	TOTAL DISTRIBUTION	**122**	**142**	**144**	**145**	553
SUB-TRANSMISSION	Inspection & Maintenance - NY	10	10	11	11	42
	New Business – Commercial	1	1	1	0	3
	Public Requirements	1	0	0	1	2
	TOTAL SUB-TRANSMISSION	**12**	**11**	**12**	**12**	47
TRANSMISSION	Clay Station Rebuild	0	2	2	0	4
	Clearance Strategy	2	15	15	15	47
	Digital Fault Recorder Strategy	1	0	0	0	1
	Generation	0	(0)	0	0	0
	Load	1	2	2	2	7
	Luther Forest	3	5	0	0	8
	Northeast Region Reinforcement	7	41	65	39	152
	Other Statutory/Regulatory	1	2	2	1	6
	RTU Strategy	2	2	1	0	5
	Station BPS Upgrades	10	20	23	0	53
	Reserve	(3)	(11)	(11)	(7)	(32)
	TOTAL TRANSMISSION	**24**	**78**	**99**	**50**	251
TOTAL		157	231	256	207	850

Testimony of Infrastructure and Operations Panel

Schedule 4

Exhibit __ (IOP-1)
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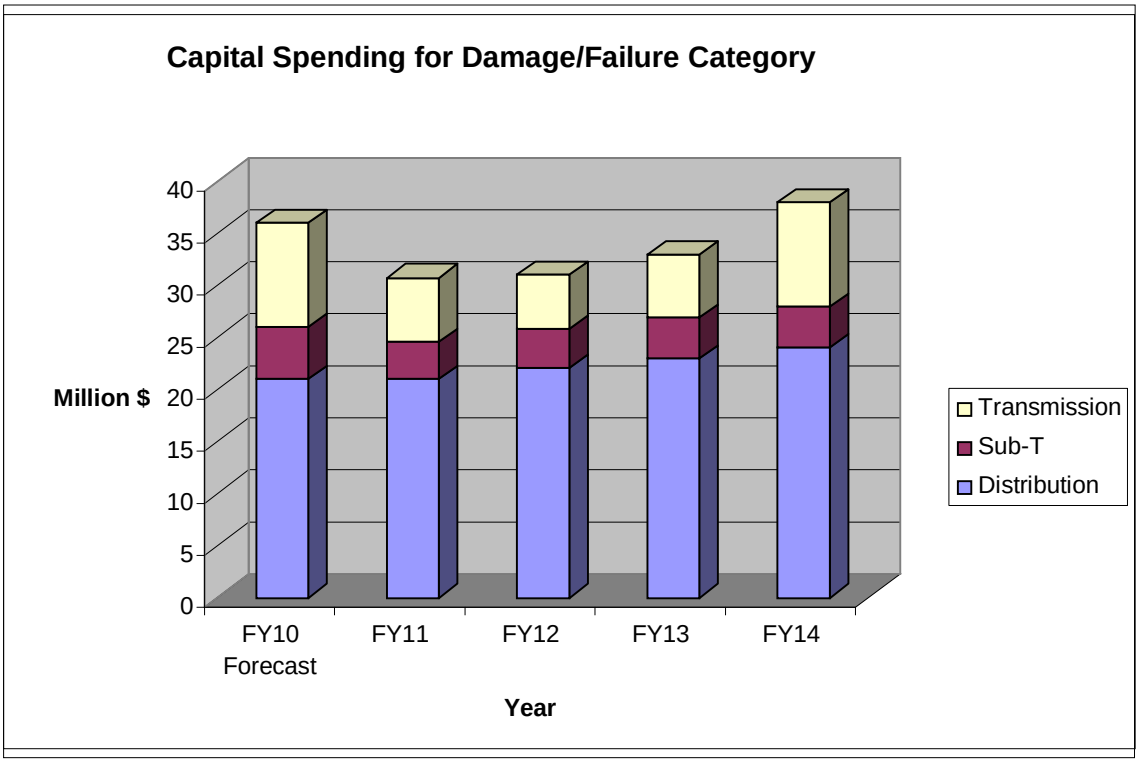
NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Infrastructure Investment Levels
For Damage/Failure Category, FY10-to-FY14, ($Millions)



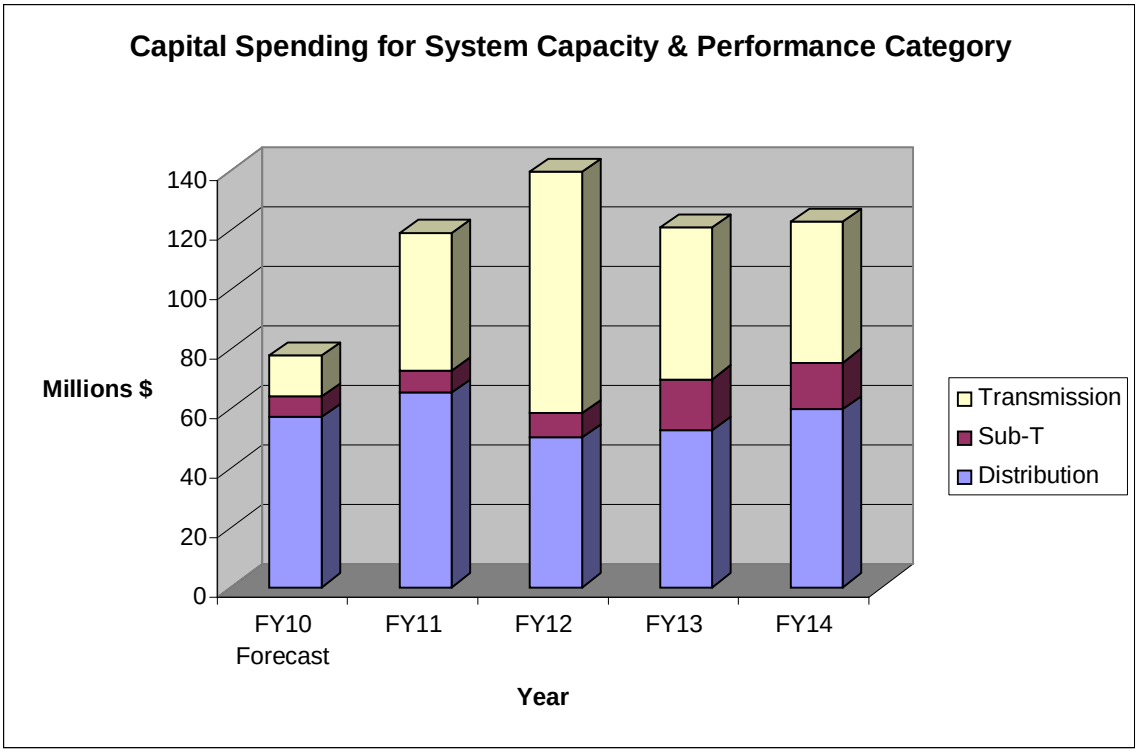
	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Distribution	21	21	22	23	24	**90**
Sub-T	5	4	4	4	4	**15**
Transmission	10	6	5	6	10	**27**
Total	**36**	**31**	**31**	**33**	**38**	**133**

Testimony of Infrastructure and Operations Panel

Schedule 5

NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Infrastructure Investment Levels
For System Capacity and Performance Category, FY10-to-FY14, ($Millions)



	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Distribution	57	65	50	53	60	**228**
Sub-T	7	8	8	17	16	**49**
Transmission	14	46	81	51	47	**225**
Total	**78**	**119**	**140**	**121**	**123**	**502**

NIAGARA MOHAWK POWER CORPORATION

Planned T&D Infrastructure Investment Levels For System Capacity and Performance Category by Network Segment and Program, FY10-to-FY14, ($Millions)

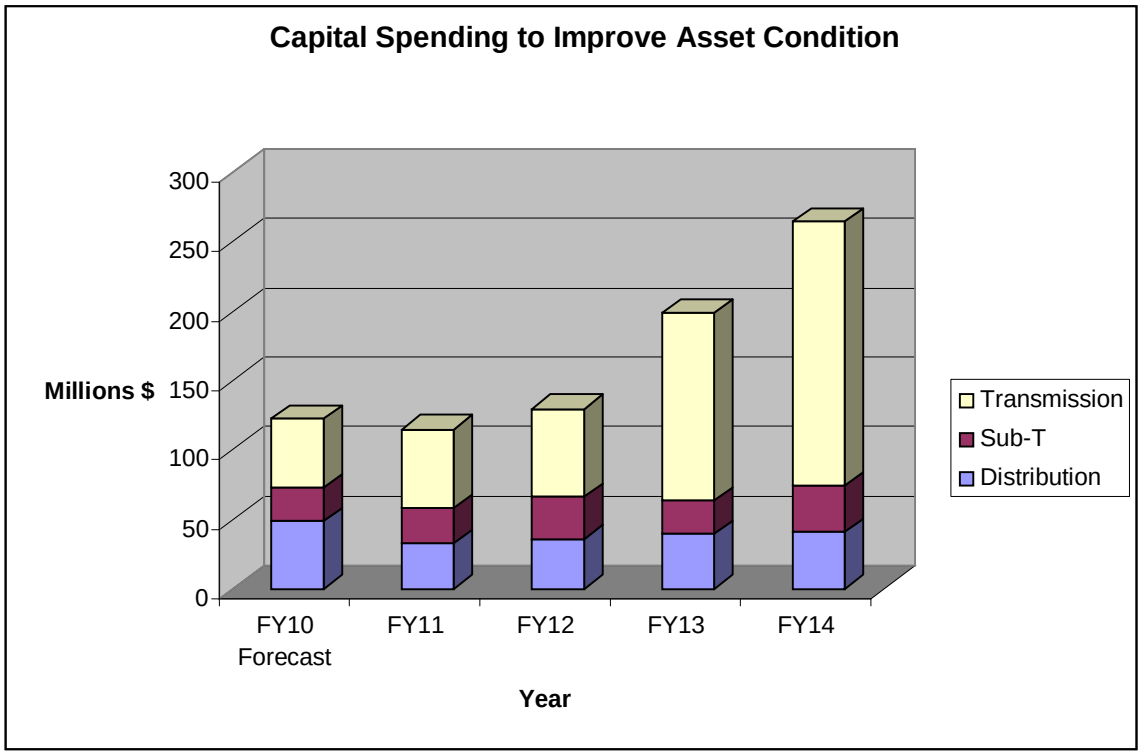
NETWORK SEGMENT	PROGRAM	FY11	FY12	FY13	FY14	FY11-FY14
DISTRIBUTION	Blanket	7	7	8	8	**30**
	Capacitor Application	0	0	0	0	**0**
	Distribution Line Regulator	0	0	0	0	**0**
	Distribution Line Transformer	5	5	8	10	**28**
	Engineering Reliability Review	8	1	1	1	**11**
	Feeder Hardening	3	0	0	0	**3**
	Open Wire Primary	0	0	0	0	**0**
	Planning Criteria	30	22	23	21	**96**
	Pockets of Poor Performance	2	2	2	2	**8**
	Recloser Application	5	6	6	10	**27**
	Substation EMS/RTU	5	5	5	6	**21**
	Substation Overarching	1	4	0	0	**5**
	Substation Relay/Protection	0	0	0	1	**1**
	Reserve	(1)	(2)	0	0	**(2)**
	URD Primary	0	0	0	0	**0**
	TOTAL DISTRIBUTION	**65**	**50**	**53**	**60**	**228**
SUB-TRANSMISSION	Blanket	1	1	1	1	**3**
	Distribution & Sub-transmission Automation	1	1	2	4	**8**
	New Business	7	0	0	0	**7**
	Planning Criteria	1	6	13	8	**28**
	Substation Relay/Protection	0	1	0	0	**1**
	Subtransmission Line Overarching	0	0	0	0	**0**
	Reserve	(2)	0	1	4	**3**
	TOTAL SUB-TRANSMISSION	**8**	**8**	**17**	**16**	**49**
TRANSMISSION	Frontier Region	29	54	12	6	**102**
	Load	2	2	0	0	**4**
	Other System Capacity & Performance	6	7	10	21	**44**
	Overhead Line Refurbishment Program	5	0	0	0	**5**
	Reliability Criteria Compliance	12	30	33	23	**98**
	Reserve	(8)	(12)	(4)	(3)	**(27)**
	TOTAL TRANSMISSION	**46**	**81**	**51**	**47**	**225**
TOTAL		**119**	**140**	**121**	**123**	**502**

Testimony of Infrastructure and Operations Panel

Schedule 6

NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Infrastructure Investment Levels
For Asset Condition Category, FY10-to-FY14, ($Millions)



	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Distribution	49	33	35	39	41	**148**
Sub-T	24	25	30	25	32	**112**
Transmission	50	56	58	129	187	**430**
Total	**123**	**114**	**123**	**193**	**260**	**690**

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Forecast and Planned Infrastructure Investment Levels
For Asset Condition Category by Program, Distribution Segment by Program
FY10-to-FY14, ($Millions)

PROGRAM	FY11	FY12	FY13	FY14	FY11-14
Blanket	6	6	5	5	**22**
Distribution Line Transformer	0	0	0	0	**0**
Duct	0	0	0	0	**0**
Engineering Reliability Review	0	0	0	0	**0**
Manhole/Vault	2	0	0	1	**3**
Miscellaneous Underground Equipment	0	0	0	0	**0**
Networks	2	2	2	2	**8**
Open Wire Primary	1	0	0	0	**1**
Overhead Secondary	0	0	0	0	**0**
Planning Criteria	1	2	1	0	**4**
Potted Porcelain Cutout	0	0	0	0	**0**
Primary Underground Cable	3	5	3	5	**16**
Substation Battery and Related	0	0	0	1	**1**
Substation Circuit Breaker/Recloser	4	2	4	7	**17**
Substation Circuit Switcher	1	0	0	0	**1**
Substation Indoor Substation	9	14	18	18	**59**
Substation Metal Clad Switchgear	1	5	5	3	**14**
Substation Non-transformer Reactor	0	0	0	0	**0**
Substation Overarching	1	0	0	1	**2**
Substation Power Transformer	2	2	2	2	**8**
Substation Relay/Protection	0	0	0	0	**0**
Substation Voltage Regulator	0	0	0	0	**0**
Subtransmission Line Overarching	0	0	0	0	**0**
Reserve	(1)	(2)	(1)	(3)	**(7)**
Wood Pole	0	0	0	0	**0**
Total	**33**	**35**	**39**	**41**	**148**

Forecast and Planned Infrastructure Investment Levels
For Asset Condition Category, Sub-Transmission Segment by Program, FY10-to-FY14, ($Millions)

PROGRAM	FY11	FY12	FY13	FY14	FY11-14
Blanket	1	1	1	1	**4**
Open Wire Primary	2	0	0	0	**2**
Primary Underground Cable	3	1	1	0	**5**
Substation Capacitor & Switch	0	0	0	0	**0**
Substation Circuit Breaker/Recloser	0	0	3	3	**6**
Substation Indoor Substation	1	2	1	2	**6**
Substation Metal Clad Switchgear	1	2	0	0	**3**
Substation Power Transformer	0	0	0	0	**0**
Subtransmission and Distribution Tower	1	2	4	5	**12**
Subtransmission Line Overarching	15	18	10	0	**43**
Subtransmission Underground Cable	1	6	7	12	**26**
Reserve	(1)	(3)	(2)	10	**4**
Underground/Padmounted Switch	1	1	0	0	**2**
Wood Pole	0	0	0	0	**0**
Total	**25**	**30**	**25**	**32**	**112**

Planned Infrastructure Investment Levels for Asset Condition Category, Transmission Segment by Budget Classification ($ Millions)

BUDGET CLASSIFICATION	FY11	FY12 I	FY13	FY14	Total FY11-FY14
3A/3B Tower Strategy	0	0	0	6	6
Battery Strategy	1	1	1	1	4
Circuit Breaker Replacement Strategy	0	1	7	15	23
Flying Ground Strategy	0	0	0	1	1
Other Asset Condition	22	6	11	9	48
Overhead Line Refurbishment Program	20	32	53	92	198
Relay Replacement Strategy	0	1	4	7	11
RHE Breaker Replacement	0	0	1	0	1
Shield Wire Strategy	8	7	0	0	15
Steel Tower Strategy	5	0	0	0	5
Substation Rebuilds	3	9	59	69	140
Transformer Replacement Strategy	4	7	7	7	25
U-Series Relay Strategy	2	1	0	0	3
Reserve	(9)	(9)	(13)	(19)	(50)
TOTAL TRANSMISSION	**57**	**64**	**135**	**191**	**430**

Testimony of Infrastructure and Operations Panel

Schedule 7

Exhibit __ (IOP-1)
Schedule 7
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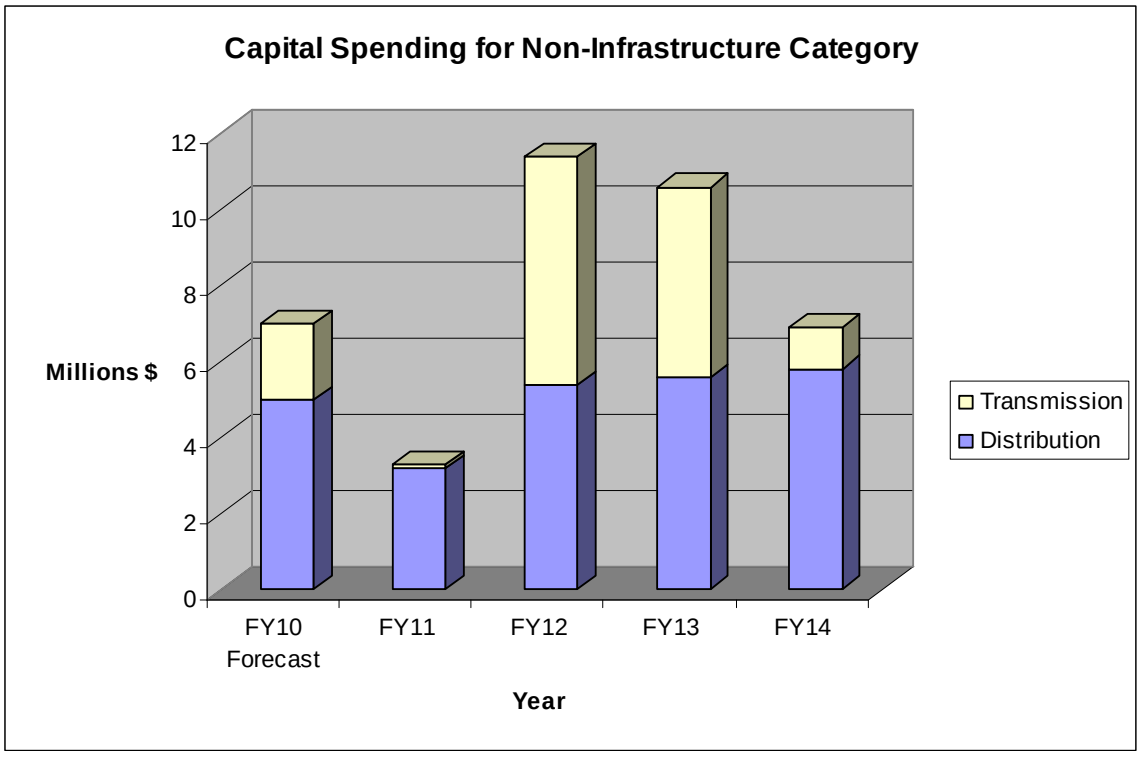
NIAGARA MOHAWK POWER CORPORATION

Forecast and Planned T&D Investment Levels
For Non-Infrastructure Category, FY10-to-FY14, ($Millions)



	FY10 Forecast	FY11	FY12	FY13	FY14	FY11-14
Distribution	5	3	5	6	6	**20**
Transmission	2	0	6	5	1	**12**
Total	**7**	**3**	**11**	**11**	**7**	**32**

Testimony of Infrastructure and Operations Panel

Schedule 8

NIAGARA MOHAWK POWER CORPORATION

Planned T&D Infrastructure Investment Levels For Statutory/Regulatory Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
Distribution	3rd Party Attachments	CNC022	Cent NY-Dist-3rd Party Attch Blankt	50	.1	.1	.1	.1	.4
		CNE022	East NY-Dist-3rd Party Attch Blankt	50	.1	.1	.1	.1	.4
		CNW022	West NY-Dist-3rd Party Attch Blankt	50	.1	.1	.1	.1	.3
	3rd Party Attachments Total				**.3**	**.3**	**.3**	**.3**	**1.1**
	Inspection & Maintenance	C26159	FH - NE D-Line Work Found by Insp.	42	5.0	8.8	7.5	6.5	27.8
		C26160	FH - NC D-Line Work Found by Insp.	42	5.0	8.8	7.5	6.5	27.8
		C26161	FH - NW D-Line Work Found by Insp.	42	5.0	8.8	7.5	6.5	27.8
		C26162	FH - NE UG Work Found by Insp.	42	.8	.8	.8	.8	3.3
		C26163	NC - UG Work Found by Insp.	42	.8	.8	.8	.8	3.3
		C26164	NW - UG Work Found by Insp.	42	.8	.8	.8	.8	3.3
		E07209	FH - NE D-Line Work Found by Insp.	42	.0	.0	.0	.0	.0
		E07210	FH - NC D-Line Work Found by Insp.	42	.0	.0	.0	.0	.0
		E07211	FH - NW D-Line Work Found by Insp.	42	.0	.0	.0	.0	.0
		E07212	FH - NE UG Work Found by Insp.	42	.0	.0	.0	.0	.0
		E07213	FH - NC UG Work Found by Insp.	42	.0	.0	.0	.0	.0
		E07214	FH - NW UG Work Found by Insp.	42	.0	.0	.0	.0	.0
	Inspection & Maintenance Total				**17.4**	**29.0**	**25.1**	**22.1**	**93.5**
	Land and Land Rights	CNC009	Cent NY-Dist-Land/Rights Blanket	50	1.3	1.4	1.6	1.7	6.0
		CNW009	West NY-Dist-Land/Rights Blanket	50	.6	.6	.7	.8	2.7
	Land and Land Rights Total				**1.9**	**2.1**	**2.2**	**2.4**	**8.7**
	Meters - Dist	CN3604	NiMo Meter Purchases	50	5.0	5.5	6.0	6.4	22.9
		CNC004	Cent NY-Dist-Meter Blanket	50	.7	.7	.7	.8	2.9
		CNE004	East NY-Dist-Meter Blanket	50	.8	.8	.8	.9	3.3
		CNW004	West NY-Dist-Meter Blanket	50	.7	.7	.8	.8	3.1
	Meters - Dist Total				**7.1**	**7.8**	**8.3**	**8.8**	**32.1**
	New Business	C24233	Primary service for Taconic Farms	50	.5	.0	.0	.0	.5
		C29682	GML Tower	50	.5	.0	.0	.0	.5
		C30685	Wal-Mart Sheridan Dr. - New Service	50	.3	.0	.0	.0	.3
		C31298	Fairland URD	50	.2	.0	.0	.0	.2
		C31602	Bolton 52 - Convert Valley Woods Rd	50	.3	.0	.0	.0	.3
		C31612	Helderberg Meadows URD, Phase 1	50	.4	.0	.0	.0	.4
		C32301	Bell's Pond Mobile Home URD	50	.1	.0	.0	.0	.1
		C32891	Jenna's Forest URD	50	.1	.0	.0	.0	.1

Planned T&D Infrastructure Investment Levels For Statutory/Regulatory Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		CNC010	Cent NY-Dist-New Bus-Resid Blanket	50	10.3	11.0	11.6	12.2	45.2
		CNC011	Cent NY-Dist-New Bus-Comm Blanket	50	4.1	4.3	4.5	4.7	17.5
		CNE010	East NY-Dist-New Bus-Resid Blanket	50	9.8	10.5	11.1	11.6	42.9
		CNE011	East NY-Dist-New Bus-Comm Blanket	50	4.0	4.2	4.4	4.6	17.1
		CNW010	West NY-Dist-New Bus-Resid Blanket	50	7.7	8.3	8.7	9.1	33.9
		CNW011	West NY-Dist-New Bus-Comm Blanket	50	4.5	4.7	5.0	5.2	19.3
		RESERVE 036_010 LINE	Reserve for New Business Residential Unidentified Specifics & Schedule Changes	50	2.4	3.6	3.8	4.0	13.9
		RESERVE 036_011 LINE	Reserve for New Business Commercial Unidentified Specifics & Schedule Changes	50	1.0	2.4	2.5	2.7	8.6
	New Business Total				**46.0**	**49.1**	**51.6**	**54.0**	**200.7**
	Outdoor Lighting - Capital	C26839	Mercury Vapor Replacement	50	2.5	3.0	2.8	.0	8.3
		CNC012	Cent NY-Dist-St Light Blanket	50	2.9	3.1	3.2	3.3	12.5
		CNE012	East NY-Dist-St Light Blanket	50	1.9	2.0	2.1	2.1	8.1
		CNW012	West NY-Dist-St Light Blanket	50	3.4	3.6	3.7	3.9	14.5
	Outdoor Lighting - Capital Total				**10.7**	**11.6**	**11.8**	**9.3**	**43.4**
	Public Requirements	C15724	NYSDOT Ridge Rd Bridge	50	.1	.0	.0	.0	.1
		C21511	DOT Queensbury Exit 18	50	1.6	.0	.0	.0	1.6
		C22173	NYS DOT Route 5	50	.8	.0	.0	.0	.8
		C22454	Green Ave Road Widening	50	.1	.0	.0	.0	.1
		C26639	Seneca Niagara Casino Relocation NF	50	.1	.0	.0	.0	.1
		C29742	DOTR I-81 bridge reconstruction Syr	50	.0	.0	.0	.0	.0
		C29825	DOT Albany Co., Johnston Rd.	50	.1	.0	.0	.0	.1
		C30825	372 Battenkill Bridge - DOT	50	.1	.0	.0	.0	.1
		C31258	DOT Glenville, Glenridge Rd.	50	.3	.0	.0	.0	.3
		C31318	DOT Albany, Fuller Rd.	50	.1	.0	.0	.0	.1
		C31543	DOT Amsterdam, Bridge St.	50	.3	.0	.0	.0	.3
		C31554	DOT PIN3045.55 Rt104 Osw-Scriba	50	.2	.0	.0	.0	.2
		C31811	DOT Erie Canal Lock E-13	50	.5	.0	.0	.0	.5
		C31868	DOTR PIN7804.42 Rt68	50	.2	.0	.0	.0	.2
		C32234	DOTR Latham, Rte.'s 2/7 Br/I-87	50	.2	.0	.0	.0	.2
		C32286	DOT Saratoga, Rte. 9P Bridge	50	.2	.0	.0	.0	.2
		C32359	NYSDOTR Rte. 28, Woodgate to McKeev	50	.2	.0	.0	.0	.2
		C32432	DOT Schoharie, Rte.'s 30, 30A & 443	50	.2	.0	.0	.0	.2
		C32850	DOT 4098.04- Rt 98 & 238 Attica	50	.2	.0	.0	.0	.2
		C33253	DOT-Relocate facilities Maple Rd	50	.0	.0	.0	.0	.0
		C33351	DOT CR106/Pine Grove Rd	50	.0	.0	.0	.0	.0
		CNC013	Cent NY-Dist-Public Require Blanket	50	1.0	1.1	1.2	1.2	4.6
		CNE013	East NY-Dist-Public Require Blanket	50	1.9	2.0	2.1	2.2	8.2
		CNW013	West NY-Dist-Public Require Blanket	50	1.4	1.5	1.6	1.7	6.2
		RESERVE 036_013 LINE	Reserve for Public Requirements Unidentified Specifics & Schedule Changes	50	1.6	7.4	7.8	8.2	25.0
	Public Requirements Total				**11.3**	**12.1**	**12.7**	**13.3**	**49.4**

Planned T&D Infrastructure Investment Levels For Statutory/Regulatory Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Transformers & Related Equipment	CN3620	NiMo Transformer Purchases	50	26.8	29.9	32.5	34.5	123.7
		CNC020	Cent NY-Dist-Transf/Capac Blanket	50	.0	.0	.0	.0	.0
		CNE020	East NY-Dist-Transf/Capac Blanket	50	.0	.0	.0	.0	.0
		CNW020	West NY-Dist-Transf/Capac Blanket	50	.0	.0	.0	.0	.0
	Transformers & Related Equipment Total				**26.8**	**29.9**	**32.5**	**34.5**	**123.8**
Distribution Total					**121.6**	**141.8**	**144.6**	**144.8**	**552.7**
Sub-Transmission	Inspection & Maintenance	C26165	FH - NE SubT Work Found by Insp.	42	3.2	3.3	3.7	3.8	14.0
		C26166	FH - NC SubT Work Found by Insp.	42	3.2	3.3	3.7	3.8	14.0
		C26167	FH - NW SubT Work Found by Insp.	42	3.2	3.3	3.7	3.8	14.0
		E07215	FH - NE SubT Work Found by Insp.	42	.0		.0	.0	.0
		E07216	FH - NC SubT Work Found by Insp.	42	.0		.0	.0	.0
		E07217	FH - NW SubT Work Found by Insp.	42	.0		.0	.0	.0
	Inspection & Maintenance Total				**9.6**	**10.0**	**11.0**	**11.5**	**42.1**
	New Business	C23713	NE-Great Escape	50	.0		.0	.0	.0
		C30409	34.5kv Tap to Chau. Co. Lndfill-nug	50	.1		.0	.0	.1
		C32813	New 23kV Cables - New Kaleida Stat.	50	.1		.0	.0	.1
		CNC071	CNY Sub Trans-Line New Business	50	.2	.2	.2	.3	.9
		CNE071	ENY Sub Trans-Line New Business	50	.1	.1	.1	.1	.4
		CNW071	WNY Sub Trans-Line New Business	50	.2	.2	.2	.2	.9
		RESERVE 036_010 LINE	TxD RESERVE for New Business Residential Unidentified Specifics & Schedule Changes	50	.0		.0	.0	.0
		RESERVE 036_011 LINE	TxD RESERVE for New Business Commercial Unidentified Specifics & Schedule Changes	50	.0		.0	.0	.0
	New Business Total				**.8**	**.6**	**.6**	**.6**	**2.5**
	Public Requirements	C26405	NYSDOTR Rt28 Woodgate to McKeever	50	1.0		.0	.0	1.0
		C31180	Sub-T Reimb Glenridge Rd	50	.0		.0	.0	.0
		CNC072	CNY Sub Trans-Line Public Require	50	.1	.1	.1	.1	.4
		CNE072	ENY Sub Trans-Line Public Require	50	.1	.2	.2	.2	.6
		CNW072	WNY Sub Trans-Line Public Require	50	.0	.0	.1	.1	.2
		RESERVE 036_013 LINE	TxD RESERVE for Public Requirements Unidentified Specifics & Schedule Changes	50	.0		.0	.0	.0
	Public Requirements Total				**1.3**	**.3**	**.3**	**.3**	**2.2**
Sub-Transmission Total					**11.7**	**10.8**	**11.9**	**12.4**	**46.8**
Transmission	Clay Station Rebuild	C32539	Clay Station Line Project	49	.1	2.0	2.0	.0	4.1
	Clay Station Rebuild Total				**.1**	**2.0**	**2.0**	**.0**	**4.1**
	Clearance Strategy	C31141	Oswego Lafayette 17, T2420 CCR	33	.5	.0	.0	.0	.5
		C03256	Transmission Tower Clearances	40	1.0	15.0	15.0	15.0	46.0
	Clearance Strategy Total				**1.5**	**15.0**	**15.0**	**15.0**	**46.5**
	Digital Fault Recorder Strategy	C03726	Digital Fault Recorder Strategy	49	1.1	.0	.0	.0	1.1
		C29487	Repl DFR at Non-BPS Stations	27	.0	.0	.0	.0	.0
	Digital Fault Recorder Strategy Total				**1.1**	**.0**	**.0**	**.0**	**1.1**

Planned T&D Infrastructure Investment Levels For Statutory/Regulatory Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Generation	CNYX63	Alabama Ledge Wind-Loop in, Loop-out	49	.2	.2	.0	.0	.4
		CNYX63R	Alabama Ledge Wind-Loop in, Loop-out Reimburseable portion	49	(.2)	(.4)	.0	.0	(.5)
		CNYX64	Alabama Ledge Wind-RTU/Metering/Relay upgrades	49	1.0	.7	.0	.0	1.6
		CNYX64R	Alabama Ledge Wind-RTU/Metering/Relay upgrades-Reimbursable portion	49	(1.0)	(.7)	.0	.0	(1.6)
		CNYX01	Athens Generation Expansion - Permanent Line	1	6.0	10.4	25.5	26.1	68.0
		CNYX01R	Athens Generation Expansion - Permanent Line Reimbursable	1	(6.0)	(10.4)	(25.5)	(26.1)	(68.0)
		CNYX02	Athens Generation Expansion - Permanent Sub	1	.0	.0	.5	3.4	3.9
		CNYX02R	Athens Generation Expansion - Permanent Sub Reimbursable	1	.0	.0	(.5)	(3.4)	(3.9)
		C23413	BEDCO Substation Work	49	.1	.0	.0	.0	.1
		CNYX60	Cape Vincent Wind-RTU/Metering/Relay upgrades	49	.1	2.7	.0	.0	2.8
		CNYX60R	Cape Vincent Wind-RTU/Metering/Relay upgrades-Reimbursable	49	(.1)	(2.7)	.0	.0	(2.8)
		CNYX70	Clayton Wind-Loop in, Loop-out	49	.4	2.0	.0	.0	2.4
		CNYX70R	Clayton Wind-Loop in, Loop-out Reimburseable portion	49	(.4)	(2.0)	.0	.0	(2.4)
		CNYX71	Clayton Wind-RTU/Metering/Relay upgrades	49	.3	1.0	.0	.0	1.3
		CNYX71R	Clayton Wind-RTU/Metering/Relay upgrades-Reimbursable portion	49	(.3)	(1.0)	.0	.0	(1.3)
		C29583	Fairfield Wind Farm Interconnection	49	.8	.0	.0	.0	.8
		C29583R	Fairfield Wind Farm Interconnection - Reimbursable Portion	49	(.8)	.0	.0	.0	(.8)
		C29782	Fairfield Wind-loop in loop out	49	1.0	.0	.0	.0	1.0
		C29782R	Fairfield Wind-loop in loop out(reimb)	49	(1.0)	.0	.0	.0	(1.0)
		CNYX68	Green Power-Cody Rd-loop in,loop out	49	.5	.0	.0	.0	.5
		CNYX68R		49	(.5)	.0	.0	.0	(.5)
		CNYX69	Green Power-Cody Rd-RTU,metering	49	1.0	.0	.0	.0	1.0
		CNYX69R		49	(1.0)	.0	.0	.0	(1.0)
		CNYPL3	Inghams SPS updates	40	.1	.1	.1	.1	.4
		CNYX53	Jordanville Wind-Loop in,Loop out	49	.2	.5	.0	.0	.7
		CNYX53R	Jordanville Wind-Loop in,Loop out Reimbursable Portion	49	(.2)	(.5)	.0	.0	(.7)
		CNYX54	Jordanville Wind-RTU/metering/Relay upgrades	49	.2	2.3	.0	.0	2.5
		CNYX54R	Jordanville Wind-RTU/metering/Relay upgrades Reimbursable Portion	49	(.2)	(2.3)	.0	.0	(2.5)
		CNYX65	New Grange Wind-Loop in, Loop-out	49	.4	.4	.0	.0	.8
		CNYX65R	New Grange Wind-Loop in, Loop-out Reimburseable portion	49	(.4)	(.4)	.0	.0	(.8)
		CNYX66	New Grange Wind-RTU/Metering/Relay upgrades	49	1.3	1.1	.0	.0	2.4
		CNYX66R	New Grange Wind-RTU/Metering/Relay upgrades-Reimbursable portion	49	(1.3)	(1.1)	.0	.0	(2.4)
		C27745	Noble Bliss 1 - New Arcade Tap	49	.3	.0	.0	.0	.3
		C27745R	Noble Bliss 1 - New Arcade Tap - Reimbursable Portion	49	(.3)	.0	.0	.0	(.3)
		C24981	Noble Bliss Wind Farm	35	.1	.0	.0	.0	.1
		C24981R	Noble Bliss Wind Farm - Reimbursable Portion	49	(.1)	.0	.0	.0	(.1)
		CNYX67	Sherman Island Uprate-RTU/Metering/Relay upgrades	49	.8	.0	.0	.0	.8

Planned T&D Infrastructure Investment Levels For Statutory/Regulatory Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		CNYX67R	Sherman Island Uprate-RTU/Metering/Relay upgrades-Reimbursable portion	49	(.8)	.0	.0	.0	(.8)
		CNYX55	St Lawrence Wind-Loop in, Loop-out	49	.1	.9	.0	.0	1.0
		CNYX55R	St Lawrence Wind-Loop in, Loop-out Reimburseable Portion	49	(.1)	(.9)	.0	.0	(1.0)
		CNYX56	St Lawrence Wind-RTU/Metering/Relay upgrades	49	.6	1.6	.0	.0	2.2
		CNYX56R	St Lawrence Wind-RTU/Metering/Relay upgrades-Reimbursable Portion	49	(.6)	(1.6)	.0	.0	(2.2)
		CNYX49	WestHill Wind -Loop in-loop out	49	.4	.0	.0	.0	.4
		CNYX49R	WestHill Wind -Loop in-loop out Reimbursable Portion	49	(.4)	.0	.0	.0	(.4)
		CNYX50	WestHill Wind -RTU/metering	49	.6	.0	.0	.0	.6
		CNYX50R	WestHill Wind-RTU/metering Reimbursable Portion	49	(.6)	.0	.0	.0	(.6)
	Generation Total				**.1**	**(.0)**	**.1**	**.1**	**.3**
	Load	CNYPL8	New Distribution for Load Growth	30	.2	2.0	2.0	2.0	6.2
		C27423	Reynolds Road 115-13.2Kv Second Bank	35	.7	.0	.0	.0	.7
		C29824	Unifax	49	.1	.2	.0	.0	.3
		C29824R	Unifax -Reimbursable Portion	49	(.1)	(.2)	.0	.0	(.3)
	Load Total				**.9**	**2.0**	**2.0**	**2.0**	**6.9**
	Luther Forest	C22738	Luther Forest Relay and Malta Sub work	49	3.4	4.8	.0	.0	8.2
	Luther Forest Total				**3.4**	**4.8**	**.0**	**.0**	**8.2**
	Northeast Region Reinforcement	CNYX39	Design/Build NERR	36	.5	5.0	13.4	11.9	30.8
		C18250	Re-conductor Rotterdam 1&2 Lines - Part of NERR	49	3.0	.0	.0	.0	3.0
		CNYX39A	Rotterdam Banks - Part of NERR	36	.0	.0	1.3	17.7	19.0
		C31418	Spier Rotterdam Line#3 - Part of NERR	49	1.6	9.7	25.3	8.6	45.1
		C31326	Turner Rd new 230-115kV Station - Part of NERR	49	2.0	25.0	17.3	.2	44.4
		C31419	Turner Road New Line Taps - Part of NERR	49	.3	1.5	7.8	.1	9.6
	Northeast Region Reinforcement Total				**7.3**	**41.2**	**65.0**	**38.5**	**151.9**
	Other Statutory/ Regulatory	C29483	Repl 23 meters Interconnect/ NYISO	49	.8	2.0	1.8	1.4	5.9
		C32551	Various Station - Range Operations	49	.1	.0	.0	.0	.1
	Other Statutory/Regulatory Total				**.8**	**2.0**	**1.8**	**1.4**	**5.9**
	RTU Strategy	C03772	RTU Replacements NERC, EMS, Obsolescence	49	1.5	2.0	1.4	.0	4.9
	RTU Strategy Total				**1.5**	**2.0**	**1.4**	**.0**	**4.9**
	Station BPS Upgrades	C28686	Porter - 115kV upgrade to bulk power	40	.1	12.0	12.0	.0	24.1
		C28705	Upgrade 115kV Clay Sub to BPS NPCC	49	9.8	8.0	11.0	.0	28.8
	Station BPS Upgrades Total				**9.9**	**20.0**	**23.0**	**.0**	**52.9**
	Reserve	CNYX32	Reserve	49	(3.2)	(10.7)	(11.2)	(6.6)	(31.7)
	Reserve Total				**(3.2)**	**(10.7)**	**(11.2)**	**(6.6)**	**(31.7)**
Transmission Total					**23.3**	**78.2**	**99.0**	**50.4**	**250.9**
Total Statutory/Regulatory					**156.6**	**230.8**	**255.5**	**207.6**	**850.4**

Planned T&D Infrastructure Investment Levels For Damage/Failure Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
Distribution	Damage/ Failure	C18595	DxT Substation Dmg/Fail Reserve C36	50	.1	.1	.1	.2	.5
		CNC002	Cent NY-Dist-Subs Blanket	50	.4	.4	.4	.4	1.6
		CNC014	Cent NY-Dist-Damage/Failure Blanket	50	4.0	4.2	4.4	4.5	17.1
		CNE002	East NY-Dist-Subs Blanket	50	.6	.7	.7	.7	2.7
		CNE014	East NY-Dist-Damage/Failure Blanket	50	5.4	5.8	6.0	6.2	23.4
		CNW002	West NY-Dist-Subs Blanket	50	.4	.4	.4	.4	1.6
		CNW014	West NY-Dist-Damage/Failure Blanket	50	5.0	5.3	5.5	5.7	21.6
		RESERVE 036_014 LINE	Reserve for Damage/Failure Unidentified Specifics & Schedule Changes	50	2.6	2.8	2.9	3.0	11.2
		RESERVE 036_014 SUB	Reserve for Damage/Failure Unidentified Specifics & Schedule Changes (substation)	50	1.0	1.0	1.0	1.0	4.0
	Damage/Failure Total				**19.5**	**20.6**	**21.4**	**22.1**	**83.6**
	Major Storms - Dist	C00056	Storm Damage - Dist - Western Div	50	.5	.5	.5	.5	2.0
		C00328	Storm Damage Distribution East Div.	50	.5	.5	.5	.5	2.0
		C12965	Storm Damage-Dist-Cent Div	50	.5	.5	.5	.5	2.0
	Major Storms - Dist Total				**1.4**	**1.5**	**1.6**	**1.6**	**6.1**
Distribution Total					**20.9**	**22.1**	**22.9**	**23.7**	**89.7**
Sub-Transmission	Damage/ Failure	CNC073	CNY Sub Trans-Line Damage Failure	50	.6	.6	.6	.7	2.5
		CNC074	CNY Sub Trans-Substation Blanket	50	.3	.4	.4	.4	1.4
		CNE073	ENY Sub Trans-Line Damage Failure	50	.8	.9	.9	.9	3.5
		CNE074	ENY Sub Trans-Substation Blanket	50	.1	.1	.1	.1	.5
		CNW073	WNY Sub Trans-Line Damage Failure	50	1.6	1.7	1.7	1.8	6.9
		CNW074	WNY Sub Trans-Substation Blanket	50	.1	.1	.1	.1	.5
		RESERVE 036_014 LINE	TxD RESERVE for Damage/Failure Unidentified Specifics & Schedule Changes	50	.0		.0	.0	.0
		RESERVE 036_014 SUB	TxD RESERVE for Damage/Failure Unidentified Specifics & Schedule Changes (substation)	50	.0		.0	.0	.0
	Damage/Failure Total				**3.6**	**3.8**	**3.9**	**4.0**	**15.3**
Sub-Transmission Total					**3.6**	**3.8**	**3.9**	**4.0**	**15.3**
Transmission	NY Inspection Projects	C26923	NY Inspection Projects - Capital	49	.4	1.0	1.0	3.0	5.4
	NY Inspection Projects Total				**.4**	**1.0**	**1.0**	**3.0**	**5.4**
	Other Damage/ Failure	C29320	Curtis St- Repl LN10 &13 Relays	26	.0	.2	.0	.0	
		C28324	Geres Lock Sub- Repl 14 115kV Disc	19	.3	.0	.0	.0	.3
		C32504	Getzville-Sta60-Repl Cntrl Hse Roof	35	.0	.0	.0	.0	.0
		C28303	Kensington Sub Repl TB#4 & 5 LTC Control	28	.0	.0	.0	.0	.0
		C32964	Leeds - PV 92 T5330 Str 361	40	.0	.5	.0	.0	.5
		C20546	New Gardenville-Repl 230kV Discs	27	.1	.0	.0	.0	.1
		C22391	Oneida - TB#3 Failure	49	.8	.0	.0	.0	.8
		C28964	Oneida Sub- Replace LTG & Recpt Ckts	16	.2	.0	.0	.0	.2

Planned T&D Infrastructure Investment Levels For Damage/Failure Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C32596	Porter Sub - Repl. Barre neutr & Auto	35	.0	.0	.0	.0	.0
		C31660	Replace Damaged Insulators	40	.4	.0	.0	.0	.4
		C18952	S. Oswego R/R LN1 Tone Package	33	.2	.0	.0	.0	.2
		C03278	Transmission Line Replacements - Budgetary Reserve	49	.2	.2	.2	.2	.8
		C03792	Transmission Station Failures - Budgetary Reserve	49	1.0	1.4	2.7	3.1	8.2
		C03481	Transmission Storm Budgetary Reserve	49	.3	.3	.3	.3	1.0
		C13622	Transmission UG C Budgetary Reserve - Co 36	49	.0	.0	.0	.0	.1
		C26144	Yahnundasis - Repl 18 & 28 Switches	28	.4	.0	.0	.0	.4
	Other Damage/Failure Total				**3.8**	**2.5**	**3.2**	**3.6**	**13.2**
	Steel Tower Strategy	C25539	Visual Grade 6 Tower Replacements	40	.1	.1	.1	.1	.5
	Steel Tower Strategy Total				**.1**	**.1**	**.1**	**.1**	**.5**
	Wood Pole Strategy	C11640	Wood Pole Management - NY	43	1.8	1.5	1.6	3.0	7.9
	Wood Pole Strategy Total				**1.8**	**1.5**	**1.6**	**3.0**	**7.9**
Transmission Total					**6.1**	**5.2**	**5.9**	**9.7**	**26.9**
Total Damage/Failure					**30.6**	**31.1**	**32.7**	**37.4**	**131.9**

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
Distribution	Blanket	CNC015	Cent NY-Dist-Reliability Blanket	50	1.7	1.9	2.0	2.2	7.8
		CNE015	East NY-Dist-Reliability Blanket	50	1.6	1.8	1.9	2.0	7.3
		CNW015	West NY-Dist-Reliability Blanket	50	3.3	3.5	3.8	4.1	14.7
	Blanket Total				**6.6**	**7.2**	**7.8**	**8.3**	**29.8**
	Capacitor Application	C32510	Brockport Feeder Capacitors	36	.3	.0	.0	.0	.3
	Capacitor Application Total				**.3**	**.0**	**.0**	**.0**	**.3**
	Distribution Line Regulator	C06679	Boyntonville 51 Regulators	50	.1	.0	.0	.0	.1
	Distribution Line Regulator Total				**.1**	**.0**	**.0**	**.0**	**.1**
	Distribution Line Transformer	C10967	IE - NW Dist Transformer Upgrades	30	1.5	1.5	2.5	3.2	8.8
		C14846	IE - NC Dist Transformer Upgrades	30	1.5	1.5	2.5	3.2	8.8
		C15828	IE - NE Dist Transformer Upgrades	30	1.5	1.5	2.5	3.2	8.8
	Distribution Line Transformer Total				**4.5**	**4.6**	**7.6**	**9.7**	**26.4**
	Engineering Reliability Review	C06698	Clinton 53 - Convert Ft Plain	23	.0	.0	.0	.0	.0
		C07438	Chestertown 52 - Duell Hill Rd.	27	.2	.0	.0	.0	.2
		C15727	NR-Gilpin Bay 95661-Fish Creek Pond	23	.0	.0	.0	.0	.0
		C15732	NR-Gilpin Bay 95661-Hoel Pond	23	.0	.0	.0	.0	.0
		C16117	IE - NE ERR and Fuse	30	.4	.4	.4	.4	1.6
		C16118	IE - NC ERR and Fuse	30	.4	.4	.4	.4	1.6
		C16119	IE - NW ERR and Fuse	30	.4	.4	.4	.4	1.6
		C19272	Caroga - G'ville 53 Feeder Tie	49	.2	.0	.0	.0	.2
		C22959	NR-W.Adams87554-Church St	49	.1	.0	.0	.0	.1
		C26876	Corinth 52 - Eastern Ave. Rebuild	36	.9	.0	.0	.0	.9
		C26877	Guy Park Retirement Dist. Line	36	.1	.0	.0	.0	.1
		C26973	NR-State St 95463-Judson St Rebuild	27	.2	.0	.0	.0	.2
		C28176	Scofield 53 - Hadley/Harrisburg Rds	36	.2	.0	.0	.0	.2
		C28617	Lehigh 66954 Teelin Rd Relocate	27	.1	.0	.0	.0	.1
		C28620	Oneida 50153 Route 5	27	.0	.0	.0	.0	.0
		C28623	Poland 62257 Steuben Rd	27	.0	.0	.0	.0	.0
		C28625	F20871 rebuild ties F4768/F2569	27	.2	.0	.0	.0	.2
		C28652	Delameter F9352 new ties w/18251,53	28	.3	.0	.0	.0	.3
		C28689	F9753 Rebuild/Conv tie w/F21754	30	.2	.0	.0	.0	.2
		C28692	F8566 Rebuild Various Sections	24	.0	.0	.0	.0	.0

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C28716	Knapp Rd 22651 Feeder Tie	23	.0	.0	.0	.0	.0
		C28717	N.Leroy 0455 - Mumford 5052 Fdr Tie	36	.4	.0	.0	.0	.4
		C28718	E.Batavia 2855 - N.Leroy 0456 Tie	30	.8	.0	.0	.0	.8
		C28719	Batavia 0155 - Knapp Rd 22651 Tie	36	.5	.0	.0	.0	.5
		C28720	N.Eden 8251 Tie w/ F8861 & F8862	27	.0	.0	.0	.0	.0
		C28721	Delameter 9354 - 9353 Feeder Tie	27	.0	.0	.0	.0	.0
		C28723	Delameter 9352 - Eden Ctr 8862 Tie	27	.0	.0	.0	.0	.0
		C28726	Sweet Home F22457 tie with F2165	28	.1	.0	.0	.0	.1
		C28791	Krumkill 51 Russell Rd convert	36	.1	.0	.0	.0	.1
		C28823	Pinebush 37154 Prescott Woods	23	.0	.0	.0	.0	.0
		C29101	NR-N Gouverneur 98352-Rt58 Transfer	27	.3	.0	.0	.0	.3
		C29424	Battenkill 56 - Weibel 51 Tie	31	.1	.0	.0	.0	.1
		C29426	Center St 54 - Rebuild Route 5S	18	.0	.0	.0	.0	.0
		C29429	Chestertown 52 - Schroon River Rd	30	.5	.0	.0	.0	.5
		C29430	Corinth 52 - Hudson River Crossing	35	.2	.0	.0	.0	.2
		C29431	Farnan Rd 51 - Bluebird Road	21	.0	.0	.0	.0	.0
		C29433	Inghams 51 - Route 108	23	.0	.0	.0	.0	.0
		C29434	Middleburg 51 - Tie to Schoharie	30	.1	.0	.0	.0	.1
		C29435	Northville 52 - EJ West 51 Tie	23	.0	.0	.0	.0	.0
		C29437	Saratoga 4.16 kV Conversion	23	.0	.0	.0	.0	.0
		C29438	Scofield Rd 53 - Tie to Corinth 51	30	.8	.0	.0	.0	.8
		C29439	St Johnsville - Sanders Road	21	.0	.0	.0	.0	.0
		C31772	Lehigh 66951 Tie with Turin 65355	50	.5	.0	.0	.0	.5
	Engineering Reliability Review Total				**8.1**	**1.2**	**1.2**	**1.2**	**11.7**
	Feeder Hardening	C10968	FH - NW Feeder Hardening	45	1.0	.0	.0	.0	1.0
		C13145	FH - NC Feeder Hardening	45	1.0	.0	.0	.0	1.0
		C13146	FH - NE Feeder Hardening	45	1.0	.0	.0	.0	1.0
	Feeder Hardening Total				**3.0**	**.0**	**.0**	**.0**	**3.0**
	Open Wire Primary	C28610	Peterboro Reconductor Main St.	27	.2	.0	.0	.0	.2
		C28616	Walesville Reconductor Utica St	27	.1	.0	.0	.0	.1
	Open Wire Primary Total				**.3**	**.0**	**.0**	**.0**	**.3**
	Planning Criteria	C00376	St. Johnsville 51-Wagner/Wiltse Rds	14	.2	.0	.0	.0	.2
		C06533	East Golah 51 - Second Bank	38	1.4	.0	.0	.0	1.4
		C06765	East Golah -F5151E, F5151W & F5151C	38	.8	.0	.0	.0	.8
		C06850	Whitaker 51 River Crossing	27	.1	.0	.0	.0	.1
		C07477	Northville 52 - Convert N. Shore Rd	23	.1	.0	.0	.0	.1
		C07482	Battenkill 34257 - Rebuild/convert	49	.1	.0	.0	.0	.1
		C07798	EJ West 03841 - Convert to 13.2kV	50	.1	.0	.0	.0	.1
		C08153	PS&I Activity - New York	36	.1	.1	.1	.1	.4
		C08606	Delmar 440, Jun, Vooh 52 Conversion	27	.6	.0	.0	.0	.6
		C12719	Rosa Road 55 - Overloaded Ratio bks	15	.1	.0	.0	.0	.1
		C15669	Cuba 05 - Replace Transformer Bank	27	.0	.0	.0	.0	.0
		C15678	Chautauqua 57 - Replace Xfmr	36	.9	.0	.0	.0	.9

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C15765	Sheppard Rd. 29 - Second Bank	45	.8	.0	.0	.0	.8
		C17962	Schroon 51 - Rebuild Route 74	23	.0	.0	.0	.0	.0
		C18991	Port Henry 51 - Convert Westport	27	.4	.0	.0	.0	.4
		C20691	Selkirk - Bethlehem Tie	50	.0	.0	.0	.0	.0
		C26379	Attica12-Rebuild,Xfer F1263 to 0158	30	.8	.8	.0	.0	1.6
		C26418	Sycaway - Add M/C and 13.2kV Bus	35	2.1	.0	.0	.0	2.1
		C26481	S. Newfane 71 - Replace Bank	48	.0	.0	.0	.0	.0
		C26577	Buffalo Sta. 63 bank replacement	43	.1	.0	.0	.0	.1
		C26819	Sycaway add 2nd Xfmr & 115 kV equip	40	1.9	.0	.0	.0	1.9
		C27062	East Golah 51 - Secondary Breakers	38	.7	.0	.0	.0	.7
		C27322	Raquette Lake 2.5 MVA	50	.1	.4	.0	.0	.5
		C27323	NR- Morristown 2.5 MVA	34	.1	.0	.0	.0	.1
		C27449	Swann Rd TB2 Replacement	34	2.2	.0	.0	.0	2.2
		C28022	Sycaway-add new feeders	35	.3	.0	.0	.0	.3
		C28023	Reynolds Rd - add new feeders	36	.6	.0	.0	.0	.6
		C28545	LeMoyne Ave Rebild	48	.4	.1	.0	.0	.5
		C28606	F5769/5763 Rebuild r/o Floradale	27	.3	.0	.0	.0	.3
		C28607	Lehigh 66952 Tie With Colosse 32151	27	.8	.0	.0	.0	.8
		C28608	McGraw 69 Low Voltage improvement	30	.5	.0	.0	.0	.5
		C28618	Valley 59476 Rebuild Rasbach Rd	27	.0	.0	.0	.0	.0
		C28619	Cavanaugh 61652 River Road	18	.0	.0	.0	.0	.0
		C28622	Poland Convert Old State Rd	27	.0	.0	.0	.0	.0
		C28765	Johnson 35251 - getaway replacement	30	.1	.0	.0	.0	.1
		C28770	Inman Rd -Add M/C & 13.2kV Bus work	39	1.0	2.2	.0	.0	3.2
		C28772	Inman Rd - add new feeders	39	1.0	.0	.0	.0	1.0
		C28780	Seminole 33904 - add feeder tie	30	.1	.0	.0	.0	.1
		C28781	Riverside 28854 - replace getaway	36	.2	.0	.0	.0	.2
		C28816	Chittenango Relief	34	.3	.0	.0	.0	.3
		C28820	Park Load Relief	36	.1	.0	.0	.0	.1
		C28825	Krumkill Voorheesville Tie	36	.5	.0	.0	.0	.5
		C28832	Bartell 56 Orangeport	29	.3	.0	.0	.0	.3
		C28837	Canajoharie D-Line Work	36	.9	.0	.0	.0	.9
		C28843	Church St 04358 exten.	41	.1	.0	.0	.0	.1
		C28844	Brook Rd 36957 Exten. Adams Road	36	.5	.0	.0	.0	.5
		C28847	Fairdale Load Relief	29	.3	.0	.0	.0	.3
		C28848	Mexico Load Relief	34	.2	.0	.0	.0	.2
		C28849	Phoenix Load Relief	30	.2	.0	.0	.0	.2
		C28852	Starr 53 Step Down	34	.5	.0	.0	.0	.5
		C28854	Cortland 02 Relief	34	.1	.0	.0	.0	.1
		C28869	E Syracuse 69 Conductor	27	.1	.0	.0	.0	.1
		C28870	Station 21 - Split F2173	48	.3	.0	.0	.0	.3
		C28874	Queensbury D-Line Work	36	.0	.0	.0	.0	.0
		C28929	Frankhauser New Station - Line Work	41	.6	.6	.0	.0	1.2
		C28931	Frankhauser-115-13.2KV- Bus & Bkrs	41	.3	2.0	.0	.0	2.3

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C29030	Batavia 01 - UG Cable Recond.	48	1.0	.3	.0	.0	1.3
		C29049	Younsgtown 88 - Station Rebuild	36	.8	.0	.0	.0	.8
		C29181	Station 79 - F7961 Relief	41	.1	.0	.0	.0	.1
		C29182	Station 79 - F7962 Relief	41	.2	.0	.0	.0	.2
		C29186	Station 214 - Install TB2	34	.2	1.2	.0	.0	1.4
		C29187	Station 214 - New F21466	34	.1	.5	.0	.0	.6
		C29425	Brook Road 55/57 - Daniels Rd	23	.0	.0	.0	.0	.0
		C30124	Wilson Station 93 - Load Relief	48	.0	.8	.8	.0	1.5
		C30506	N Syracuse Sub Getaways	38	.0	1.0	.0	.0	1.1
		C31550	DxT Study Budgetary Reserve - NIMO	49	.1	.1	.1	.0	.3
		C32070	Rosa Rd 13756 - getaway replacement	27	.0	.0	.0	.0	.0
		C32171	Amsterdam 32654 - extension	36	.4	.0	.0	.0	.4
		C32306	NW Upgrade Panama Xfrm / Regs	36	.0	.5	.0	.0	.5
		C32310	NW Langford 18061 Upgrade regs	23	.0	.0	.0	.0	.0
		C32311	Fly 54 Fremont RR Cross	23	.0	.0	.0	.0	.0
		C32313	NW N Collins Repl T1 Xfrm	24	.0	.0	.0	.0	.0
		C32339	Farmersville Transformer Replacement	45	.5	1.6	.0	.0	2.1
		C32342	Sinclairville Transformer Replace	41	.5	1.6	.0	.0	2.1
		C32344	Shelby 7657 Reconductoring	30	.0	.2	.0	.0	.2
		C32345	Butts Rd. 7252 Extension	30	.7	.0	.0	.0	.7
		C32346	W. Albion Transformer Addition	45	.5	2.5	.0	.0	3.0
		C32347	NW 15467 336 SpC Med. Service #2	39	.0	.5	.1	.0	.5
		C32348	NW Sta 154 - New 15465 Feeder	39	.0	.6	.0	.0	.6
		C32349	NW - New 15465 Assoc DLine projects	39	.0	.5	.0	.0	.5
		C32350	Albion 8064 Getaway Reconductoring	30	.2	.0	.0	.0	.2
		C32354	NW Baker St Station Cap Bank	36	.2	.9	.1	.0	1.1
		C32368	NC Starr Rd Second Xfrm-13kv Switch	39	.0	.6	.2	.0	.8
		C32390	NW-Batavia Sub Dist. Line Cap Banks	34	.1	.0	.0	.0	.1
		C32413	Tonawanda 4.16 057 Recon UG Getaway	36	.3	.0	.0	.0	.3
		C32430	S.Philadelphia 764 Transf. Upgrade	18	.0	.0	.4	.0	.4
		C32446	Harris 54 Relief	27	.0	.0	.0	.0	.0
		C32452	NW 15564 Fdr, Recond ug getaway	36	.1	.0	.0	.0	.2
		C32453	NW Fdr 4671 Recond UG cable	41	.2	.0	.0	.0	.2
		C32470	NW F3964 Extend ug, Xfer load	41	.2	.0	.0	.0	.2
		C32494	Gilbert Mill Relief	36	.5	.0	.0	.0	.5
		C32495	Paloma Second Transformer	39	.0	.0	.0	.4	.4
		C32496	Harris Second Transformer	39	.0	.0	.0	.4	.4
		C32497	Duguid Second Transformer	39	.0	.0	.4	.9	1.3
		C32503	NC Starr Rd. Second Xfrm	39	.0	1.9	.4	.0	2.3
		C32594	Labrador 115-13.2kV	27	.0	.0	.0	.0	.0
		C32595	Rathbun Labrador conversion	27	.0	.0	.0	.0	.0
		C32597	Ogden Brook- install 13.2 kV s/gear	36	.3	2.0	2.8	.0	5.0
		C32598	Ogden Brook - Install new feeders	36	.1	.6	.3	.0	1.0
		C32959	Burgoyne - Inst. 2nd trans & s/gr	14	.0	.0	.0	1.1	1.1

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C32972	Burgoyne - inst. cable getaways	14	.0	.0	.0	.0	.0
		C33012	Ballston - Inst. second tranf & s/g	28	.0	.0	2.9	.7	3.6
		CNC016	Cent NY-Dist-Load Relief Blanket	50	.4	.4	.4	.5	1.8
		CNE016	East NY-Dist-Load Relief Blanket	50	.2	.2	.2	.2	.9
		CNW016	West NY-Dist-Load Relief Blanket	50	.5	.5	.5	.5	2.0
		RESERVE 036_016 LINE	Reserve for Load Relief Unidentified Specifics & Schedule Changes	34	(1.7)	(2.4)	1.3	1.5	(1.2)
		RESERVE 036_016 SUB	Reserve for Load Relief Unidentified Specifics & Schedule Changes (substation)	34	(.8)	(1.2)	11.7	15.0	24.8
	Planning Criteria Total				**29.9**	**21.5**	**22.5**	**21.4**	**95.3**
	Pockets of Poor Performance	C32576	Pockets of Poor Performance - NYW	41	.7	.7	.7	.7	2.8
		C32577	Pockets of Poor Performance - NYC	41	.7	.7	.7	.7	2.8
		C32578	Pockets of Poor Performance - NYE	41	.7	.7	.7	.7	2.8
	Pockets of Poor Performance Total				**2.1**	**2.1**	**2.1**	**2.1**	**8.5**
	Recloser Application	C13266	IE - NE Recloser Installations	41	1.7	2.0	2.0	3.3	9.0
		C13267	IE - NC Recloser Installations	41	1.7	2.0	2.0	3.3	9.0
		C13268	IE - NW Recloser Installations	41	1.7	2.0	2.0	3.3	9.0
	Recloser Application Total				**5.0**	**6.0**	**6.0**	**10.0**	**27.0**
	Substation EMS/RTU	C19851	REP - Dist Subs Without RTUs	30	.3	.3	.3	.3	1.0
		C20173	REP - Dist Subs EMS RTU DNP Plan	50	.2	.2	.2	.2	.6
		C22151	NY RTU Program - DxT Subs	50	1.8	1.8	1.8	2.0	7.4
		CNYEMS	EMS Placeholder	34	2.5	3.0	3.0	4.0	12.5
	Substation EMS/RTU Total				**4.7**	**5.2**	**5.2**	**6.4**	**21.5**
	Substation Overarching	C28831	N Syracuse Capacity Inc	48	.7	2.3	.1	.0	3.1
		C32367	Bennett Rd. Sub Capacitor Install	36	.4	1.4	.0	.0	1.8
	Substation Overarching Total				**1.1**	**3.7**	**.1**	**.0**	**4.9**
	Substation Relay/Protection	C28449	Metallic Pilot Wire Protection Repl	34	.1	.3	.3	.5	1.1
	Substation Relay/Protection Total				**.1**	**.3**	**.3**	**.5**	**1.1**
	TBD	RESERVE 036_015 LINE	Reserve for Reliability Unidentified Specifics & Schedule Changes	34	(.5)	(1.0)		.0	(1.5)
		RESERVE 036_015 SUB	Reserve for Reliability Unidentified Specifics & Schedule Changes (substation)	34	(.3)	(.5)		.0	(.8)
	TBD Total				**(.8)**	**(1.5)**		**.0**	**(2.3)**
	URD Primary	C28814	Arbor Hill URD - Riverside 28858	23	.2	.0	.0	.0	.2
		C28826	Stonehenge URD	23	.0	.0	.0	.0	.0
	URD Primary Total				**.2**	**.0**	**.0**	**.0**	**.2**
Distribution Total					**65.1**	**50.3**	**52.8**	**59.6**	**227.7**
Sub-Transmission	Blanket	CNC076	CNY Sub Trans-Line Reliability	50	.1	.1	.1	.1	.5
		CNE076	ENY Sub Trans-Line Reliability	50	.1	.1	.1	.1	.4
		CNW076	WNY Sub Trans-Line Reliability	50	.3	.3	.3	.3	1.2
	Blanket Total				**.5**	**.5**	**.5**	**.6**	**2.1**

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Distribution & Sub-T Automation	CLINESEC	Sub-Transmission Line Sectionalizing	(blank)	.5	1.0	2.0	4.0	7.5
	Distribution & Subtransmssion Automation Total				**.5**	**1.0**	**2.0**	**4.0**	**7.5**
	New Business	C31665	Buffalo Niagara Medical Campus-Sub	47	2.7		.0	.0	2.7
		C31666	Buffalo Niagara Medical Campus-Line	47	4.6		.0	.0	4.6
	New Business Total				**7.3**		**.0**	**.0**	**7.3**
	Planning Criteria	C08154	NY SubT PS&I Activity	36	.1	.1	.1	.1	.4
		C26419	Reynolds - Add M/C & Equip	36	.0	1.1	.0	.0	1.1
		C28892	Buffalo 23kV Reconductor - Huntley	36	.2	1.0	6.2	.0	7.4
		C28893	Buffalo 23kV Reconductor - Huntley2	36	.2	1.0	1.2	.0	2.4
		C28894	Buffalo 23kV Reconductor - Kensing.	30	.0	.5	2.3	.0	2.8
		C28903	Buffalo 23kV Reconductor - Kens2	30	.0	.8	1.3	.0	2.1
		C29100	Seneca - Replace Series Reactors	44	1.1		.0	.0	1.1
		C31951	Beth-AveA #10 - reconductor	30	.0	.3	2.0	.0	2.3
		C31952	Delaware-Bethlehem 14 - Reconductor	30	.0	.3	1.3	.0	1.6
		CNC077	CNY Sub Trans-Line Load Relief	50	.0	.1	.1	.1	.2
		CNE077	ENY Sub Trans-Line Load Relief	50	.0	.0	.0	.0	.1
		CNW077	WNY Sub Trans-Line Load Relief	50	.0	.0	.0	.0	.1
		RESERVE 036_016 LINE	TxD RESERVE for Load Relief Unidentified Specifics & Schedule Changes	34	.0		(2.9)	6.0	3.1
		RESERVE 036_016 SUB	TxD RESERVE for Load Relief Unidentified Specifics & Schedule Changes (substation)	34	(.5)	.4	1.6	1.8	3.3
	Planning Criteria Total				**1.2**	**5.6**	**13.3**	**8.0**	**28.0**
	Substation Relay/ Protection	C07808	Teall Ave Upgrade 34.5kV Protection	24	.0	.6	.0	.0	.6
	Substation Relay/Protection Total				**.0**	**.6**	**.0**	**.0**	**.6**
	Sub-T Line Overarching	C32216	Alder Creek 46kV Sta Bypass	34	.0	.3	.0	.0	.3
	Subtransmission Line Overarching Total				**.0**	**.3**	**.0**	**.0**	**.3**
	TBD	RESERVE 036_015 LINE	TxD RESERVE for Reliability Unidentified Specifics & Schedule Changes	0	(1.2)	.0	.3	2.4	1.5
		RESERVE 036_015 SUB	TxD RESERVE for Reliability Unidentified Specifics & Schedule Changes (substation)	34	(.6)	.3	1.1	1.2	2.0
	TBD Total				**(1.8)**	**.3**	**1.4**	**3.6**	**3.5**
Sub-Transmission Total					**7.6**	**8.3**	**17.2**	**16.1**	**49.3**
Transmission	Frontier Region	C11496	Refurbishment of Huntley 230kV Station	22	.0	.0	.1	2.3	2.4
		C11494	Tonawanda Station - Line Work	49	6.2	23.0	3.7	.4	33.2
		C11495	Tonawanda Station - Station Work	49	23.1	31.3	8.5	3.0	65.9
	Frontier Region Total				**29.3**	**54.3**	**12.3**	**5.7**	**101.6**
	Load	C30744	Frankhauser New Station - T Line Work	41	.2	.4	.0	.0	.6
		C30765	Install Second Transformer - Inman Rd	39	.9	.9	.0	.0	1.7
		C30824	Replace TB#1 - Everett Rd	30	1.0	.6	.0	.0	1.6
	Load Total				**2.1**	**1.8**	**.0**	**.0**	**3.9**

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Other System Capacity & Performance	C22071	Albany Steam - Add 2nd Station svc	16	.2	.2	.0	.0	.4
		C33744	BlackRiver-LHHX5-2 LB Attachment	49	.0	.1	.0	.0	.1
		C33742	BlackRiver-Taylorville#2 New Switch	43	.0	.3	.0	.0	.3
		CNYPL4	Boonville-Rome #4 Reconductoring	40	.0	.0	.1	5.0	5.1
		C21353	Dewitt 345kV Breaker Install	6	.0	.8	.6	.0	1.5
		C32337	East Watertown 115 Mobile tap	49	.0	.1	.2	.0	.3
		CNYPL7	Eastern NY 115kV Capacitor Additions	35	.0	.0	.1	2.0	2.1
		C28384	Farmington 11 Line Rearrangement	49	1.5	.0	.0	.0	1.5
		C28384R	Farmington 11 Line Rearrangement - Reimb portion	49	(1.5)	(.0)	.0	.0	(1.5)
		CNYPL14	Fourth Elm 230-23kV Bank (N-1-1)	28	.0	.0	.0	.1	.1
		CNYPL13	Fourth Sawyer 230-23kV Bank (N-1-1)	26	.0	.0	.0	.1	.1
		CNYPL34	Install Capacitance/TRV	33	.0	.0	.3	.7	1.0
		C30806	Install new Alps Site Sub- Nassau	27	1.1	.8	.0	.0	1.9
		C33619	Install new Alps Site Sub-Line Work	49	.1	.2	.2	.0	.4
		CNYPL29	Lake Colby - Spare SVC Transformer and Thyristor Reactor	28	.1	1.7	.0	.0	1.8
		C32259	Lowville Automated 115 kV Switches	49	.1	.2	.0	.0	.3
		C24064	LTC Filtration Systems NY	21	.1	.0	.0	.0	.1
		CNYPL33	Reconductor 24 & 25 Line - Hogan Taps to Panell Road	35	.0	.0	.1	1.5	1.6
		CNYPL1	Reconductor Black River LHH	40	.0	.0	.1	5.0	5.1
		C27163	Replace N. Angola 115:34.5kV Banks	36	.0	.4	5.3	.0	5.7
		CNYPL26	Replace overdutied 115kV breakers at Central and Mohawk Valley	39	.0	.2	1.0	1.8	3.0
		CNYPL25	Replace overdutied 115kV breakers at Maplewood	39	.0	.2	1.0	1.8	3.0
		CNYPL24	Replace three 115kV breakers at ALCOA	39	.0	.0	.3	.6	.9
		C29964	Reynolds Road - Cap Blocking Scheme	28	.0	.0	.0	.0	.0
		C30826	Spier West 9 115kv Switch Add	34	.0	.0	.1	.2	.3
		C10705	Sta Homer Hill Transformers	20	.0	.0	.0	.2	.2
		CNYPL28	Syracuse Area Reconductoring	19	.0	.0	.3	1.6	1.9
		C08376	Transmission Study Budgetary Reserve -NY	49	.2	.2	.2	.2	.8
		C28708	Upgrade Breakers at Scriba	40	2.0	1.5	.0	.0	3.5
		C33252	Upgrade Breakers at Volney	49	2.0	.5	.0	.0	2.5
		C29945	Upgrade Niagara-Pakard #195	40	.0	.0	.0	.2	.2
	Other System Capacity & Performance Total				**5.8**	**7.3**	**10.0**	**21.0**	**44.1**
	Overhead Line Refurbishment Program	C24359	Browns Falls - Taylorville 4 Lightning Enhancements	37	4.6	.0	.0	.0	4.6
		C24360	Coffeen - LH 5, T2120 Lightning Enhancement	37	.8	.0	.0	.0	.8
	Overhead Line Refurbishment Program Total				**5.4**	**.0**	**.0**	**.0**	**5.4**
	Reliability Criteria Compliance	C24014	Andover Cap Bank, part of SG075	39	.4	.0	.0	.0	.4
		C31478	Batavia Second 115kV Cap Bank, part of SG077	34	.1	.1	1.1	.0	1.3
		C24016	Construct Southwest Station (Line Station), part of SG075	39	.6	1.5	.8	.0	2.8
		C24015	Construct Southwest Station, part of SG075	39	5.0	18.0	2.0	.0	25.0
		C24629	Conversion of #109 to 115kV-part of SG077	34	.2	1.6	9.2	.0	10.9

Planned T&D Infrastructure Investment Levels For System Capacity & Performance Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C31460	Dunkirk Second Bus Tie- Line, part of SG075	19	.0	.1	.1	1.1	1.2
		C31459	Dunkirk Second Bus Tie- Station, part of SG075	19	.0	.1	.3	1.0	1.4
		C24631	Golah work for #109 Conversion - part of SG077	34	.5	2.0	3.0	.0	5.5
		C31457	Homer Hill 115kV Capacitor Banks, part of SG075	28	1.0	.2	.0	.0	1.2
		C24630	Mortimer Work for #109 Conversion - part of SG077	34	.3	1.6	2.1	.0	4.0
		C24019	Rebuild line #181 and #180 (Station Work), part of SG075	27	.1	.1	1.5	1.0	2.7
		C24018	Rebuild line #181 and #180, part of SG075	27	1.5	2.0	13.0	20.0	36.5
		C31463	Reconductor portions of 54 and 181, part of SG075	19	.0	.2	.0	.0	.2
		C24017	Reconductoring of #171, part of SG075	39	.8	2.3	.2	.0	3.2
		C31458	Replace HH Ckt #157 Connections, part of SG075	28	.1	.0	.0	.0	.1
		C33884	Replacement of #171 connections, part of SG075	49	.0	.1	.0	.0	.1
		C31482	Second 115kV bus tie at Lockport, part of SG077	34	.7	.0	.0	.0	.7
		C31479	Upgrade Batavia South 115kV busring, part of SG077	28	.1	.2	.0	.0	.3
		C31481	Upgrade capability of L107, part of SG077	34	.2	.0	.0	.0	.2
	Reliability Criteria Compliance Total				**11.6**	**29.8**	**33.3**	**23.1**	**97.7**
	Reserve	CNYX33	Reserve	49	(7.8)	(12.2)	(4.5)	(2.9)	(27.4)
	Reserve Total				**(7.8)**	**(12.2)**	**(4.5)**	**(2.9)**	**(27.4)**
Transmission Total					**46.3**	**81.1**	**51.0**	**46.8**	**225.3**
Total System Capacity & Performance					**119**	**139.7**	**121**	**122.5**	**502.3**

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
Distribution	Blanket	CNC017	Cent NY-Dist-Asset Replace Blanket	50	2.3	2.3	2.0	1.8	8.3
		CNE017	East NY-Dist-Asset Replace Blanket	50	1.0	1.0	.9	.8	3.7
		CNW017	West NY-Dist-Asset Replace Blanket	50	2.5	2.5	2.3	2.0	9.3
	Blanket Total				**5.8**	**5.8**	**5.2**	**4.6**	**21.3**
	Distribution Line Transformer	C26977	Doghouse Replacement - Central Div	28	.1	.0	.0	.0	.1
	Distribution Line Transformer Total				**.1**	**.0**	**.0**	**.0**	**.1**
	Duct	C32091	IE-NC Duct Replace Placeholder	34	.1	.0	.0	.1	.2
		C32093	IE-NE_-Duct Replace Placeholder	34	.1	.0	.0	.1	.2
		C32095	IE-NW_Duct replace Placeholder	34	.1	.0	.0	.1	.2
	Duct Total				**.3**	**.0**	**.0**	**.3**	**.6**
	Engineering Reliability Review	C26902	Lape - Snyders Lake Tie	30	.1	.0	.0	.0	.1
	Engineering Reliability Review Total				**.1**	**.0**	**.0**	**.0**	**.1**
	Manhole/Vault	C32101	IE- NC- MH Program Placeholder	34	.1	.1	.1	.2	.5
		C32102	IE-NW-MH Program Placeholder	34	.1	.1	.1	.2	.5
		C32103	IE-NE-MH-Program-Placeholder	34	.1	.1	.1	.2	.5
		C32693	V-72 Howard St Replace Vault Roof	45	.2	.0	.0	.0	.2
		C33908	V2325 Albany NY Roof Replacement	35	.2	.0	.0	.0	.2
		C33909	V2326 Albany NY Roof Replacement	35	.2	.0	.0	.0	.2
		C33910	V2327 Albany NY Roof Replacement	35	.2	.0	.0	.0	.2
		C33911	V-6 Albany NY Roof Replacement	35	.2	.0	.0	.0	.2
		C33912	V5825 Schenectady NY Roof Repl	35	.2	.0	.0	.0	.2
		C33913	V573 Troy NY Roof Replacement	35	.2	.0	.0	.0	.2
		C33914	V-500 Troy NY Roof Replacement	35	.2	.0	.0	.0	.2
		C33915	V-198 Albany NY Roof Replacement	35	.2	.0	.0	.0	.2
	Manhole/Vault Total				**1.7**	**.3**	**.3**	**.6**	**2.9**
	Miscellaneous Underground Equipment	C29214	LV Neutral Cable Replacement	27	.1	.0	.0	.0	.1
	Miscellaneous Underground Equipment Total				**.1**	**.0**	**.0**	**.0**	**.1**
	Networks	C29205	Network Transformer Replacement	27	.3	.3	.0	.0	.6
		C29206	Network Protector Replacement	27	.3	.3	.0	.0	.6
		C33173	Albany Network Equipment	50	1.5	1.5	.0	.0	3.0
		CNYNET	Network	50	.0	.0	2.0	2.3	4.3
	Networks Total				**2.1**	**2.1**	**2.0**	**2.3**	**8.5**
	Open Wire Primary	C10164	Schuylerville 12- Reconductor Rt 29	50	.2	.0	.0	.0	.2
		C28590	Gilbert Mills 51 Rebuild due to QRS	31	.6	.0	.0	.0	.6
		C31860	IE - NE Replace open wire primary	27	.0	.0	.0	.0	.0
		C31861	IE - NC Replace open wire primary	27	.0	.0	.0	.0	.0
		C31862	IE - NW Replace open wire primary	27	.0	.0	.0	.0	.0

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program		Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14
	Open Wire Primary Total				**.8**	**.0**	**.0**	**.0**	**.8**
	Overhead Secondary	C27864	Replace Open Wire Secondary-NY East	16	.1	.0	.0	.1	.2
		C27884	Replace open wire secondary-NY Cent	16	.1	.0	.0	.1	.2
		C27886	Replace open wire secondary-NY West	16	.1	.0	.0	.1	.2
	Overhead Secondary Total				**.3**	**.0**	**.0**	**.3**	**.7**
	Planning Criteria	C08435	White Lake Station Upgrades	30	.8	.0	.0	.0	.8
		C28688	Brunswick 52 New feeder getaway	27	.0	.0	.0	.0	.0
		C28788	Alps - new dist sub - add feeder	36	.1	1.5	1.4	.0	3.0
		C28790	Alps - new dist sub - D Line work	27	.0	.0	.0	.0	.0
		C31598	North Troy - Install Feeder Getaway	36	.4	.0	.0	.0	.4
	Planning Criteria Total				**1.3**	**1.5**	**1.4**	**.0**	**4.2**
	Potted Porcelain Cutout	C10960	IE - NE Cutout Replacement	41	.1	.1	.1	.0	.3
		C12967	IE - NC Cutout Replacement	41	.1	.1	.1	.0	.3
		C12968	IE - NW Cutout Replacement	41	.1	.1	.1	.0	.3
	Potted Porcelain Cutout Total				**.3**	**.3**	**.3**	**.0**	**.9**
	Primary Underground Cable	C11099	IE-NE Cable Replacements Placeholder	36	1.0	1.0	1.0	1.5	4.5
		C13282	IE-NW Cable Replacements Placeholder	36	1.0	2.0	1.0	1.5	5.5
		C13822	IE-NC Cable Replacements Placeholder	36	1.0	1.5	1.0	1.5	5.0
		C29113	Brook Road 36954 Getaway cable repl.	30	.4	.0	.0	.0	.4
	Primary Underground Cable Total				**3.4**	**4.5**	**3.0**	**4.5**	**15.4**
	Substation Battery and Related	C24240	Battery Strategy FY09 CO36 DxT	35	.1	.1	.1	.1	.5
		C32012	Batts/Charg--NY East	35	.0	.0	.0	.0	.0
		C32013	Batts/Charg- NY Central	35	.0	.0	.0	.4	.4
		C32014	Batts/Charg- NY West	35	.4	.0	.3	.3	.9
	Substation Battery and Related Total				**.5**	**.2**	**.4**	**.8**	**1.9**
	Substation Circuit Breaker/ Recloser	C32252	NE ARP Breakers & Reclosers	35	1.0	.5	1.0	2.0	4.5
		C32253	NC ARP Breakers & Reclosers	35	1.5	.8	1.5	3.0	6.8
		C32261	NW ARP Breakers & Reclosers	35	1.0	.5	1.0	2.0	4.5
	Substation Circuit Breaker/Recloser Total				**3.5**	**1.8**	**3.5**	**7.0**	**15.8**
	Substation Circuit Switcher	C18850	Circuit Switcher Strategy Co:36 DxT	34	.9	.0	.0	.0	.9
	Substation Circuit Switcher Total				**.9**	**.0**	**.0**	**.0**	**.9**
	Substation Indoor Substation	C06722	Buffalo Indoor Sub. #29 Refurb.	37	1.5	.0	.0	.0	1.5
		C06723	Buffalo Station 29 Rebuild - Fdrs	41	1.0	.0	.0	.0	1.0
		C25639	Buffalo Indoor Sub. #23 Refurb.	50	.7	.0	.0	.0	.7
		C25659	Buffalo Indoor Sub. #52 Refurb.	50	1.1	.0	.0	.0	1.1
		C25660	Buffalo Indoor Sub. #43 Refurb.	50	1.0	.0	.0	.0	1.0
		C27947	Buffalo Station 23 Rebuild - Fdrs	41	.7	.0	.0	.0	.7
		C27948	Buffalo Station 43 Rebuild - Fdrs	41	.7	.0	.0	.0	.7

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C27949	Buffalo Station 52 Rebuild - Fdrs	41	1.0	.0	.0	.0	1.0
		C33473	Buffalo Station 27 Rebuild - Sta	50	.3	3.5	1.5	.0	5.3
		C33474	Buffalo Station 37 Rebuild - Sub	50	.3	3.5	1.5	.0	5.3
		C33475	Buffalo Station 59 Rebuild - Sub	50	.3	3.5	1.5	.0	5.3
		C33476	Buffalo Station 27 Rebuild - Line	50	.1	.8	.0	.0	.9
		C33477	Buffalo Station 37 Rebuild - Line	50	.1	.8	.0	.0	.9
		C33478	Buffalo Station 59 Rebuild - Line	50	.1	.8	.0	.0	.9
		CBUF25-2	Buffalo Station 25 Rebuild - Line	41	.0	.1	.5	.0	.6
		CBUF25-3	Buffalo Station 25 Rebuild - Sub	41	.0	.3	3.5	1.5	5.3
		CBUF30-2	Buffalo Station 30 Rebuild - Line	41	.0	.0	.0	.1	.1
		CBUF30-3	Buffalo Station 30 Rebuild - Sub	41	.0	.0	.0	.3	.3
		CBUF31-2	Buffalo Station 31 Rebuild - Line	41	.0	.0	.1	.5	.6
		CBUF31-3	Buffalo Station 31 Rebuild - Sub	41	.0	.0	.3	3.5	3.8
		CBUF32-2	Buffalo Station 32 Rebuild - Line	41	.0	.1	.5	.0	.6
		CBUF32-3	Buffalo Station 32 Rebuild - Sub	41	.0	.3	3.5	1.5	5.3
		CBUF34-2	Buffalo Station 34 Rebuild - Line	41	.0	.0	.1	.5	.6
		CBUF34-3	Buffalo Station 34 Rebuild - Sub	41	.0	.0	.3	3.5	3.8
		CBUF35-2	Buffalo Station 35 Rebuild - Line	41	.0	.0	.0	.1	.1
		CBUF35-3	Buffalo Station 35 Rebuild - Sub	41	.0	.0	.0	.3	.3
		CBUF38-2	Buffalo Station 38 Rebuild - Line	41	.0	.0	.0	.0	.0
		CBUF38-3	Buffalo Station 38 Rebuild - Sub	41	.0	.0	.0	.0	.0
		CBUF41-2	Buffalo Station 41 Rebuild - Line	41	.0	.0	.0	.1	.1
		CBUF41-3	Buffalo Station 41 Rebuild - Sub	41	.0	.0	.0	.3	.3
		CBUF45-2	Buffalo Station 45 Rebuild - Line	41	.0	.0	.0	.0	.0
		CBUF45-3	Buffalo Station 45 Rebuild - Sub	41	.0	.0	.0	.0	.0
		CBUF51-2	Buffalo Station 51 Rebuild - Line	41	.0	.0	.1	.5	.6
		CBUF51-3	Buffalo Station 51 Rebuild - Sub	41	.0	.0	.3	3.5	3.8
		CBUF53-2	Buffalo Station 53 Rebuild - Line	41	.0	.1	.5	.0	.6
		CBUF53-3	Buffalo Station 53 Rebuild - Sub	41	.0	.3	3.5	1.5	5.3
		CBUF68-2	Buffalo Station 68 Rebuild - Line	41	.0	.0	.0	.0	.0
		CBUF68-3	Buffalo Station 68 Rebuild - Sub	41	.0	.0	.0	.0	.0
	Substation Indoor Substation Total				**8.6**	**14.0**	**17.7**	**17.7**	**57.9**
	Substation Metal Clad Switchgear	C26054	NY ARP MetalClad Equipment	35	.3	1.9	2.2	3.0	7.4
		C32296	Altamont Sub Metalclad Replacement	35	.9	1.5	1.4	.0	3.8
		C32298	Market Hill Sub Metalclad Replacement	35	.2	1.5	1.4	.0	3.1
	Substation Metal Clad Switchgear Total				**1.3**	**4.9**	**5.0**	**3.0**	**14.2**
	Substation Non-transformer Reactor	C31994	Reactor Repl-NY Central	19	.0	.0	.0	.3	.3
	Substation Non-transformer Reactor Total				**.0**	**.0**	**.0**	**.3**	**.3**
	Substation Overarching	C26760	NY Small Capital Items	50	.1	.1	.1	.1	.4
		C32003	Mobile Readiness-NY East	34	.0	.0	.0	.0	.0
		C32004	Mobile Readiness-NY Central	34	.2	.0	.0	.2	.4
		C32005	Mobile Readiness-NY West	34	.4	.0	.0	.2	.6

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Substation Overarching Total				**.7**	**.1**	**.1**	**.5**	**1.4**
	Substation Power Transformer	C25801	IE - NY ARP Transformers	34	1.5	1.5	1.5	2.0	6.5
	Substation Power Transformer Total				**1.5**	**1.5**	**1.5**	**2.0**	**6.5**
	Substation Relay/ Protection	C28042	East NWP Relay Replacements	34	.2	.2	.0	.0	.4
	Substation Relay/Protection Total				**.2**	**.2**	**.0**	**.0**	**.4**
	Substation Voltage Regulator	C32340	Ellicott Regulator Replacement	48	.5	.0	.0	.0	.5
	Substation Voltage Regulator Total				**.5**	**.0**	**.0**	**.0**	**.5**
	Sub-T Line Overarching	C31633	208 Line Refurbishment	40	.0	.0	.0	.0	.0
		C32292	Lowville-Boonville #22 Dist Under-build	42	.1	.0	.0	.0	.1
	Subtransmission Line Overarching Total				**.1**	**.0**	**.0**	**.0**	**.1**
	TBD	RESERVE 036_017 LINE	Reserve for Asset Replacement Unidentified Specifics & Schedule Changes	34	(.5)	(1.0)	1.8	.0	.3
		RESERVE 036_017 SUB	Reserve for Asset Replacement Unidentified Specifics & Schedule Changes (substation)	34	(.3)	(.5)	(3.0)	(2.7)	(6.5)
	TBD Total				**(.8)**	**(1.5)**	**(1.3)**	**(2.7)**	**(6.2)**
	Wood Pole	C00194	NR-Distr-8043.08-CuNapth(sole owned)	50	.1	.0	.0	.0	.1
	Wood Pole Total				**.1**	**.0**	**.0**	**.0**	**.1**
	(blank)	C32255	Frontier 25 Hz Dist Sta. Retirement	39	.0	.0	.0	.0	.0
	(blank) Total				**.0**	**.0**	**.0**	**.0**	**.0**
Distribution Total					**33.1**	**35.3**	**39.1**	**41.2**	**148.9**
Sub-Transmission	Blanket	CNC075	CNY Sub Trans-Line Asset Replace	50	.3	.3	.3	.3	1.1
		CNE075	ENY Sub Trans-Line Asset Replace	50	.3	.3	.3	.3	1.1
		CNW075	WNY Sub Trans-Line Asset Replace	50	.4	.4	.4	.5	1.8
	Blanket Total				**.9**	**1.0**	**1.0**	**1.0**	**3.9**
	Open Wire Primary	C28771	Trenton Whitesboro 25 Reconductor	39	2.0	.0	.0	.0	2.0
	Open Wire Primary Total				**2.0**	**.0**	**.0**	**.0**	**2.0**
	Primary Underground Cable	C06817	23kV Cable & Conduit Rebuild	50	2.5		.0	.0	2.5
		C16079	Riv-Part #9 and #37 repl cable	37	.5		.0	.0	.5
		C31608	McBride-Brighton Cable Replacement	34	.0	.8	.8	.0	1.6
	Primary Underground Cable Total				**3.0**	**.8**	**.8**	**.0**	**4.6**
	Substation Capacitor & Switch	C15660	Homer Hill Sta - Rep Cap Bank & Bkr	24	.0	.2	.0	.0	.2
		C26382	Brockport 74-Cap banks to sta bus	36	.2	.0	.0	.0	.2
	Substation Capacitor & Switch Total				**.2**	**.2**	**.0**	**.0**	**.4**
	Substation Circuit Breaker/ Recloser	C3B&R	ARP Breakers & Reclosers - Sub-T sub	(blank)	.0	.3	2.6	2.8	5.7
	Substation Circuit Breaker/Recloser Total				**.0**	**.3**	**2.6**	**2.8**	**5.7**

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Substation Indoor Substation	C06724	Buffalo Station 29 Rebuild - 23 kV	41	.1		.0	.0	.1
		C27945	Buffalo Station 43 Rebuild - 23kV	41	.1	.1	.0	.0	.2
		C27946	Buffalo Station 52 Rebuild - 23 kV	41	.2		.0	.0	.2
		C33470	Buffalo Station 27 Rebuild - 23 kV	50	.1	.5	.0	.0	.6
		C33471	Buffalo Station 37 Rebuild - 23 kV	50	.1	.5	.0	.0	.6
		C33472	Buffalo Station 59 Rebuild - 23 kV	50	.1	.5	.0	.0	.6
		CBUF25-1	Buffalo Station 25 Rebuild - 23 kV	41	.0	.1	.5	.0	.6
		CBUF30-1	Buffalo Station 30 Rebuild - 23 kV	41	.0		.0	.1	.1
		CBUF31-1	Buffalo Station 31 Rebuild - 23 kV	41	.0		.1	.5	.6
		CBUF32-1	Buffalo Station 32 Rebuild - 23 kV	41	.0	.1	.5	.0	.6
		CBUF34-1	Buffalo Station 34 Rebuild - 23 kV	41	.0		.1	.5	.6
		CBUF35-1	Buffalo Station 35 Rebuild - 23 kV	41	.0		.0	.1	.1
		CBUF38-1	Buffalo Station 38 Rebuild - 23 kV	41	.0		.0	.0	.0
		CBUF41-1	Buffalo Station 41 Rebuild - 23 kV	41	.0		.0	.1	.1
		CBUF45-1	Buffalo Station 45 Rebuild - 23 kV	41	.0		.0	.0	.0
		CBUF51-1	Buffalo Station 51 Rebuild - 23 kV	41	.0		.1	.5	.6
		CBUF53-1	Buffalo Station 53 Rebuild - 23 kV	41	.0	.1	.5	.0	.6
		CBUF68-1	Buffalo Station 68 Rebuild - 23 kV	41	.0		.0	.0	.0
	Substation Indoor Substation Total				**.7**	**1.9**	**1.8**	**1.8**	**6.2**
	Substation Metal Clad Switchgear	C25139	Replace/Relocate 13.8kV SG @Oneida	50	.3	1.9	.0	.0	2.2
		C28485	North Troy Metal Clad Repl.	39	1.0		.0	.0	1.0
	Substation Metal Clad Switchgear Total				**1.3**	**1.9**	**.0**	**.0**	**3.2**
	Substation Power Transformer	C03831	Buffalo Shunt Reactors	50	.4	.0	.0	.0	.4
	Substation Power Transformer Total				**.4**	**.0**	**.0**	**.0**	**.4**
	Sub-T and Distribution Tower	C31852	IE - NE SubT Towers	40	.3	.8	1.3	1.8	4.0
		C31853	IE - NC SubT Towers	40	.3	.8	1.3	1.8	4.0
		C31855	IE - NW SubT Towers	40	.3	.8	1.3	1.8	4.0
	Subtransmission and Distribution Tower Total				**.8**	**2.3**	**3.8**	**5.3**	**12.0**
	Sub-T Line Overarching	C00413	Schuyler-Valley 21/24	20	1.0		.0	.0	1.0
		C06739	Charlton-Ballston #9 Rebuild/Recnfg	22	.0	1.0	.0	.0	1.0
		C07519	Greenbush-Defreesville 7 Rebuild	27	.0	1.0	.0	.0	1.0
		C07804	Rathbun-Labrador #39 Rebuild	43	1.0	1.0	.0	.0	2.0
		C07811	Tilden-Tully #24 34.5kV Rebuild	42	1.0		.0	.0	1.0
		C07814	Lowville-Boonville #22 Rebuild	50	1.5		.0	.0	1.5
		C11818	McClellan-Bevis #11 34.5kV Rebuild	30	.7		.0	.0	.7
		C12678	Marshville-Cherry Vly LN4 Retiremnt	50	.0		.0	.0	.0
		C13046	Lake Clear-Tupper Lake #38 Rebuild	50	1.0	2.0	1.0	.0	4.0
		C16072	Maplewood-Latham #9 Refurb	30	.4		.0	.0	.4
		C16073	Newtonville-Patroon #16 Refurb	30	.0	1.3	.0	.0	1.3
		C16234	Vischer - Woodlawn #3 refurbish	40	.1		.0	.0	.1

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C16236	Gloversville - Canaj. #6 Refurbish	27	.0	1.0	1.0	.0	2.0
		C16237	Gloversville-Hill St #3 Refurbish	23	.1		.0	.0	.1
		C25940	Batavia-Attica 206-34.5kv	34	2.5	.5	.0	.0	3.0
		C26636	Greenbush-Rensselaer#10&#11 Rebuild	50	.1		.0	.0	.1
		C26969	Bombay-Spencer's Corners#22 Recond	34	.5		.0	.0	.5
		C27223	General Mills-Ridge 611/612 Ohio Sw	30	.0	.5	.0	.0	.5
		C27438	Oakfield-Caledonia 201-34.5kv Rbld.	40	.0	.0	.0	.0	.0
		C27502	N Angola - Bagdad 862 Refurbishment	34	.2	.0	.0	.0	.2
		C27562	N Leroy - Attica 208 Refurbishment	50	1.1	1.0	.0	.0	2.1
		C27563	Medina-Albion 305 Refurbishment	34	.1	.0	.0	.0	.1
		C27564	Battenkill-Cambridge 2/5 Refurbish	34	1.1	1.0	.0	.0	2.1
		C27582	Beth-Voorheesville-Retire Callanan	50	.1	.3	.0	.0	.4
		C27583	Spier-Glens Falls 8-pls	34	.0	.8	.5	.0	1.3
		C27586	Caledonia-Golah 213-refurbish	50	1.8		.0	.0	1.8
		C28017	Trenton-Deerfield 21/27-46kv	34	.8	.0	.0	.0	.8
		C28018	Market Hill-Amsterdam 11,Tap Mohasc	26	.0	.0	.0	.0	.0
		C28942	WHTESBR-SCHUYLER 29/YAH-WHITSBRO 23	45	.5		.0	.0	.5
		C29441	Carthage-N.Carthage 24/28 Refurbish	34	.0	.5	.0	.0	.5
		C29443	Norfolk-Norwood 23kv	34	.0	.5	.0	.0	.5
		C29450	Hartfield-Sherman 855-refurbish	42	.1	.7	.0	.0	.8
		C29451	W. Salamanca-Homer Hill 805 ref	42	.1	.7	.0	.0	.8
		C29452	Crescent -School St/N. Troy 17/20	50	.1		.0	.0	.1
		C29485	Relocate and tap Line 856 to ECWA	50	.1		.0	.0	.1
		C29768	Lines 611,612,613 Arrestors-34.5kv	27	.0	.7	.0	.0	.7
		C31263	Alder Creek-Old Forge #23 46kV	42	.0		.0	.0	.0
		C33131	Albion - Brockport 308 Rebuild	34	.1	1.5	.0	.0	1.6
		C33174	Yahnundasis-Schuyler 25/26 Rebuild	42	.0	.1	1.5	.0	1.6
		C33178	Youngmann 605/606 Rebuild	42	.1	1.0	.0	.0	1.1
		C33180	Hartfield-S. Dow 859 Rebuild	42	.0	.1	1.0	.0	1.1
		C33181	Ransom-Phillips Rd 402 Rebuild	42	.0	.1	1.5	.0	1.6
		C33182	Amsterdam-Rotterdam 3/4 Relocation	34	.0	.3	2.0	.0	2.3
		C33191	Niagara Falls Remove 12kV Lines	42	.0	.0	.5	.0	.5
		C33294	Hartfield-Ashvile 854 Refurbish	42	.0	.8	.8	.0	1.5
	Subtransmission Line Overarching Total				**16.0**	**18.1**	**9.7**	**.0**	**43.8**
	Sub-T Underground Cable	C32146	IE - NE Sub-T UG Cable Replacement	36	.3	.9	.5	1.2	2.8
		C32147	IE - NC Sub-T UG Cable Replacement	36	.0		1.0	.9	1.9
		C32148	IE - NW Sub-T UG Cable Replacement	36	.3	5.0	5.5	9.5	20.3
	Subtransmission Underground Cable Total				**.5**	**5.9**	**7.0**	**11.6**	**25.0**
	TBD	RESERVE 036_017 LINE	TxD RESERVE for Asset Replacement Unidentified Specifics & Schedule Changes	0	(1.1)	(3.0)	(1.7)	10.0	4.2
		RESERVE 036_017 SUB	TxD RESERVE for Asset Replacement Unidentified Specifics & Schedule Changes (substation)	34	(.3)	.0	.0	.0	(.3)

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	TBD Total				**(1.3)**	**(3.0)**	**(1.7)**	**10.0**	**4.0**
	Underground/Padmounted Switch	C17668	L630 & 631 Hendrix Ca + LBSwitches	36	.5	.5	.0	.0	1.0
	Underground/Padmounted Switch Total			**.5**	**.5**	**.0**	**.0**	**1.0**	
	Wood Pole	C31577	Tonawanda 601/603 Pole Replacements	42	.2	.3	.0	.0	.4
	Wood Pole Total				**.2**	**.3**	**.0**	**.0**	**.4**
Sub-Transmission Total					**25.0**	**30.1**	**25.0**	**32.3**	**112.4**
Transmission	3A/3B Tower Strategy	C08017	Leeds - Pleasant Valley 91/92 Tower Reinforcement - includes public safety	49	.0	.0	.1	.1	.2
		C07918	New Scotland - Leeds 93/94 Tower Reinforcement - Public Safety	49	.0	.1	.1	6.0	6.2
	3A/3B Tower Strategy Total				**.0**	**.1**	**.2**	**6.1**	**6.3**
	Battery Strategy	C24239	Battery Strategy FY09 Co. 36 Txt	22	.3	.3	.0	.0	.7
		C32957	Battery System Replacement Program	34	.3	.3	.0	.0	.5
		C33847	BatteryRplStrategyCo36TxT	39	.6	.6	.6	.6	2.5
	Battery Strategy Total				**1.2**	**1.2**	**.6**	**.6**	**3.7**
	Circuit Breaker Replacement Strategy	C31661	Inghams-replace 115kv OCB	35	.1	.2	1.0	5.0	6.3
		CNYAS24	Meco - Replace 115kV PTs and circuit breakers	35	.0	.0	.3	1.0	1.3
		CNYAS39	Mortimer 115kV - refurbish / replace circuit breakers	35	.0	.0	.0	.3	.3
		CNYAS07	NY Circuit Breaker Replacement (Priority 4)	35	.1	.9	6.0	8.0	15.0
		CNYAS06	NY Circuit Breaker Replacement Priority 3)	26	.0	.0	.0	.2	.2
	Circuit Breaker Replacement Strategy Total				**.1**	**1.1**	**7.3**	**14.5**	**22.9**
	Flying Ground Strategy	CNYX30	Strategy to Replace Flying Ground Switches	22	.0	.0	.3	1.0	1.3
	Flying Ground Strategy Total				**.0**	**.0**	**.3**	**1.0**	**1.3**
	Other Asset Condition	C28304	Alps #188 Obsolete Circuit Switcher	16	.2	.7	.0	.0	.9
		C27082	Ash to Teall Cathodic Protection Upgrade	28	.0	.1	.0	.0	.1
		C31005	Bristol Hill Repl SWs 46 & 47	28	.0	.2	.0	.0	.2
		C31950	Butler Sta 64 -RPL LN182	43	.6	.0	.0	.0	.6
		C29844	Colton Replace CBs and disconnects	34	.9	.9	.9	.0	2.8
		C31867	Dewitt-Rebuild 345kv	49	.3	.0	.0	.0	.3
		C27845	Dunkirk 230kV Control Cable TB1	34	.8	.0	.0	.0	.8
		C31025	Edic Station - Replace TB2, 3, 4 Metering	40	.0	.1	.0	.0	.1
		C03383	EJ West-Warrensburg 9 115kV Cross Bracing	16	.0	.0	.0	.1	.1
		C30528	Elm Terminal Station - HPFF Alarms	35	.0	.1	.0	.0	.1
		C03384	Elnora 115kV Tap Cross Bracing	16	.0	.0	.0	.1	.1
		C03281	Fenner-Cortland 3 Cross Braces.	21	.0	.0	.0	.1	.1
		C27829	Gardenville Control Cables	34	.3	.0	.0	.0	.3
		C30530	Gardenville Station - HPFF Alarms	35	.0	.1	.0	.0	.1
		C31004	Gibson Sta - Repl SW1602,03, R1617,18	28	.1	.3	.3	.0	.6
		C31663	Greenbush- Replace TB3	39	.0	.6	1.0	.0	1.6
		C29950	Harper Station - Replace 2023 & 2033 MODs	22	.0	.1	.3	.0	.5
		C30531	Huntley Station - HPFF Alarming	35	.0	.1	.0	.0	.1
		C28044	Lafayette - Replace Line 4 Relaying	39	.1	.0	.0	.0	.1
		C03748	Leeds SVC-Refurbishment/Replacement	36	5.9	.0	.0	.0	5.9

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
		C27042	New Gardenville - TB3 &TB#4	34	3.7	.0	2.8	2.8	9.3
		C31658	NY Surge Arrester Replacement	36	.0	.0	2.7	2.6	5.3
		C29216	Oswego - Replace Special	35	.0	.7	.0	.0	.7
		C27006	Packard Replace TB3 &TB4	41	6.4	.0	.0	.0	6.4
		CNYX72	PIW Prospective Projects	49	1.0	1.5	1.5	3.0	7.0
		C20912	Porter Replace 11 GE 230kV RF2 Discs	28	.5	.4	.0	.0	.9
		C30532	Rochester Generator and HPFF Alarms	39	.0	.1	.0	.0	.1
		C15988	Rochester HPFF Cable Plant	44	.0	.0	.9	.1	1.1
		C29946	Rochester Pump - LPFF Trip Scheme	35	.0	.0	.4	.0	.4
		CNYAS38	Silver Creek switch structure - replace 115kV disconnects	21	.0	.0	.0	.3	.3
		C31044	Taylorville Repl SW #23	34	.0	.1	.0	.0	.1
		CNYX26	Temple Pressuring Plant	28	.0	.0	.0	.0	.0
		C32309	Ticonderoga-Sanford T6410R Removal	43	.0	.1	.2	.0	.2
		C11318	Trinity UG Pumphouse Redesign	49	.7	.3	.0	.0	1.0
		C29951	Youngmann Terminal Station - Replace Switch #310	19	.1	.0	.0	.0	.1
	Other Asset Condition Total				**21.8**	**6.5**	**11.0**	**9.1**	**48.3**
	Overhead Line Refurbishment Program	CNYAS62	Dunkirk - Falconer #161	40	.0	.0	.1	.1	.2
		CNYAS49	Dunkirk - Falconer #162	44	.1	.1	.2	1.0	1.4
		C27422	Falconer-HH 153-154, T1160-T1170 ACR	39	.0	.1	.2	1.0	1.3
		C03389	Gard-Dun 141-142 T1260-1270 ACR	44	.5	9.0	27.0	15.0	51.5
		CNYAS60	Gardenville - Buffalo Sw #146 [145]	18	.0			.1	.1
		CNYAS75	Gardenville - Dunkirk #74	40	.0	.0	.1	.1	.2
		C27425	Gardenville -HH 151-152, T1950-T1280-S ACR	39	.1	.1	1.0	1.0	2.2
		C27436	Gardenville Lines 180-182, T1660-T1780 ACR	44	.1	.1	.1	12.5	12.7
		C04718	Gard-HHI 151-152, T1950-T1280 N ACR	49	9.9	6.7	.0	.0	16.6
		C27429	Homer Hill Bennett Rd 157, T1340 ACR	39	.1	.1	.1	.1	.3
		CNYAS53	Huntley - Lockport #37	44	.1	.1	.1	.1	.3
		CNYAS51	Huntley - Praxair #46	18	.0	.1	.1	.1	.3
		CNYAS63	Huntley-Gardenville 38 [& 39] (refurb)	40	.0	.0	.0	.1	.1
		CNYAS56	Indeck Oswego - Lighthouse Hill #2	39	.1	.1	.1	6.0	6.2
		C27432	Lockport 103- 104, T1620-T106 STR	40	.1	.1	.1	.1	.3
		C03417	Lockport Mortimer 111 T1530 ACR	49	1.6	12.0	21.0	12.0	46.6
		C03422	Lockport-Batavia 112, T1510 ACR	39	.0	.2	2.5	12.3	15.0
		C27431	Lockport-Bativa 108 Refurb	29	.0	.1	.1	.1	.2
		C18670	Lockport-Mort 113-114, T1540-T1550 LER	49	1.8	.0	.0	.0	1.8
		C33014	Lockprt-Mort 111 Tap T1530-1 Refurb	39	.0	.1	.3	.0	.4
		CNYAS65	Mortimer - Pannell Road #24	40	.0	.1	.1	.1	.2
		C30889	Pannell-Geneva 4-4A, T1860 ACR	37	.1	.1	.1	14.1	14.3
		CNYAS77	Porter - Rotterdam #30	40	.0	.0	.0	.1	.1
		C30890	Porter Rotterdam 31, T4210 ACR	45	.1	.1	.1	9.9	10.2
		C27437	Taylorville -B 5-6 T3320-T3330 ACR	39	.1	.1	.6	5.4	6.2
		C24361	Taylorville-Moshier 7, T3340 ACR	49	2.4	3.5	.0	.0	5.9
		CNYAS82	Ticonderoga Lines 2 [& 3] (Complete Line)	40	.0	.0	.1	1.0	1.1
		C19530	Ticonderoga-2-3, T5810-T5830 SXR	49	3.2	.0	.0	.0	3.2
	Overhead Line Refurbishment Program Total				**20.2**	**32.5**	**53.7**	**92.0**	**198.4**

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
	Relay Replacement Strategy	CNYAS29	Browns Falls - protection replacement and new control building	19	.0	.0	.0	.0	.0
		CNYAS31	Edic - Protection replacement	19	.0	.0	.1	.5	.6
		CNYAS90	Geres lock Control room & Relay Strategy	19	.0	.0	.0	.0	.0
		CNYAS41	Menands - new control building	28	.0	.3	.3	1.0	1.5
		CNYAS26	North Troy - protection replacement	19	.0	.0	.0	.1	.1
		CNYAS10	NY Protection & Control Replacement	35	.1	.8	3.3	4.3	8.4
		CNYAS32	Oswego - new control building	19	.0	.0	.1	.5	.6
		CNYAS88	Relay Replacement Strategy - Phase 2	19	.0	.0	.0	.0	.0
		CNYAS89	Riverside Control room & Relay Strategy	19	.0	.0	.0	.0	.0
		CNYAS28	Yahnundasis - protection replacement	19	.0	.0	.0	.1	.1
	Relay Replacement Strategy Total				**.1**	**1.0**	**3.8**	**6.5**	**11.3**
	RHE Breaker Replacement	C24299	Lighthouse Hill Road - Repl R60 RHE PCB	39	.1	.2	.0	.0	.3
		C18410	Oneida - R/R 115kV FP RHE OCB's	39	.0	.1	.5	.0	.6
	RHE Breaker Replacement Total				**.1**	**.3**	**.5**	**.0**	**.9**
	Shield Wire Strategy	C28683	Shieldwire: Buffalo 145	40	.3	1.3	.0	.0	1.6
		C28709	Shieldwire: Clay-Dewitt 3	40	1.2	1.2	.0	.0	2.4
		C28706	Shieldwire: Gardenville -Depew 54	40	.0	1.1	.0	.0	1.1
		C28679	Shieldwire: Gardenville Homer 151/152	40	.0	3.6	.0	.0	3.6
		C28676	Shieldwire: Huntley - Gardenville 38	40	1.5	.0	.0	.0	1.5
		C28707	Shieldwire: Huntley-Lockport 36/37	40	1.5	.0	.0	.0	1.5
		C28678	Shieldwire: LaFarge Pleasant Vl. 8	40	1.7	.0	.0	.0	1.7
		C28681	Shieldwire: Mountain-Lockport 103	40	1.3	.0	.0	.0	1.3
		C28712	Shieldwire: Walck Rd - Huntley	40	.6	.0	.0	.0	.6
	Shield Wire Strategy Total				**8.2**	**7.2**	**.0**	**.0**	**15.3**
	Steel Tower Strategy	C21693	S. Oswego Lighthouse Hill Circuits	49	4.5	.4	.0	.0	4.9
	Steel Tower Strategy Total				**4.5**	**.4**	**.0**	**.0**	**4.9**
	Substation Rebuilds	CNYAS40	Buffalo 115kV - replace disconnects	21	.0	.0	.0	.3	.3
		C05155	Dunkirk Rebuild	35	.0	.0	.1	.5	.6
		CNYAS91	Elm St. Refurbishment	35	.0	.0	.5	1.0	1.5
		C05156	Gardenville Rebuild	35	.5	2.7	36.4	23.0	62.6
		C30084	Gardenville Rebuild Line Location	44	1.0	1.2	1.3	.1	3.6
		C31662	LightHH 115kv Yard Repl & cntrl hse	35	.3	1.0	5.0	5.0	11.3
		CNYAS2	Lockport Rebuild	35	.0	.0	.3	1.0	1.3
		CNYAS44	Mohican - rebuild including transformers and oil circuit breakers	35	.1	.2	1.0	10.0	11.3
		C29180	N. Leroy Rebuild Station	34	.1	.0	.0	.0	.1
		CNYAS36	Porter 230kV - replace disconnects and PTs	28	.0	.3	1.0	10.0	11.3
		CNYAS27	Reynolds Road - protection replacement & new control building $ replace. Overduty 115kv Breakers	19	.0	.0	.5	1.0	1.5
		C03778	Rome 115 kV Station	22	.4	2.0	8.7	2.1	13.2
		C17849	Rotterdam R/R 230kV FPE RHE CB's	39	.5	1.6	4.0	15.0	21.1
	Substation Rebuilds Total				**2.8**	**8.9**	**58.9**	**68.9**	**139.4**
	Transformer Replacement Strategy	C31656	NY 115kv Transformer Replace (Priority 4)	41	4.0	7.0	7.0	7.0	25.0
	Transformer Replacement Strategy Total				**4.0**	**7.0**	**7.0**	**7.0**	**25.0**
	U-Series Relay Strategy	C24662	Edic FE1 - Replace U Series Relays	33	.3	.0	.0	.0	.3
		C24663	Leeds - Replace U Series Relays	33	.2	.7	.0	.0	.9

Planned T&D Infrastructure Investment Levels For Asset Condition Category by Network Segment, Program and Project ($Millions)

		C24661	LN17- Replace Type U Relays	33	1.4	.0	.0	.0	1.4
		C05150	Westinghouse U Series Relay Strategy	33	.5	.0	.0	.0	.5
	U-Series Relay Strategy Total				**2.3**	**.7**	**.0**	**.0**	**3.0**
	Reserve	CNYX31	Reserve	49	(9.0)	(9.2)	(14.1)	(18.6)	(50.9)
	Reserve Total				**(9.0)**	**(9.2)**	**(14.1)**	**(18.6)**	**(50.9)**
Transmission Total					**56.2**	**57.5**	**129.0**	**187.0**	**429.7**
Total Asset Condition					**114.3**	**122.9**	**193.1**	**260.5**	**690.8**

Planned T&D Infrastructure Investment Levels For Non - Infrastructure Category by Network Segment, Program and Project ($Millions)

Network Segment	Program	Project Number	Project Name	Risk Score	FY11	FY12	FY13	FY14	FY11-14
Distribution	General Equipment - Dist	CNC070	Cent NY-General-Genl Equip Blanket	50	.5	1.1	1.1	1.1	3.8
		CNE070	East NY-Genl Equip Budgetary Reserve	50	.9	1.9	2.0	2.1	6.9
		CNW070	West NY-General-Genl Equip Blanket	50	.5	1.1	1.1	1.1	3.8
		RESERVE 036_070 LINE	Reserve for General Equipment Specifics & Schedule Changes	34	.3	.3	.3	.3	1.1
	General Equipment - Dist Total				**2.2**	**4.3**	**4.5**	**4.6**	**15.7**
	Telecommuni-cations	C04157	Telecom and Radio Equipment	50	1.0	1.0	1.1	1.1	4.2
		CNC021	Cent NY-Dist-Telecomm Blanket	50	.0	.0	.0	.0	.0
		CNE021	East NY-Dist-Telecomm Blanket	50	.0	.0	.0	.0	.0
		CNW021	West NY-Dist-Telecomm Blanket	50	.0	.0	.0	.0	.0
	Telecommunications Total				**1.0**	**1.1**	**1.1**	**1.1**	**4.3**
Distribution Total					**3.2**	**5.4**	**5.6**	**5.8**	**20.0**
Sub-Transmission	General Equipment - Dist	RESERVE 036_070 LINE	TxD RESERVE for General Equipment Specifics & Schedule Changes	34	.0		.0	.0	.0
	General Equipment - Dist Total				**.0**		**.0**	**.0**	**.0**
	Other	RESERVE 036_999 LINE	TxD RESERVE for Other Unidentified Specifics & Schedule Changes	34	.0		.0	.0	.0
		RESERVE 036_999 SUB	TxD RESERVE for Other Unidentified Specifics & Schedule Changes (substation)	34	.0		.0	.0	.0
	Other Total				**.0**		**.0**	**.0**	**.0**
Sub-Transmission Total					**.0**		**.0**	**.0**	**.0**
Transmission	Other - Non Infrastructure	CNYAS87	Asset Separation strategy	39	.0	.0	.0	.1	.1
		CNYAS46	Flood mitigation	22	.0	.0	2.0	1.0	3.0
	Other - Non Infrastructure Total				**.0**	**.0**	**2.0**	**1.1**	**3.1**
	Physical Security	CNYAS86	Physical Security Strategy	40	.1	6.0	3.0	.0	9.1
	Physical Security Total				**.1**	**6.0**	**3.0**	**.0**	**9.1**
Transmission Total					**.1**	**6.0**	**5.0**	**1.1**	**12.2**
Total Non-Infrastructure					**3.3**	**11.4**	**10.6**	**6.9**	**32.2**

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-2)

Comparison of T&D Capital Expenditures FY10-to-FY14
NMPC Rate Case Filing vs. January 2009 CIP Filing

Comparison of T&D Capital Expenditures, FY10 -to-FY14
NMPC Rate Case Filing vs. January 2009 CIP Filing

Rate Case Filing

System	FY10	FY11 *	FY12 **	FY13	FY14	Total Projected
Transmission	93,000,000	167,000,000	285,000,000	290,000,000	295,000,000	1,130,000,000
Sub-Transmission	42,700,000	48,000,000	53,000,000	58,000,000	65,000,000	266,700,000
Distribution	242,700,000	244,000,000	255,000,000	265,000,000	275,000,000	1,281,700,000
Total	378,400,000	459,000,000	593,000,000	613,000,000	635,000,000	2,678,400,000

CIP January 2009 Filing

System	FY10	FY11	FY12	FY13	FY14	Total Projected
Transmission	120,610,000	219,640,000	359,392,000	452,281,000	373,512,000	1,525,435,000
Sub-Transmission	38,017,000	85,575,000	152,176,000	159,450,000	167,423,000	602,641,000
Distribution	239,353,000	269,700,000	294,000,000	308,700,000	326,500,000	1,438,253,000
Total	397,980,000	574,915,000	805,568,000	920,431,000	867,435,000	3,566,329,000

Difference Between Rate Case & January 2009 CIP Filings

System	FY10	FY11	FY12	FY13	FY14	Total Projected
Transmission	-27,610,000	-52,640,000	-74,392,000	-162,281,000	-78,512,000	-395,435,000
Sub-Transmission	4,683,000	-37,575,000	-99,176,000	-101,450,000	-102,423,000	-335,941,000
Distribution	3,347,000	-25,700,000	-39,000,000	-43,700,000	-51,500,000	-156,553,000
Total	-19,580,000	-115,915,000	-212,568,000	-307,431,000	-232,435,000	-887,929,000

Notes:

* FY11 Capex figures in NMPC Rate Case include a $35 million January 2011 Tri-Lakes cash outlay not included in IOP Estimated and Planned Transmission & Distribution Infrastructure Investment Levels

** FY12 Capex figures in NMPC Rate Case include a $57 million March 2012 Luther Forest cash outlay not included in IOP Estimated and Planned Transmission & Distribution Infrastructure Investment Levels

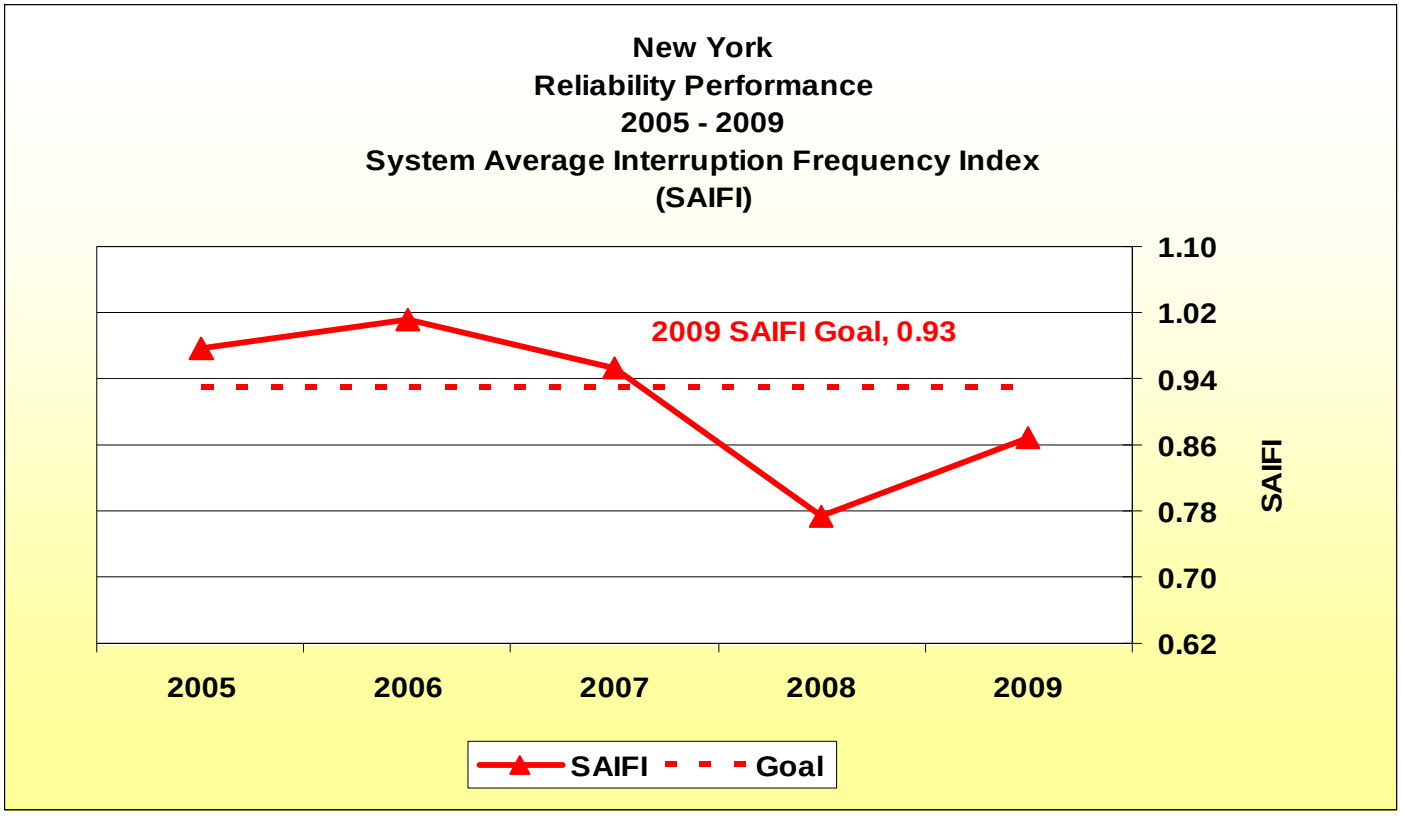
Testimony of Infrastructure and Operations Panel

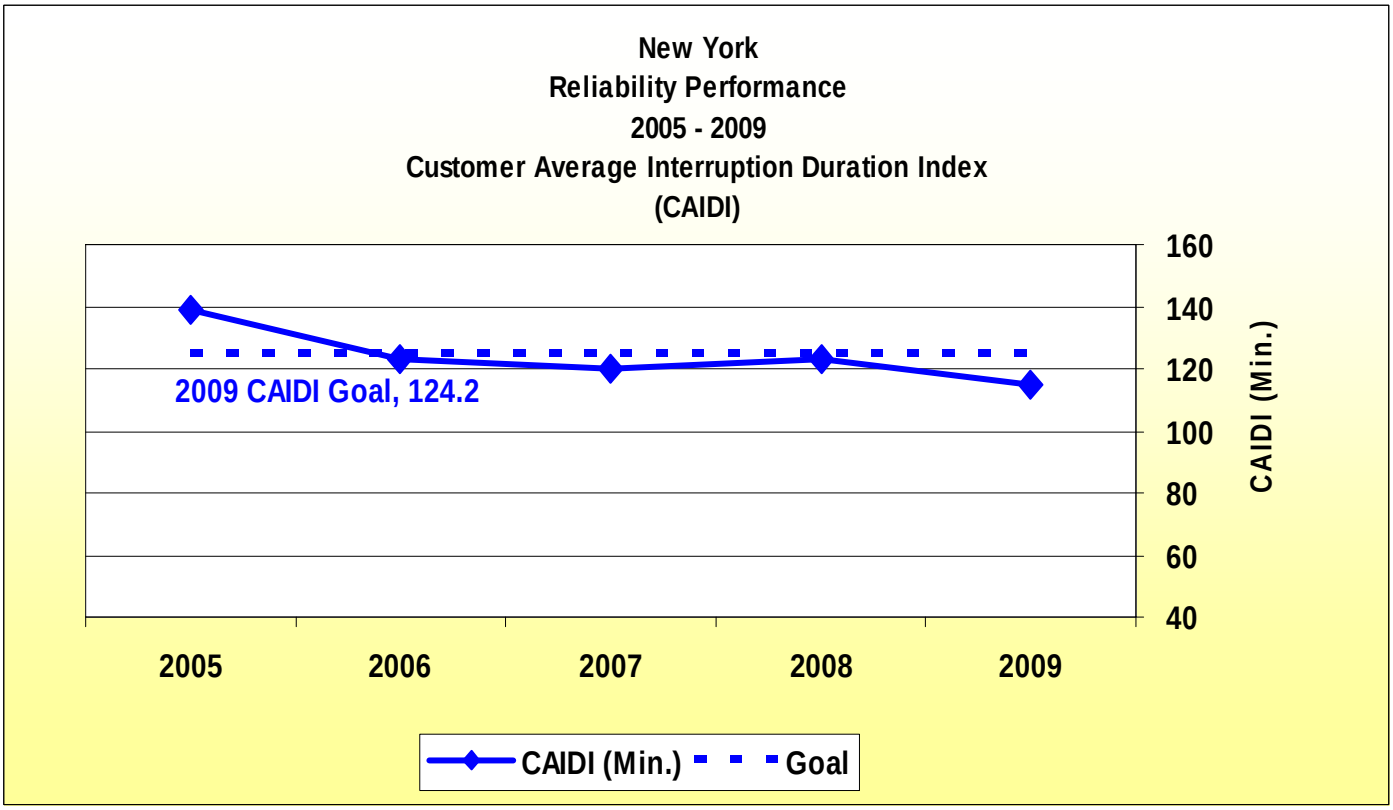
Exhibit __ (IOP-3)

Electric Reliability Performance 2005-2009

NIAGARA MOHAWK POWER CORPORATION

Electric Reliability Performance 2005 – 2009





Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-4)

Illustration of the Project Evolution Process

NIAGARA MOHAWK POWER CORPORATION

Illustration of Project Evolution Process

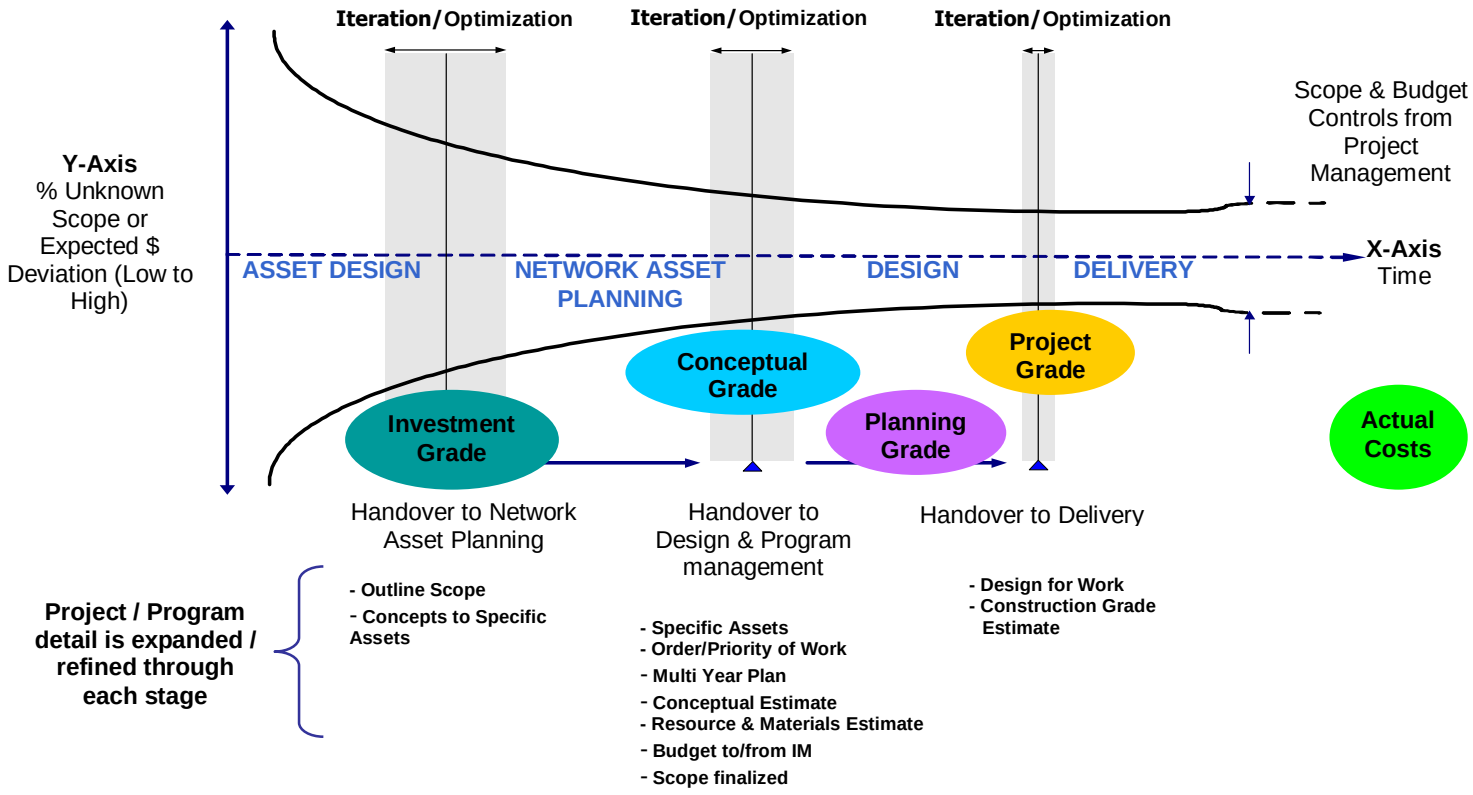


Exhibit __ (IOP-5)

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-5)

Facilities and Properties Capital Expenditures

Testimony of Infrastructure and Operations Panel

Schedule 1

Niagara Mohawk Power Corp.
Facilities - Baseline Spend and FY11 - FY14 Projection

Notes:
1. CY2006-09 actual per Power Plant
2. FY2011-2014 projection based on % of historical average

	Baseline Spend			
	CY2006	**CY2007**	**CY 2008**	**CY2009**
Totals	$4,945,598	$4,342,681	$5,683,056	$5,878,908

Avg. 4 Historical	**Fiscal Year**	**Proposed as %**
$ 5,212,560.67	FY11	74.8%
$ 5,212,560.67	FY12	84.4%
$ 5,212,560.67	FY13	84.4%
$ 5,212,560.67	FY14	84.4%

Projection - Facilities Baseline Spend			
FY2011	**FY2012**	**FY2013**	**FY2014**
$3,900,000	$4,400,000	$4,400,000	$4,400,000

Niagara Mohawk Power Corp.
Facilities - CY2006 Actuals

Sum of GL Act $					
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Project**	Total
Niagara Mohawk	00036	2006	FAC NY Capital Projects	C06197	$2,028,781
			FAC NY UST REMOVAL	C04354	$1,208,160
			FAC SOC Chiller Replac	C11421	$411,053
			FAC FY06 Security Oakwood Troy	C10729	$211,246
			FAC Potsdam FY06 Security	C11940	$199,682
			FAC South Watertown FY06 Secur	C11941	$175,349
			FAC Batavia SC FY06 Security	C11942	$171,146
			FAC-SOC-D Bldg Rooftop Replace	C13982	$115,987
			FAC Aircraft Hangar Roof	C11420	$70,259
			FAC Clifton Park Breaker Heate	C11498	$67,666
			FAC Dewey 2 25 Ton Rooftop Rep	C11158	$44,750
			FAC-SOC F-bldg HVAC	C15569	$38,515
			FAC HCB Meter Services Consoli	C11538	$31,531
			FAC-West Rome SC Gate & Fence	C14689	$26,035
			FAC-HCB-Grounds Safety Improve	C14382	$22,306
			FAC Glenmont Pole Barn	C11378	$13,708
			FAC-Batavia Washwater System U	C16331	$11,008
			FAC Volney Pole Barn	C11380	$10,504
			FAC HCB-3 Elevator Upgrade	C10984	$10,129
			FAC HCB Env Pole Barn	C11381	$10,100
			FAC Volney SC New Water Servic	C11422	$10,041
			FAC-HCB3 Emerg Gen#1 Batteries	C13963	$9,465
			FAC Tool Deferral Account (< $	C11718	$8,336
			FAC Hinsdale Pole Barn	C11379	$6,806
			FAC-Dewey#1&#2 Drainage Improv	C15420	$6,091
			FAC-NASC Generator	C19090	$4,139
			FAC Broadway Schn'dy Pole Barn	C10725	$3,723
			FAC Kensington Technical Train	C10728	$3,442
			FAC-N. Tonawanda Security	C19436	$2,507
			FAC HCB Grounds FY06 Paving	C10998	$1,982
			FAC-Dewey 1 Roof Replac	C17851	$1,765
			FAC-Olean Security	C19437	$1,211
			FAC-Broadway Schn'dy Abatement	C13962	$1,170
			FAC-Retire HCB1 GasMeterShop L	C13522	$1,156
			FAC-Hudson Security	C19434	$1,081
			FAC-Versaire Asbestos Abatemen	C15440	$1,000
			FAC-Kensington 16A Manlift	C12598	$853
			FAC HCB Backflow Preventor	C11539	$817
			FAC-Fredonia Security	C19433	$721
			FAC-Potsdam Roof Replacement	C15152	$538
			FAC-SOC A Facade 2009-10	C16489	$487
			FAC-NASC	C04143	$353
Grand Total					**$4,945,598**

Niagara Mohawk Power Corp.
Facilities - CY2007 Actuals

Sum of GL Act $				
Bus Unit Descr	Business Unit	Cal Year	Project Descr	Total
ara Mohawk Power	00036	2007	FAC - Gloversville Paving Proj	$266,997
			FAC-Dewey 1 Roof Replac	$251,845
			FAC-Kensington Complex Fire Al	$226,581
			FAC-Dewey 19 Roof Replacement	$225,464
			FAC-NASC Chiller Replacement	$212,646
			FAC-Potsdam Roof Replacement	$208,987
			FAC-Campion Rd Roof Replacemen	$188,275
			FAC-Dewey#1&#2 Drainage Improv	$180,443
			FAC-HCB-Grounds Safety Improve	$165,090
			FAC-NASC Generator	$159,485
			FAC - SOC Pving/Seal/striping	$154,231
			FAC HCB Grounds FY06 Paving	$128,580
			FAC HCB Meter Services Consoli	$128,175
			FAC-N. Tonawanda Security	$109,574
			FAC HCB-3 Elevator Upgrade	$102,776
			FAC - Smith Ave.Troy - Garage	$95,838
			FAC HCB Backflow Preventor	$94,870
			FAC-SOC A Facade 2009-10	$89,613
			FAC Tool Deferral Account (< $	$88,669
			FAC - HCB 3 Replace Cooling To	$78,236
			FAC - Gloversville Reroof gara	$78,177
			FAC-Olean Security	$77,815
			FAC SOC Chiller Replac	$76,056
			FAC HCB Env Pole Barn	$70,401
			FAC Volney SC New Water Servic	$65,597
			FAC-Fredonia Security	$64,577
			FAC-Gloversville Tin Bldg	$61,667
			FAC-Hudson Security	$60,193
			FAC NY UST REMOVAL	$56,299
			FAC-Volney Security	$54,484
			FAC - NASC Main Bldg. Bus Repa	$53,391
			FAC-Hinsdale Security	$52,597
			FAC - Dewey Grounds Fencing Re	$44,920
			FAC NY Capital Projects	$41,531
			FAC-SOC F-bldg HVAC	$40,455
			FAC-SOC F HVAC Controls	$35,011
			FAC-Smith Ave heat pumps	$34,130
			FAC-Batavia Washwater System U	$33,309
			ERCC generator replacement	$31,141
			FAC - Dewey/Kensington Paving	$18,731
			FAC - NASC Main Bldg Flr/Trnch	$18,653
			FAC Dewey/Kensington - Grounds	$14,746
			FAC-West Rome Security	$11,420
			FAC - Dewey Bldg1 Trnsfmr. Rel	$9,845
			FAC-Beacon North Storm Room	$9,059
			FAC - Dewey Bldg 2 Roof	$8,510
			FAC-East Avon Sewer/BFP	$8,163
			FAC - Replace Cool Tower, HPs,	$7,824
			FAC - Airport Hanger Glycol Re	$7,672

Niagara Mohawk Power Corp.
Facilities - CY2007 Actuals

Sum of GL Act $				
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Total**
			FAC - Dewey Bldg3 Trsnfmr Remo	$6,611
			FAC - Dewey Bldg2 Trnsfmr. Rem	$6,127
			FAC - Volney Door Replacement	$3,046
			FAC - Office Roof Replacement	$2,906
			FAC - Saranac Lk. Paving & Dra	$2,712
			FAC-Schnecdaty SC abatement	$2,462
			FAC - Fredonia SC Roof-Main Co	$2,148
			FAC - N. Tonawanda window repl	$2,147
			FAC Albion Drainage	$1,845
			FAC - NASC Transptation Bldg R	$1,557
			FAC Volney Pole Barn	$1,327
			FAC-NASC	$879
			FAC-SOC D IAQ Study	$761
			FAC - SOC A Bldg. Sidewalk Rep	$739
			FAC-Mohican St Retirement	$739
			FAC - NFSC Garage Roof	$669
			FAC-Ogdensburg SC abatement	$594
			FAC Batavia SC FY06 Security	$547
			FAC - Olean SC HVAC Rooftop Un	$397
			FAC-Kensington 16A Manlift	$382
			FAC - Dewey Bldg 16 Roof Replm	$345
			FAC-Aircraft Hangar abatement	$339
			FAC-SOC-D Bldg Rooftop Replace	$284
			FAC FY06 Security Oakwood Troy	$203
			FAC Potsdam FY06 Security	$162
Grand Total				**$4,342,681**

Niagara Mohawk Power Corp.

Facilities - CY2008 Actuals

Sum of GL Act $				
Bus Unit Descr	Business Unit	Cal Year	Project Descr	Total
Niagara Mohawk I	00036	2008	FAC - Dewey Bldg 2 Roof	$600,795
			FAC-SOC A Facade 2009-10	$393,992
			FAC - Fredonia SC Roof-Main Co	$339,062
			FAC-S Watertown Roof Replaceme	$320,024
			FAC-Fredonia Paving Replacemen	$260,005
			FAC-Fredonia Security	$195,374
			FAC - Airport Hanger Glycol Re	$190,179
			FAC - NASC Main Bldg Flr/Trnch	$184,886
			FAC - NFSC Garage Roof	$173,118
			FAC-Volney Security	$159,352
			FAC-Olean Paving	$157,355
			FAC-Batavia paving rear yard	$147,691
			FAC-Olean Security	$142,035
			FAC - Dewey/Kensington Paving	$137,500
			FAC - Dewey Bldg 16 Roof Replm	$129,075
			FAC HCB Backflow Preventor	$122,502
			FAC-Kensington Complex Fire Al	$106,936
			FAC - Dewey Bldg1 Trnsfmr. Rel	$106,741
			FAC - N Albany Stores Bldg	$93,089
			FAC - HCB 3 Replace Cooling To	$86,380
			FAC-East Avon Sewer/BFP	$81,025
			FAC-Hinsdale Security	$75,069
			FAC - N Albany Controls	$73,069
			FAC - Office Roof Replacement	$72,488
			FAC - Dewey Bldg3 Trsnfmr Remo	$62,037
			FAC - Dewey Bldg2 Trnsfmr. Rem	$61,852
			FAC-Hudson Security	$61,647
			FAC- Dewey Grounds Supv Lot	$61,166
			FAC - Glenmont Paving Project	$59,023
			FAC-NASC Generator	$58,716
			HCB 3 Bridge	$54,499
			ERCC generator replacement	$53,789
			FAC - SOC A Bldg Chiller Valve	$48,030
			FAC- N Albany Electrical Servi	$46,587
			FAC-Campion Rd Roof Replacemen	$45,898
			FAC - Dewey Bldg 6 HS Door	$43,335
			FAC - NASC Roof Leader Separat	$38,405
			FAC - N Albany Floor Upgrade	$29,770
			FAC - Olean SC HVAC Rooftop Un	$29,662
			FAC-Saranac Lake SC abatement	$27,840
			FAC - N Albany fire protectin	$27,759
			FAC - Gloversville Drain	$27,744
			FAC-Malone SC abatement	$26,950
			FAC-Ogdensburg SC abatement	$26,088
			FAC Volney SC New Water Servic	$24,863
			FAC - Replace Cool Tower, HPs,	$22,750

Niagara Mohawk Power Corp.

Facilities - CY2008 Actuals

Sum of GL Act $				
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Total**
			FAC - Potsdam Doors	$22,119
			FAC - NASC Main Bldg HS Roll-u	$21,900
			FAC-Cortland SC abatement	$20,671
			FAC - Hudson SCR Drain	$20,358
			FAC - Franklinville Generator	$19,666
			FAC-Potsdam Roof Replacement	$19,344
			FAC-HCB-Grounds Safety Improve	$18,958
			FAC - Lowville Generator	$18,783
			FAC - Dewey Generator	$17,780
			FAC - Clifton Park Fire Protec	$13,590
			FAC-West Rome Security	$13,480
			FAC - Newfane Floor Drain	$13,320
			FAC - HCB Bldg 3 - Batteries	$13,109
			FAC - Schenectady Bway Securit	$12,629
			FAC-Cobleskill Generator Repla	$12,054
			FAC - Schen Broadway heaters	$11,289
			FAC - Dewey Parking Lot Securi	$11,114
			FAC-Batavia Washwater System U	$10,242
			FAC-Warrensburg Roof and Gutte	$9,228
			FAC - HCB EMS Electrical upgra	$7,437
			FAC NY Capital Projects	$6,830
			FAC - Watertown Paving	$6,796
			FAC - Volney Door Replacement	$5,821
			FAC - Franklinville Doors	$5,428
			FAC-SOC F-bldg HVAC	$5,400
			FAC - Fredonia Fire Protection	$5,082
			FAC - Troy Oakwood Electric	$4,646
			FAC-Campion Rd abatement	$4,215
			FAC - E Avon Security	$3,885
			FAC - Dewey Bldg 2 Fire Protec	$3,857
			FAC Tool Deferral Account (< $	$3,635
			FAC - Dewey Grounds Fencing Re	$2,964
			FAC - SOC C Bldg Elec Rm Cooli	$2,535
			FAC - Syr Airport Hangar Exhau	$2,519
			FAC-Dewey 1 Roof Replac	$2,381
			FAC - N. Tonawanda window repl	$2,000
			FAC - Saranac Lk. Paving & Dra	$2,000
			FAC - Smith Ave Roof Drain	$1,871
			FAC-Ogdensburg Roof Replacemen	$1,727
			FAC - Schen Broadway Drain	$1,697
			FAC ERCC HVAC Com Room	$1,411
			FAC-Potsdam SC abatement	$1,155
			FAC - Fredonia McQuay Units	$1,000
			FAC - N Albany Bldg 2 Rest Roo	$1,000
			FAC - NASC Transptation Bldg R	$1,000
			FAC - Smith Ave Troy Security	$1,000

Niagara Mohawk Power Corp.
Facilities - CY2008 Actuals

Sum of GL Act $				
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Total**
			FAC-Cornelia St Sub-Retirement	$964
			FAC-James St Tonawanda-Retirem	$964
			FAC - SOC Pving/Seal/striping	$964
			FAC-Aircraft Hangar abatement	$964
			FAC-Malone Roof Replacement	$727
			FAC Kensington Bldg 16 HVAC	$656
			FAC - Kensington WRCC Bldg 17	$454
			Security Upgrades Dist	$424
			FAC - Fredonia Garage Lighting	$404
			FAC Volney Pole Barn	$384
			FAC NY UST REMOVAL	$281
			FAC-Gloversville Tin Bldg	$202
			FAC-Smith Ave heat pumps	$202
			FAC - Batavia yard lighting	$185
			FAC Dewey 2 25 Ton Rooftop Rep	$101
			FAC-West Rome SC Gate & Fence	$101
Grand Total				**$5,683,056**

Niagara Mohawk Power Corp.
Facilities - CY2009 Actuals

Sum of GL Act $				
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Total**
Niagara Mohawk P	00036	2009		
			SOC - Restack Furniture	$798,675
			FAC- N Albany Electrical Servi	$467,304
			SOC C-3 Renov - Restrooms, etc	$415,098
			ERCC generator replacement	$397,464
			FAC - Replace Cool Tower, HPs,	$306,093
			FAC - Kensington Bldg 15 Roof	$214,018
			SOC - B3 - Rennovations	$211,071
			FAC - Hudson SCR Drain	$168,421
			FAC-West Rome Security	$135,473
			FAC Kensington Bldg 16 HVAC	$129,412
			FAC - Gloversville Drain	$128,297
			FAC - Kensington WRCC Bldg 17	$115,290
			SOC-C1 Renovations	$111,010
			FAC - SOC B Duct Insulation	$105,032
			FAC - Schenectady Bway Securit	$87,741
			FAC SOC A Wall and Walk	$86,652
			FAC - Dewey Generator	$86,594
			FAC - N Albany Controls	$81,525
			FAC - Gloversville Gas Vehicle	$80,951
			FAC-Cobleskill Generator Repla	$79,916
			FAC - Batavia Paving	$76,568
			FAC- Dewey Grounds Supv Lot	$74,472
			FAC - Dewey Bldg 2 Roof	$70,737
			HCB 3 Bridge	$66,838
			SOC-Bldg D-Mezzanine Renovatio	$66,475
			FAC - N Albany Stores Bldg	$64,310
			FAC - Newfane Floor Drain	$63,815
			FAC - Clifton Park Fire Protec	$63,534
			FAC - Fredonia Fire Protection	$56,738
			SOC A-4 Renovations	$51,870
			FAC - Schen Broadway Drain	$49,550
			FAC - Kensington SG Rm HPs B16	$45,463
			FAC - SOC C Elevator Upgrade	$44,241
			HCB-Special Purpose Facility	$42,730
			FAC -Kensington Gen Rad Repl	$42,305
			FAC - Smith Ave Roof Drain	$40,587
			FAC-S Watertown Roof Replaceme	$40,000
			FAC ERCC HVAC Com Room	$39,377
			HCB-Training Center Renovation	$37,160
			FAC - NASC Roof Leader Separat	$36,898
			FAC - Fredonia Garage Lighting	$35,830
			FAC - Lowville Generator	$34,472
			FAC - Watertown Paving	$33,699
			FAC-Kensington Complex Fire Al	$32,489
			FAC - Syr Airport Hangar Exhau	$27,386
			HCB Training Center Renovation	$25,719

Niagara Mohawk Power Corp.
Facilities - CY2009 Actuals

Sum of GL Act $				
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Total**
			SOC-A2 Renovations	$22,650
			FAC - Rome Oil Water Separator	$19,727
			FAC-Warrensburg Roof and Gutte	$18,414
			FAC - Fredonia McQuay Units	$18,345
			SOC-A1 Floor Renovations	$18,318
			FAC - SOC A Nurses Furniture	$17,620
			FAC - SOC D Elevator Upgrade	$17,230
			FAC - Kensington Bldg 20 Roof	$17,064
			FAC - Hudson Safety Improvemen	$16,970
			FAC - Campion Rd Utica Hydrant	$16,643
			FAC - Franklinville Generator	$11,993
			FAC - Batavia yard lighting	$11,684
			FAC - SOC Lot 2 select repavin	$11,499
			FAC - HCB B2 Drain	$11,070
			FAC - Fredonia Server Rm HVAC	$9,564
			FAC - Stow Paving	$8,997
			FAC - Niagara Falls Fence Rep	$8,943
			FAC - SOC B Iport for BAS	$8,750
			FAC - Dewey Bldg 1 HVAC	$8,583
			FAC - Franklinville Fire Prote	$8,466
			FAC - Clifton Park Yard Lighti	$7,855
			SOC-D2 Renovations	$7,410
			FAC - Dewey Parking Lot Securi	$6,904
			SOC-A4 Renovations	$6,711
			FAC - Invest Recovery Roof	$6,646
			FAC - N Albany CT Spray Pump	$6,503
			FAC - Kensington Dock Leveler	$6,199
			FAC-Potsdam SC abatement	$6,175
			FAC - Clifton Park Warehouse H	$5,863
			FAC - Welbel Ave Sewer Pump	$5,644
			FAC - SOC Paving Lot 2	$5,565
			FAC - SOC A Siemens Controls	$5,500
			FAC - Troy Oakwood Electric	$5,372
			FAC - Schenectady Seneca St Li	$5,146
			FAC - Franklinville Doors	$3,900
			SOC C-1 Renovations	$3,754
			FAC-East Avon Sewer/BFP	$3,709
			FAC - Olean Paving	$3,335
			FAC - Olean Fire Protection UG	$3,106
			FAC-Volney Security	$2,505
			FAC - Glenmont Paving Project	$2,500
			FAC-Batavia paving rear yard	$2,315
			SOC-B1 Renovations	$1,876
			FAC-Hinsdale Security	$1,690
			FAC - E Avon Security	$1,500
			FAC - Smith Ave Troy Security	$1,500
			FAC-Fredonia Paving Replacemen	$1,500

Niagara Mohawk Power Corp.
Facilities - CY2009 Actuals

Sum of GL Act $				
Bus Unit Descr	**Business Unit**	**Cal Year**	**Project Descr**	**Total**
			FAC - N Albany Bldg 2 Rest Roo	$1,172
			FAC - HCB EMS Electrical upgra	$1,080
			FAC-Batavia Washwater System U	$1,000
			FAC - Dewey Bldg 2 Fire Protec	$811
			FAC NY Capital Projects	$660
			FAC Gloversville-Hill St.	$404
			FAC-Fredonia Security	$404
			FAC-Ogdensburg Roof Replacemen	$194
			FAC-Malone SC abatement	$96
			FAC-Ogdensburg SC abatement	$96
			FAC-Saranac Lake SC abatement	$96
			FAC-Gloversville Tin Bldg	$93
			FAC Glenmont, NY - 14 Plank Rd	$73
			FAC-Campion Rd abatement	$48
			FAC-Cortland SC abatement	$48
			FAC Camillus, NY - 513 Hinsdal	$36
			FAC Volney, NY - 99 Howard Rd	$35
			FAC Niagara Falls, NY - 1720 N	$34
			FAC Albion, NY - 236 West Aven	$15
Grand Total				**$5,878,908**

Testimony of Infrastructure and Operations Panel

Schedule 2

Niagara Mohawk Power Corp.

Facility Project Cost Estimates

Description	SOC Façade	SOC Renovations	HCB Control Center	Beacon to HCB	North Albany	Saratoga	Buffalo	Total
Building Design Engineering	$750,000	$730,000	$650,000	$750,000	$550,000	$650,000	$150,000	$4,230,000
General Contractor Costs	$6,750,000	$9,350,000	$9,100,000	$8,250,000	$6,350,000	$8,150,000	$1,350,000	$49,300,000
Furniture, Fixtures& Equipment	$0	$5,750,000	$1,600,000	$300,000	$550,000	$315,000	$100,000	$8,615,000
IS - Telephone & Data	$0	$3,225,000	$800,000	$165,000	$350,000	$350,000	$100,000	$4,990,000
Moving Costs	$0	$150,000	$100,000	$150,000	$150,000	$150,000	$100,000	$800,000
Administrative - PM, permitting fees, etc.	$150,000	$150,000	$250,000	$150,000	$150,000	$150,000	$50,000	$1,050,000
Contingency	$350,000	$645,000	$1,000,000	$235,000	$150,000	$235,000	$150,000	$2,765,000
Total	***$8,000,000***	***$20,000,000***	***$13,500,000***	***$10,000,000***	***$8,250,000***	***$10,000,000***	***$2,000,000***	***$71,750,000***

Niagara Mohawk Power Corp.
Facility Project Cost Estimates

Exhibit __ (IOP-5)
Schedule 2
Sheet 1 of 1

Exhibit __ (IOP-6)

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-6)

Summary of Information System Projects

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID (COMPANY 36)
Operating Expenses by Component
Capital Software and Other Information Systems Rent Expense
IS Investment Plan
For the Rate Years ended December 31, 2011, 2012 and 2013

				Data			
Category	**IS Exec**	**INVP**	**Investment Name**	**CY2013 Rent**	**CY2012 Rent**	**CY2011 Rent**	**Total Rate Plan**
Customer Service	ED&G	INVP 1656	Customer Systems Agent Desktop	894,626	951,333	687,924	2,533,884
		INVP 1306	IVR Phase 2 - (Interactive Voice Response)	494,145	567,063	603,007	1,664,215
		INVP 2204	Contact Center Operational Efficiencies	160,085	115,760	-	275,845
		INVP 2202	Customer Self Service via IVR - Customer Experience	128,068	92,608	-	220,676
		INVP 2200	Customer Self Service via Web - Customer Experience	111,130	-	-	111,130
		INVP 2201	Customer Self Service via Web - Operational Improvements	111,130	-	-	111,130
		INVP 0980	Increase Customer Self Service activity on the - Web (CC #4a)	108,577	124,599	132,497	365,673
		INVP 1159	Customer Insights and Analytics	94,786	100,794	72,886	268,466
		INVP 2203	Customer Self Service via IVR - Operational Improvements	76,841	55,565	-	132,406
		INVP 1660	Legacy Grid Web Self Service SW Upgrade	37,890	27,399	-	65,289
		INVP 2205	Contact Center Business Continuity	18,065	19,210	13,891	51,167
		INVP 1255	Contact Centers Call Recording Replacement	15,413	17,687	18,808	51,909
		INVP 1001	CSS ProjectONE Deferred items	2,608	2,993	3,183	8,785
	ED&G Total			**2,253,364**	**2,075,012**	**1,532,197**	**5,860,573**
	EPO	INVP 1356	Internet Strategy Implementation	107,249	114,047	82,469	303,766
		INVP 1356	US - Internet Strategy Implementation	45,726	52,474	55,800	154,000
	EPO Total			**152,976**	**166,521**	**138,269**	**457,766**
	Fin, SS & Corp	INVP 1643	Regulatory Placeholder - Customer Systems 2012	95,423	69,002	-	164,425
		INVP 1643	Regulatory Placeholder - Customer Systems 2011	89,735	95,423	69,002	254,160
		INVP 1643	Regulatory Placeholder - Customer Systems 2013	69,002	-	-	69,002
		INVP 1549	Non-Interval Collections Systems Consolidation (ITRON/PP4/MVRS)	63,812	67,856	49,068	180,736
		INVP 1232	Settlement Solution	54,516	57,972	41,920	154,408
		INVP 0937	Purchase of Receivables NY	41,831	48,004	51,047	140,882
		INVP 1235	Account Initiation - Collections Data Hygene Initiatives - Phase 2 & 3	20,266	23,257	24,731	68,253
	Fin, SS & Corp Total			**434,585**	**361,513**	**235,768**	**1,031,866**
Customer Service Total				**2,840,924**	**2,603,047**	**1,906,234**	**7,350,205**
Operations	ED&G	INVP 1185	Distribution/Outage Management System	2,534,127	-	-	2,534,127
		INVP 2155	Mobile - Electric Distribution Legacy Grid Mobile Expansion	1,316,336	-	-	1,316,336
		INVP 1642	Radio Console Standardization	444,927	-	-	444,927
		INVP 1242	Transformation KPIs	354,366	406,657	432,434	1,193,456
		INVP 2195	DECUS13 - URD Optimization Tool - Underground Residential Distribution	189,360	201,363	145,609	536,332
		INVP 0953	Smallworld GIS Upgrade	171,767	182,655	132,081	486,503
		INVP 1363	Substation Equipment Analysis	101,170	116,099	123,458	340,728
		INVP 1482	ACIS Target Pricing Model (Automated Contractor Invoicing System)	73,369	78,019	56,417	207,805
		INVP 1484	Cascade Phase II (Substation Equipment Maintenance)	71,197	75,710	54,747	201,655
		INVP 2182	DECUS02 - Mobile Devices for Field Investigators	66,888	71,127	51,433	189,448
		INVP 2171	Exchange of Notice - Joint Pole - Double Pole	62,355	66,308	47,948	176,611
		INVP 2162	Primavera - Project Management Extensions	61,286	65,171	47,126	173,583
		INVP 1485	Computapole Upgrade	60,119	43,473	-	103,592
		INVP 2172	IDS Reliability Reporting & Analysis (Interruption and Disturbance System)	54,635	58,098	42,012	154,745
		INVP 1488	Remote Access To Fault Recorders	44,155	46,953	33,953	125,061
		INVP 2165	SEAL Upgrade (Storm Emergency Assignment List)	24,942	26,523	19,179	70,644
		INVP 2144	Vegetation Management	21,976	15,891	-	37,868
		INVP 1243	EDO Transformation - Proceed	1,137	1,305	1,388	3,830
		INVP 1246	Transformation - KPI Reporting	341	391	416	1,148
		No INVP	SMART METERS	164	188	200	551
	ED&G Total			**5,654,617**	**1,455,933**	**1,188,401**	**8,298,951**
	ISSO	INVP 0845	DataStage Upgrade/Capacity Planning	19,313	22,163	23,567	65,043
	ISSO Total			**19,313**	**22,163**	**23,567**	**65,043**
	Transmission	INVP 1573	Transmission Investment Mgmt System (TIMS)	149,161	107,861	-	257,022
		INVP 1227	NERC CIP Compliance 2010	146,787	168,448	179,125	494,360
		INVP 1227	NERC CIP Compliance 2013	46,896	-	-	46,896
		INVP 1227	NERC CIP Compliance 2012	19,456	14,069	-	33,525
		INVP 1227	NERC CIP Compliance 2011	18,296	19,456	14,069	51,821
		INVP 2277	NERC-CIP Service Management Toolset/NERC-CIP End-to-End Solution/ITIL Compliance	131,305	94,949	-	226,253
		INVP 2483	Integrated Project & Portfolio Planning	129,705	93,792	-	223,497
		INVP 2270	Transmission Customer System Upgrade	67,999	-	-	67,999
		INVP 1224	TOA Enhancements (Transmission Outage Application)	59,652	68,454	72,793	200,900
		INVP 2276	NY EMS Remote Access Enhancement (Citrix)	29,882	31,776	22,978	84,635
		INVP 2484	Performance and condition Datamart	28,138	-	-	28,138
	Transmission Total			**827,277**	**598,804**	**288,965**	**1,715,046**
Operations Total				**6,501,207**	**2,076,900**	**1,500,933**	**10,079,040**
Shared Services	EPO	INVP 0314	US Intranet Consolidation	148,491	170,402	181,204	500,097
		INVP 2210	Intranet Design	98,795	105,058	75,969	279,822
	EPO Total			**247,286**	**275,460**	**257,172**	**779,919**
	Fin, SS & Corp	INVP 1671	US Transaction Delivery Center	83,799	-	-	83,799
		INVP 2391	Regulatory Cost Structure - UI (Utilities International) Planner	28,534	30,343	21,941	80,818
		INVP 1367	Group Finance FC - Hyperion Upgrade Replacement	18,442	19,611	14,181	52,233
		INVP 1296	Salary Planning and performance management for Execs and US directors.	13,244	15,198	16,162	44,604
		No INVP	Talent Management	8,816	10,117	10,758	29,690
		INVP 0309	Supply Chain Management -ENGAGE VENDOR	6,911	7,931	8,434	23,277
		No INVP	P11 US National Grid Sales & Use	3,372	3,870	4,115	11,357
		No INVP	Risk Managment Syst	940	1,079	1,147	3,167
	Fin, SS & Corp Total			**164,058**	**88,148**	**76,738**	**328,944**
	Overlay	No INVP	US SAP ERP Back Office	5,252,886	3,798,446	-	9,051,332
	Overlay Total			**5,252,886**	**3,798,446**	**-**	**9,051,332**
Shared Services Total				**5,664,230**	**4,162,055**	**333,911**	**10,160,195**
Shared Infrastructure	ISSO	INVP 1088	Datacenter Rationalization (includes specific storage computing & telecoms) 2011	589,096	626,437	452,987	1,668,520
		INVP 1088	Datacenter Rationalization (includes specific storage computing & telecoms) 2012	577,817	417,829	-	995,647
		INVP 1088	Datacenter Rationalization (includes specific storage computing & telecoms) 2013	417,829	-	-	417,829
		INVP 1129	Employee Remote Access Program	353,976	-	-	353,976
		INVP 1134	Enterprise Content Management and Data Archival Program	264,483	191,252	-	455,735
		INVP 1648	Network Strategy	228,037	-	-	228,037
		INVP 1092	OneNet (common user interface)	189,094	216,997	230,752	636,843
		INVP 1393	Desktop Refresh	95,335	109,403	116,338	321,076

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID (COMPANY 36)
Operating Expenses by Component
Capital Software and Other Information Systems Rent Expense
IS Investment Plan
For the Rate Years ended December 31, 2011, 2012 and 2013

				Data			
Category	**IS Exec**	**INVP**	**Investment Name**	**CY2013 Rent**	**CY2012 Rent**	**CY2011 Rent**	**Total Rate Plan**
		INVP 1395	System Management Toolset (includes CMDB Standardization and Commoditization)	80,625	-	-	80,625
		INVP 1389	Unix Lifecycling	78,398	89,967	95,669	264,034
		INVP 0823	Security Enhancement Projects 2011	63,556	67,584	48,871	180,011
		INVP 1129	Workplace Enhancements (was Desktop (email, AD & SharePoint))	47,569	54,588	58,048	160,204
		INVP 1391	Wintel Lifecycling	23,057	26,459	28,136	77,652
		INVP 1401	LAN/WAN	22,715	26,067	27,720	76,502
Shared Infrastructure (cont.)	ISSO	INVP 1400	Video Conferencing	21,591	24,776	26,347	72,714
		INVP 0823	Security Enhancement Projects 2012	17,860	12,915	-	30,775
		INVP 0823	Security Enhancement Projects 2013	12,915	-	-	12,915
		INVP 1404	Normals - Voice Enhancements	12,648	14,514	15,434	42,596
		No INVP	SQL - ISS/20 (standard language for accessing databases)	12,397	14,226	15,128	41,752
		INVP 1396	Wireless LAN Standardization	11,192	12,843	13,657	37,693
		INVP 1135	IS Audit Remediation 2012	10,506	7,597	-	18,103
		INVP 1135	IS Audit Remediation 2011	9,880	10,506	7,597	27,982
		INVP 1135	IS Audit Remediation 2013	7,597	-	-	7,597
		INVP 1134	Data Archiving & Retention w/e discovery	6,334	7,268	7,729	21,331
		INVP 0873	MF (Mainframe) Tape Upgrade	3,153	3,618	3,848	10,619
		INVP 1406	Normals - Private Infrastructure	1,924	2,208	2,348	6,479
		INVP 1152	Identity Management	1,649	1,892	2,012	5,552
		INVP 1402	Private Infrastructure	7	8	9	25
	ISSO Total			**3,161,237**	**1,938,956**	**1,152,629**	**6,252,822**
Shared Infrastructure Total				**3,161,237**	**1,938,956**	**1,152,629**	**6,252,822**
Grand Total				**18,167,598**	**10,780,957**	**4,893,707**	**33,842,262**

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-7)

January 15, 2010 Mobile Stray Voltage Testing Project Report

nationalgrid

Inspections - 2009 New York Mobile Stray Voltage Testing Project Report
January 15, 2010

Background

On December 15, 2008, the New York State Public Service Commission ("Commission") issued an order requiring the electric utilities, with the exception of Con Edison, to conduct mobile stray voltage testing in appropriate areas of cities with a population of at least 50,000 (based on the results of the 2000 census), during calendar year 2009 to positively identify those areas that can be effectively surveyed. The testing shall continue annually thereafter until further direction from the Commission and will meet the annual requirement under the electric safety standards for those areas.

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid" or "Company") utilized the services of Power Survey LLC ("Power Survey") to perform the mobile testing in the six cities in the Company's service territory where such testing is required by the order. Those six cities are: Buffalo, Niagara Falls, Syracuse, Utica, Albany, and Schenectady.

The 2009 mobile testing cycle took seven weeks to complete from October 5, 2009 to November 20, 2009. Power Survey scanned a total of 3,229 miles, and found 2,870 energized objects. All repairs to National Grid owned assets are 100 percent complete while privately owned assets are 93.6 percent complete. The overall mitigation effort is 99.62 percent as of January 15, 2010.

Mobile Testing Verification Process

Following discussions with Commission Staff, National Grid and Staff agreed that the Company would verify a stray voltage finding made by the mobile survey by using its own internal testing verification procedure as outlined in Section V of National Grid's Electric Operating Procedure NG-USA EOP G016. This entails using a HD probe to test all metallic objects in the area using a ground reference point of within five feet of the structure. In the event this method could not verify the finding, the Company employed Power Survey's verification procedure which allows for using a ground reference point of within 100 feet of the structure.

Mobile Testing Results by City

1. Buffalo

Buffalo is the largest of the six cities. Power Survey was able to complete the testing in four weeks, using three scanning vehicles for the first two weeks and five scanning vehicles for the remaining two weeks. The results are as follows:

a. Stray voltage findings at 4.4v and below = 1,816
b. Stray voltage findings at 4.5v and above = 861
c. Miles scanned = 1,444
d. National Grid structures scanned = 28,440

2. Niagara Falls

Testing in Niagara Falls began on November 9th and was completed on November 10th with the following results:

a. Stray voltage findings at 4.4v and below = 46
b. Stray voltage findings at 4.5v and above = 8
c. Miles scanned = 265
d. National Grid structures scanned = 1,378

3. Syracuse

Testing in Syracuse began on November 2nd and was completed on November 5th with the following results:

a. Stray voltage findings at 4.4v and below = 6
b. Stray voltage findings at 4.5v and above = 6
c. Miles scanned = 611
d. National Grid structures scanned = 2,818

4. Utica

Testing in Utica began on November 11th and was completed on November 19th with the following results:

a. Stray voltage findings at 4.4v and below = 5
b. Stray voltage findings at 4.5v and above = 8
c. Miles scanned = 321
d. National Grid structures scanned = 1,349

5. Albany

Testing began in Albany on November 16th and was completed on November 20th with the following results:

a. Stray voltage findings at 4.4v and below = 55
b. Stray voltage findings at 4.5v and above = 46
c. Miles scanned = 396
d. National Grid structures scanned = 4,778

6. Schenectady

Testing began in Schenectady on November 19th and was completed on November 20th with the following results:

a. Stray voltage findings at 4.4v and below = 3
b. Stray voltage findings at 4.5v and above = 10
c. Miles scanned = 192

d. National Grid structures scanned = 632

Summary tables illustrating test results by region and National Grid structures scanned by city can be found in Appendices A and B.

Mobile Testing Repair/Mitigation Efforts

As of January 4, 2010, all initial repairs to National Grid owned assets were completed within the allotted 45 day deadline. National Grid anticipates that all permanent repairs, to address any temporary overhead repairs, will be completed by April 2010.

There are eleven outstanding initial repairs to privately owned assets. These are all in the City of Buffalo, have been made safe and are currently in the process of being mitigated by the City. A table detailing the pending private repairs is illustrated in Appendix C.

At this time, National Grid is auditing the repairs and compiling and entering the information into a database. National Grid will continue to work with the respective municipalities until all repairs are complete.

A summary table illustrating repair status by region can be found in Appendix D.

Mobile Testing Program Costs

As of January 5, 2010, actual costs have amounted to $6,118,385. A summary table of these costs can be found in Appendix E. This is not the final cost amount, as the Company is continuing to compile this information.

Appendix A

Mobile Testing Summary Report

NY Stray Voltage Mobile Testing Summary Report
01/11/2010

	West	Central	East	*Grand Total*
Testing Summary				
Total Number of Events	2,731	25	114	**2,870**
At or Above 4.5 Volts	869	14	56	**939**
Below 4.5 Volts	1,862	11	58	**1,931**
Total NGRID Owned Events (streetlights)	2,571	19	108	**2,698**
At or Above 4.5 Volts	803	9	53	**865**
Below 4.5 Volts	1,768	10	55	**1,833**
Total Private Owned Events	160	6	6	**172**
At or Above 4.5 Volts	66	5	3	**74**
Below 4.5 Volts	94	1	3	**98**
Survey Percent Complete by City				
Buffalo	100.00%			**100.00%**
Niagara Falls	100.00%			**100.00%**
Syracuse		100.00%		**100.00%**
Utica		100.00%		**100.00%**
Albany			100.00%	**100.00%**
Schenectady			100.00%	**100.00%**
Total Miles Scanned	1,709	932	588	**3,229**

Appendix B

Summary of National Grid Structures Scanned

National Grid Structures Scanned							
Structure Type	**Albany**	**Buffalo**	**Niagara Falls**	**Schenectady**	**Syracuse**	**Utica**	**Grand Total**
Streetlight - Metallic SL Standard	1,032	6,638	455	169	1,007	294	**9,595**
Streetlight - Steel Pole	1,454	7,009	205	138	256	271	**9,333**
Streetlight - Traffic Control	401	4,638	276	65	605	99	**6,084**
Streetlight - Wood Pole	0	1	0	0	0	0	**1**
Streetlight - Handhole	0	1	15	0	0	0	**16**
Underground - Handhole	241	5,819	237	21	32	19	**6,369**
Underground - Junction Box	31	11	2	2	0	0	**46**
Underground - Manhole	991	3,600	112	184	610	631	**6,128**
Underground - Switchgear	82	98	10	3	89	8	**290**
Underground - Padmount Transformer	478	367	51	8	97	22	**1,023**
Underground - Vault	68	258	15	42	122	5	**510**
Total National Grid Structures	**4,778**	**28,440**	**1,378**	**632**	**2,818**	**1,349**	**39,395**

Appendix C

Pending Private Repair Detail

Power Survey EventID	Date Found	District Name	Street	Cross Street	Shunt Voltage	Asset Type	Repair Due Date
535	10/14/2009	Buffalo	Cazenovia St NW Cor	N Legion Dr	8	Traffic Standard	12/21/2009
536	10/14/2009	Buffalo	Cazenovia St SE Cor	N Legion Dr	8.2	Traffic Standard	12/21/2009
1096	10/20/2009	Buffalo	696 Tonawanda St	Progressive Ave	2.3	Traffic Standard	12/29/2009
01971	10/26/2009	Buffalo	3043 Main St	Minnesota Ave	1.5	Other	01/05/2010
02058	10/26/2009	Buffalo	661 - opp Delaware Ave	North St	16.5	Traffic Standard	01/05/2010
02181	10/27/2009	Buffalo	E Meadow Dr		9	Other	01/06/2010
02305	10/27/2009	Buffalo	143 Bidwell Pkwy- NE Cor	Elmwood Ave	4.6	Traffic Standard	01/06/2010
02306	10/27/2009	Buffalo	143Bidwell Pkwy- NW Cor	Elmwood Ave	4.5	Traffic Standard	01/06/2010
02443	10/28/2009	Buffalo	Rockwell Rd	Elmwood Ave	1.6	Traffic Standard	01/07/2010
2622	10/29/2009	Buffalo	Best St- NW Cor	Ellicott St	4.7	Traffic Standard	01/08/2010
2694	10/29/2009	Buffalo	Bailey Ave - NW Cor	E Amherst St	16	Traffic Standard	01/08/2010

NOTE: The structures listed in the table above have been made safe.

Appendix D

Mobile Testing Repair Summary

NY Stray Voltage Mobile Testing Repair Summary Report 01/13/2010	West	Central	East	*Grand Total*
Repair Summary				
NGRID Repairs				
Required	2,571	19	108	**2,698**
Completed	2,571	19	108	**2,698**
Pending (All repairs)	0	0	0	**0**
Pending (De-energized streetlights)	0	0	0	**0**
Exceeding 45 Days	0	0	0	**0**
Percent Complete	100.00%	100.00%	100.00%	**100.00%**
TOH Repairs	488	0	11	**499**
TOH Complete	95	0	0	**95**
TOH Pending	393	0	11	**404**
TOH Exceeding 90 Days	0	0	0	**0**
TOH Percent Complete	19.47%	N/A	0.00%	**19.04%**
Private Repairs				
Required	160	6	6	**172**
Completed	149	6	6	**161**
Pending	11	0	0	**11**
Exceeding 45 Days	0	0	0	**0**
Percent Complete	93.13%	100.00%	100.00%	**93.60%**
Total Repairs Pending	11	0	0	**11**
Total Repairs Complete	2,720	25	114	**2,859**
Total Repairs Percent Complete	99.60%	100.00%	100.00%	**99.62%**

Appendix E

Financial Detail – as of January 5, 2010

			Completed			REPAIRS			TESTING		
City	Actual Miles	Events found	Miles	Repairs	Event Rate	Actuals	Act$/ Repair	% Cmpl	Actuals	Act$/ mile	% Cmpl
Buffalo	**1444**	2,677	1444	2666	1.85	$ 684,656	$ 252	100%	$2,639,721	$ 1,828	100%
Niagara Falls	**265**	54	265	54	0.20				$ 502,803	$ 1,897	100%
Syracuse	**611**	12	611	12	0.02	$ 6,595	$ 550	100%	$ 773,522	$ 1,266	100%
Utica	**321**	13	321	13	0.04	$ 13,311	$ 1,024	100%	$ 448,733	$ 1,398	100%
Albany	**396**	101	396	101	0.26	$ 53,492	$ 530	100%	$ 675,826	$ 1,707	100%
Schenectady	**192**	13	192	13	0.07	$ 10,197	$ 784	100%	$ 309,530	$ 1,612	100%
	3229	**2870**	**3229**	**2859**	**0.89**	$ 768,251	$ 269	100%	$5,350,134	$ 1,657	100%
						As of 01/05/2010 TOTAL Actuals				$6,118,385	

Exhibit __ (IOP-7)
Sheet 8 of 28

Summary of Energized Objects - Mobile Testing

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**1,889**	**845**	**69**	**2,803**	**2,619**	**0**	**0**
Metal Street Light Pole	1833	803	65	2,701	2534	0	0
Traffic Signal Pole	55	40	4	99	82	0	0
Control Box	1	2	0	3	3	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**41**	**25**	**1**	**67**	**53**	**0**	**0**
Sidewalk	1	0	0	1	1	0	0
Gate/Fence/Awning*	1	2	0	3	1	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	1	2	0	3	2	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	38	21	1	60	49	0	0
Totals	**1,930**	**870**	**70**	**2,870**	**2,672**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

Summary of Energized Objects - Mobile Testing - City of Buffalo

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**1,782**	**784**	**52**	**2,618**	**2,434**	**0**	**0**
Metal Street Light Pole	1731	748	48	2,527	2360	0	0
Traffic Signal Pole	51	36	4	91	74	0	0
Control Box	0	0	0	0	0	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**34**	**24**	**1**	**59**	**48**	**0**	**0**
Sidewalk	0	0	0	0	0	0	0
Gate/Fence/Awning*	1	2	0	3	2	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	1	2	0	3	2	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	32	20	1	53	44	0	0
Totals	**1,816**	**808**	**53**	**2,677**	**2,482**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

Summary of Energized Objects - Mobile Testing - City of Niagara Falls

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**41**	**2**	**5**	**48**	**46**	**0**	**0**
Metal Street Light Pole	37	2	5	44	42	0	0
Traffic Signal Pole	3	0	0	3	3	0	0
Control Box	1	0	0	1	1	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**5**	**1**	**0**	**6**	**4**	**0**	**0**
Sidewalk	0	0	0	0	0	0	0
Gate/Fence/Awning*	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	0	0	0	0	0	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	5	1	0	6	4	0	0
Totals	**46**	**3**	**5**	**54**	**50**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

Summary of Energized Objects - Mobile Testing - City of Syracuse

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**5**	**5**	**1**	**11**	**11**	**0**	**0**
Metal Street Light Pole	5	3	1	9	9	0	
Traffic Signal Pole	0	2	0	2	2	0	0
Control Box	0	0	0	0	0	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**1**	**0**	**0**	**1**	**1**	**0**	**0**
Sidewalk	1	0	0	1	1	0	0
Gate/Fence/Awning*	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	0	0	0	0	0	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	0	0	0	0	0	0	0
Totals	**6**	**5**	**1**	**12**	**12**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

Summary of Energized Objects - Mobile Testing - City of Utica

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**5**	**6**	**2**	**13**	**13**	**0**	**0**
Metal Street Light Pole	5	6	2	13	13	0	0
Traffic Signal Pole	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sidewalk	0	0	0	0	0	0	0
Gate/Fence/Awning*	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	0	0	0	0	0	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	0	0	0	0	0	0	0
Totals	**5**	**6**	**2**	**13**	**13**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

Summary of Energized Objects - Mobile Testing - City of Albany

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**54**	**39**	**7**	**100**	**100**	**0**	**0**
Metal Street Light Pole	52	36	7	95	95	0	0
Traffic Signal Pole	1	2	0	3	3	0	0
Control Box	1	1	0	2	2	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**1**	**0**	**0**	**1**	**1**	**0**	**0**
Sidewalk	0	0	0	0	0	0	0
Gate/Fence/Awning*	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	0	0	0	0	0	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	1	0	0	1	1	0	0
Totals	**55**	**39**	**7**	**101**	**101**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

Summary of Energized Objects - Mobile Testing - City of Schenectady

nationalgrid	Initial Readings				Readings After Mitigation		
	1 - 4.4 V	4.5 - 24.9 V	> 25 V	Total	< 1 V	1 - 4.4 V	> 4.5 V
Distribution Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Underground Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Handhole / Pull box	0	0	0	0	0	0	0
Manhole	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Vault – Cover/Door	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**3**	**8**	**2**	**13**	**13**	**0**	**0**
Metal Street Light Pole	3	8	2	13	13	0	0
Traffic Signal Pole	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sidewalk	0	0	0	0	0	0	0
Gate/Fence/Awning*	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Bus Shelter	0	0	0	0	0	0	0
Fire Hydrant	0	0	0	0	0	0	0
Phone Booth	0	0	0	0	0	0	0
Water Pipe	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Other**	0	0	0	0	0	0	0
Totals	**3**	**8**	**2**	**13**	**13**	**0**	**0**

***includes railing**
****including but not limited to manhole cover, sewer cover, no parking sign, parking meter, private sign, stop sign, storm grate.**

nationalgrid **ELECTRIC OPERATING PROCEDURES**	**Doc No.:** NG-USA EOP G016 **Page:** Page 1 of 11 **Date:** 08/17/09
SUBJECT: Elevated Equipment Voltage Testing	**SECTION**: General

GENERAL INFORMATION:

The purpose of this procedure is to outline the requirements for the annual elevated equipment voltage testing on National Grid Facilities in New York as required by the New York Public Service Commission's "Electric Safety Standards" issued on January 5, 2005 and the New York Public Service Commission's "Order Adopting Changes to Electric Safety Standards issued and effective on December 15, 2008. Additionally the Massachusetts Department of Telecommunications and Energy provided a series of recommendations on December 9, 2005 that have been included in this procedure.

This procedure also outlines corporate requirements for elevated equipment voltage testing in New Hampshire and Rhode Island. The variance in requirements between New York, Massachusetts, New Hampshire, and Rhode Island is based on sound utility practice versus regulatory requirements.

APPLICABILITY

This procedure applies to all personnel involved with or responsible for the testing of facilities designated by this EOP for elevated equipment voltage.

DEFINITIONS:

Stray Voltage – As defined by NYPSC the term "Stray Voltage" means voltage conditions on electric facilities that should not ordinarily exist.

Stray Voltage Testing – The process of checking an electric facility for stray voltage using a device capable of reliably detecting and audibly and/or visually signaling voltages in the range of 6 to 600 volts.

Proximity Detection Unit – A low voltage hand held detector used to test exposed metallic surfaces and conductors for the presence of low voltage from 6V to 600V.

Elevated Equipment Voltage Inspector – The individual performing the elevated equipment voltage inspection.

Handheld Computer - An electronic Data recording device that is used in the field to create a record of conditions found.

Elevated Equipment Voltage – An A.C. rms voltage difference between utility equipment and the earth, or to nearby grounded facilities that exceeds the lowest perceptible voltage levels for humans.

Finding – Any confirmed voltage reading on an electric facility or streetlight greater than or equal to 1V measured using a volt meter and a 500 ohm shunt resistor.

Mitigation – Corrective actions performed by the utility to address the stray voltage finding.

Supersedes Document Dated: 05/01/06	Authorized By: Director-Distribution Engrg. Services	Approved By: SVP- Network Strategy

SUBJECT: Elevated Equipment Voltage Testing **Doc. No.:** NG-USA EOP G016
Date: 08/17/09

PROGRAM ADMINISTRATOR:

Distribution Engineering Services

SCOPE:

I. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – New York
   A. Street Lights and Municipally Owned Facilities
   B. Substation Fences
   C. Overhead Distribution Facilities
   D. Overhead Transmission Facilities
   E. Underground Facilities
   F. Daily Work Areas
   G. Exemptions

II. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – New Hampshire and Rhode Island
   A. Street Lights
   B. Overhead Distribution Facilities
   C. Underground Facilities
   D. Daily Work Areas
   E. Exemptions

III. Facilities Where Elevated Equipment Voltage Testing/Documentation is Required – Massachusetts
   A. Street Lights
   B. Overhead Distribution Facilities
   C. Underground Facilities
   D. Daily Work Areas
   E. Exemptions

IV. Test Equipment
V. Test Procedure
VI. Corrective Action Requirements for Elevated Voltage Findings
VII. Database Requirements
VIII. Annual Reporting and Certification Requirements
IX. Responsibility

I. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – NEW YORK

A. Street Lights and Municipally Owned Facilities
   1. Company owned metallic street lighting standards are required to be tested for elevated equipment voltage annually. This test is to be performed while the light is operating.
   2. Municipally owned street light systems that National Grid directly provides energy to must be tested for elevated equipment voltage annually. National Grid will complete this testing unless assurances of the completion of required testing and transfer of such test data are made by the appropriate municipality. This test is to be performed while the light is operating.
   3. Municipal owned metallic traffic signal standards and accessible devices are to be tested annually for elevated equipment voltage by National Grid.
   4. All street lights identified on public thoroughfares regardless of ownership are to be tested annually.
   5. All street lights under a maintenance contract are to be tested annually.

6. Exceptions not requiring elevated equipment voltage testing: private lighting, park associations, parking lots, fiberglass (or other non-conductive) street light standards, and locations where street light standards are not publicly accessible, such as facilities located in the center of highways that cannot be accessed without stopping traffic or creating potentially hazardous situations for the worker and/or public.

B. National Grid Substation Fences
   1. Metallic fencing surrounding substations with National Grid Facilities shall be tested for elevated equipment voltage annually. This fencing can be customer owned for customer stations, if a National Grid facility is part of the station.

C. Overhead Distribution Facilities
   1. Towers and/or metallic poles with distribution facilities shall be tested annually for elevated equipment voltage.
   2. The following equipment on wood distribution poles requires annual elevated equipment voltage testing:
      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or uninsulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole within reach from the ground.
   3. Exceptions: Customer meters and customer meter poles are excluded.

D. Overhead Transmission Facilities
   1. Towers and/or metallic poles with transmission facilities shall be tested annually for elevated equipment voltage.
   2. The following equipment on wood transmission poles or structures require annual elevated equipment voltage testing:

      a. Metallic riser guard or conduit (company or non-company).
      b. Uncovered or uninsulated down ground (company or non-company).
      c. Down guy (company or non-company).
      d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole or structure within reach from the ground.

E. Underground Facilities
   1. Annual elevated equipment voltage testing is required on all of the following equipment where accessible to the public.
   2. All metallic manhole covers, vault covers and grates, junction box covers, handhole covers, pad mount transformers, and switchgear.
   3. Annual mobile stray voltage detection survey for underground distribution facilities located in cities with population of at least 50,000 (Albany, Schenectady, Syracuse, Utica, Buffalo, Niagara Falls) (based on the 2000 census) where overhead facilities will not interfere with the mobile testing.
   4. Exceptions: Non-metallic concrete or fiberglass pads or handholes are not required to be tested.

F. Daily Job Site Test Requirements
   1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.

2. Exceptions:
    a. Substation fencing will not require elevated equipment voltage testing unless scheduled as part of the inspection program or if work was done on the fencing.
    b. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

G. Exemptions
1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

II. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – NEW HAMSHIRE AND RHODE ISLAND

A. Company Owned Street Lights
1. Testing will be performed during each outage investigation notification and the data will be recorded for each instance.

B. Overhead Distribution Facilities
1. Wood distribution poles require testing to be completed on metallic risers in conjunction with the distribution patrol program covered by NG-USA EOP D004.
2. Documentation is only required on metallic risers found to be at an elevated voltage requiring repair. Testing data is not required for a facility that is found to be operating as designed.

C. Underground Facilities
1. Testing for elevated equipment voltage shall be done while completing scheduled inspections of underground equipment covered by NG-USA EOP UG006, Underground Inspection and Maintenance. The following items are to be tested on a five year cycle, padmount transformers, switchgears, and metallic handhole covers.
2. Testing for elevated equipment voltage shall be completed on underground facilities while completing working inspections covered by NG-USA EOP UG006. The metallic items to be tested are manholes covers, vault covers, handhole covers, splice box covers, junction box covers, padmount transformers, switchgear, and submersible equipment covers.

D. Daily Job Site Test Requirements
1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.
    a. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

F. Exemptions
1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

III. FACILITIES WHERE ELEVATED EQUIPMENT VOLTAGE TESTING/DOCUMENTATION IS REQUIRED – MASSACHUSETTS

A. Company Owned Street Lights
1. Company owned metallic street lighting standards are required to be tested for elevated equipment voltage on a five year cycle.

2. Exceptions: Testing shall not be completed at locations where street light standards are not publicly accessible, such as facilities located in the center of highways that cannot be accessed without stopping traffic or creating potentially hazardous situations for the worker and/or public.

B. Overhead Distribution Facilities
1. Wood distribution poles require testing to be completed as noted below in conjunction with the distribution patrol program covered by NG-USA EOP D004.
2. The following equipment on wood distribution poles requires annual elevated equipment voltage testing:
    a. Metallic riser guard or conduit (company or non-company).
    b. Uncovered or uninsulated down ground (company or non-company).
    c. Down guy (company or non-company).
    d. Any other publicly accessible conductive piece of equipment (company or non-company) on the pole within reach from the ground

C. Underground Facilities
1. Elevated equipment voltage testing is required on all of the following equipment where accessible to the public on a five year cycle.
    a. All metallic manhole covers, vault covers and grates, junction box covers, handhole covers, pad mount transformers, secondary pedestals, and switchgear.
2. Exceptions: Non-metallic concrete or fiberglass pads or handholes are not required to be tested.

D. Daily Job Site Test Requirements
1. Each job site where National Grid personnel or its contractors complete a work assignment shall be tested for elevated equipment voltage at the end of the work day or the completion of the assignment. **This testing requirement is considered good utility practice and does not require specific documentation**.
    a. In a storm situation, where mutual aid is required, testing by other than National Grid personnel will not be required.

F. Exemptions
1. A completely fenced in area where access is denied to the general public and where access is only achieved by climbing a fence. Good judgment is required by the tester in these scenarios.

IV. TEST EQUIPMENT

A. A hand held device (proximity detection unit) that is capable of detecting voltage from 6 volts to 600 volts.
B. A portable AC digital high impedance volt meter must have the ability to take readings with and without an input load impedance of 500 ohms.
C. The handheld devices utilized must be certified by an independent test laboratory as being able to reliably detect voltages of 6 – 600 volts. The following units has been certified:

1. HD Electric model LV-S-5 (5-600 volts).
2. Fluke 85
3. Fluke 87
4. Fluke 170 series or equivalent
5. Fluke 175
6. Fluke 177
7. Fluke 179
8. Fluke 187
9. Fluke 189

V. TEST PROCEDURE

A. Job Briefing

1. At minimum, the following information must be communicated to all personnel at the beginning of each shift for elevated equipment voltage testing:

    a. Structures are never to be touched with a bare hand while performing the tests, only the voltage detector or meter probe is to be used to make contact with the facilities.
    b. Appropriate PPE must be worn.
    c. Each individual needs to be aware of his/her surroundings at all times.
    d. Make sure to observe all traffic before entering a street, either at intersections or any other point.
    e. Traffic safety vest (DOT Compliant Class II) is to be worn at all times when exposed to traffic. Be aware that when bending down, the visibility benefits of the traffic safety vest are diminished.
    f. Obey all traffic control devices.
    g. When working in the street, face oncoming traffic whenever possible.

B. Measurements for voltages will be performed in accordance with the following:

1. Initial measurements for the presence of voltage shall be made using a certified proximity detection unit as noted in the testing equipment certified equipment list in Section IV C.
    a. To verify the proper operation of the proximity detector, follow operating instructions for the particular certified unit being utilized, this is to be done daily.
    b. After verification that the detection unit is working, approach the area/equipment to be tested. The proximity detector will illuminate prior to touching the area/equipment being tested if voltage is present. If the proximity detector does not illuminate in close proximity to the area/equipment touch the area/equipment to be tested with the probe of the unit.

2. If this test detects voltage, repeat the test with the portable AC voltmeter:

    a. Measurements with a portable AC voltmeter shall be taken on clean bare metallic surface (structure, ground wire, etc.)
    b. When using a portable AC voltmeter, connection shall be made to suitable neutral or ground source with the common (black) lead.

        i. In locations where the neutral or ground point is at a distance in excess of the voltmeter lead length, the connection to the neutral/ground shall be made with up to 25’ of # 16 stranded copper lead wire (covered), the other end of which shall be securely connected to the negative (black) probe of the meter. When using such “extension leads” appropriate care shall be taken in the placement of such leads so as to not create a physical hazard to workers, pedestrian or vehicular traffic.
        ii. In locations where a system ground is not available, or the existing ground registered voltage upon the proximity test, a metal rod shall be firmly embedded into the earth to a depth of no less than 6” to create a ground reference point for the measurement to be taken. The reference point should be as close as practicable to the facility being tested to simulate an elevated equipment voltage situation (3’ to 4’.) On occasion longer leads may be necessary to find undisturbed earth (up to 25’.)

c. The "live" meter probe lead shall then be placed into contact with the structure under inspection.
    i. Install a 500 ohm input load impedance on the volt meter. Measure the voltage and record this voltage in the database for the site.

VI. CORRECTIVE ACTION REQUIREMENTS FOR ELEVATED VOLTAGE FINDINGS

A. If an elevated equipment voltage condition is found and verified by the Test Procedure in Section V, the site is to be guarded until made safe by Company personnel or if municipally owned, made safe by the owner or company. Guarded for the purposes of this EOP is defined as guarded by a person or a protective barrier that prevents public contact if the elevated equipment voltage found is greater than 1 volts. **If the voltage measures less than 1 volts and is found to be consistent with system operation design (no visual evidence of a problem upon review) no further action is required.** If the voltage measures greater than 1 volts and less than 4.5 volts it can either be guarded in person or by a protective barrier that prevents public contact. If the voltage measurement is greater than 4.5 volts it must be guarded by an elevated equipment voltage inspector or a Company employee that has been trained to stand by on energized facilities If the voltage measures greater than 8 volts immediate response is required using the notification in section C below.

B. In the event of a elevated voltage finding on an electric facility or streetlight during the stray voltage Test Procedure, all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight must be tested for stray voltage for New York..

C. The following notification process for personnel to respond shall be utilized.

1. Notification by location:
    a. New York: contact Systems Operations Dispatch 1-877-716-4996
    b. Bay State West and North & Granite: Westboro Control Center 508-389-9032.
    c. Bay State South, and Ocean State: Lincoln Control Center 401-335-6075.
2. Inform the operator that this is an elevated equipment voltage call, giving inspector name, company (if not National Grid), unique ID, address where problem is identified, facility number, circuit number , ownership, type of equipment, voltage found and whether they are physically guarding or leaving the site after flagging and installing a protective barrier. National Grid personnel or designee will be assigned to respond.

D. Temporary repairs may be used to correct the elevated equipment voltage thereby removing the need to guard the site.

E. Except as noted in VI. F, permanent repairs to the equipment shall be made within 45 days of the occurrence.

F. If permanent repairs can not be made within 45 days due to extraordinary circumstances, the company shall periodically perform site visits to monitor the condition of the temporary repair. For New York, all exceptions must be identified and justified in the annual reporting of the program to the NYPSC.

G. The Stray Voltage Tester/Elevated Equipment Voltage Inspector may detect a minimal voltage level that is attributable to the design of the facility and not the result of an improper condition, no corrective action is required in this instance.

H. The individuals conducting the elevated equipment voltage tests on street light standards shall have a supply of "Angel guards" available for installation if the cover is missing or wires are found to be exposed to the public at the time of testing. Angel guards shall only be installed after the testing of the

street light standard is complete and 1) there is no indication of elevated equipment voltage above 1 volts, or 2) repairs have been completed to correct the elevated equipment voltage.

I. The elevated equipment voltage inspector shall report any potentially hazardous conditions found on National Grid facilities seen visually during the survey process.

J. Customer Owned Equipment

1. Where the Company finds elevated equipment voltage above 1 volts and identifies its source as customer-owned equipment, the Company shall guard the site and notify the customer or a responsible person, as appropriate, that a potentially hazardous situation exists. The Company shall advise the customer or responsible person that the cause of the elevated equipment voltage must be immediately remedied.
2. Company personnel are encouraged to work with the customer to determine and rectify the problem. If the customer agrees to accept the Company's assistance, the Company may charge a reasonable cost for this effort.
3. The Company may temporarily remove a customer's meter or take such other actions as are appropriate and necessary to protect the public.

VII. DATABASE REQUIREMENTS

A. The database in use shall be easily searchable for information and reporting.

B. Information fields required to be completed for facilities:

1. Survey Date
2. Region
3. District
4. Contractor
5. GIS ID/Asset # (Unique ID)
6. Facility Type
7. Owner
8. Feeder/Circuit
9. Line #
10. Tax District
11. Pole/Structure/Equipment ID
12. Street Name
13. Inspectors Name
14. GPS Taken
15. Pre-load Match
16. Elevated Equipment Voltage Test Required
17. Voltage Found Y/N
18. Voltage Measurement
19. Type of Equipment (See Appendix A)
20. Immediate Action Taken
21. Person Notified
22. Permanent Repair Date
23. Type of Repair
24. Person Responsible for repair (Employee ID)

VIII. NEW YORK ANNUAL REPORTING AND CERTIFICATION REQUIREMENTS

A. Each Regional program supervisor shall provide certification to the program manager that the Region they supervise has complied with the elevated equipment voltage testing and inspection program as ordered by the PSC.

B. The program manager shall provide certification to the Vice President Distribution Network Strategy and the Senior Vice President of Distribution Network Strategy that the organization has complied with the elevated equipment voltage testing and inspection program as ordered by the PSC.

C. Written certification of the completion and results of every elevated equipment voltage test and inspection shall be completed, as well as a certification that all unsafe conditions identified have been remediated by appropriate company personnel.

D. The President or officer with direct responsibility for overseeing the elevated equipment voltage testing and inspection shall provide an annual certification to the NYPSC that the Company has tested all of its publicly accessible conductive surface electric facilities and all street lights, as well as completed all required inspections.

E. The President or officer with direct responsibility for overseeing facility inspections shall provide an annual certification to the Commission that the utility is in compliance with its inspection program and has inspected the requisite number of electric facilities. Additionally, at the end of the five-year inspection cycle, the officer shall certify that all of the utility's electric facilities have been inspected at least once.

F. The annual reporting and certification is required by February 15 of each year. In addition to certifications, it shall address the following:
   1. Details the results of stray voltage test results and inspections conducted over the 12-month period ending December 31 of the prior calendar year. (A separate report will be required for inspections from November 1 – December 31, 2008 to account for transition to calendar year reporting.)
   2. Addresses the performance mechanism contained in Section 10 of the PSC Order Adopting Changes to Electric Safety Standard effective December 15, 2008 (December 15, 2008 Order).
   3. Contain certification describe in C, D, and E of this section.
   4. Contain a breakdown of the voltage findings in a tabular format as detailed in Attachment 1 of the December 15, 2008 Order; for all findings that result in a reading of 1 V or more after completion of mitigation efforts, a detail report of company efforts shall be provided.
   5. Contain a breakdown of the shock reports received from the public as detailed in Attachment 2 of the December 15, 2008 Order.
   6. Discussion of the analysis undertaken on the causes of the stray voltage within the Company's electric system, the conclusions drawn there from, the preventative and remedial measures identified, and the Company's plan to implement those measures.
   7. Description of the priority levels used to guage the severity of a deficiency, including repair timeframes, and details the requirements for training personnel to properly identify and categorize the deficiencies.
   8. Contain a breakdown of facilities to be inspected, unique inspection conducted per year, and the cumulative number of unique inspections conducted to meet the five year requirement.
   9. Contain a breakdown of the deficiencies found, permanent repair actions taken by year, whether a repair was completed within the required timeframe, and the number of deficiencies awaiting repair. This information should be provided on a yearly basis by priority level and by equipment groupings as detailed in Attachment 3 of the December 15, 2008 Order.
   10. Contain a review and analysis of the inspection results. Identifying areas of concern along with remedial actions or future plans to alleviate inadequacies in current program assets.

11. Description of the quality assurance program along with the results from quality assurance activities conducted during the year.
12. Any additional information that is pertinent to the issues addressed by the safety standards should also be included.

F. The Company is required by the December 15, 2008 Order to have independence in the quality assurance program required by the order. The management and personnel performing the quality assurance activities shall be separate from those performing the required stray voltage testing and inspection activities.

G. The Company shall maintain its written certification and other documentary proof of its testing at its' Albany, Buffalo, and Syracuse office facilities. These documents shall be made available to the public for review upon request.

IX. MASSACHUSETTS REPORTING REQUIREMENTS

A. National Grid shall submit an annual report that includes the following:
1. Annual reports that list inspection and testing data, including number of inspections conducted by equipment type.
2. Number of elevated equipment voltage events detected by inspection personnel versus call-ins or notification by third parties.
3. Variance reports on current year inspection targets.
4. Elevated equipment voltage events detected on equipment that is not included in elevated equipment voltage equipment inspection schedules (which will enable the DTE to determine if the company is inspecting and testing the correct equipment).
5. Number of exceptional or non-routine events that required reporting to OSHA or other government organizations due to injuries or other substantive impacts.

RESPONSIBILITIES:

1. Distribution Engineering Services
   A. Update program as necessary.
   B. Provide field support and training upon request.
   C. Act as liaison with existing database vendor when required.

2. Inspections
   A. Ensure the elevated equipment voltage program as outlined in this EOP is implemented properly and timely.
   B. Ensure that the program as outlined in the EOP is completed each year.
   C. Provide qualified personnel to complete elevated equipment voltage testing.
   D. Ensure all elevated equipment voltage testers have been trained.

3. C&MS Management
   A. When requested by Field Operations/Distribution Network Strategy obtain, schedule and manage contractors to perform elevated equipment voltage testing.
   B. Ensure all elevated equipment voltage testers have been trained.
   C. Manage contractual terms and conditions including all change orders and resource requirements.
   D. Establish a process for the delivery of work, collection of data, invoice verification and payment, and reporting to local management and Distribution Network Strategy.
   E. Manage any established support processes such as back office support or data entry clerks.

4. Elevated Equipment Voltage Inspector
   A. Demonstrate the ability and proficiency to perform elevated equipment voltage testing per this EOP.
   B. Demonstrate the ability to become proficient in the use of the appropriate database.
   C. Possess the ability to do walking patrols, collect information, edit data, and guard unsafe facilities.
   D. Attend elevated equipment voltage training program.

5. T&D Technical Training
   A. Provide training upon request.

6. Distribution Network Strategy
   A. Provide input into program revisions.
   B. Ensure the elevated equipment voltage program as outlined in this EOP is implemented properly and timely.
   C. Ensure the program as outlined in the EOP is completed each year.
   D. Provide qualified personnel to complete elevated equipment voltage testing.
   E. Ensure all elevated equipment voltage testers have been trained.
   F. Provide program management.

7. Process and Systems
   A. Provide and support database.

REFERENCE:

NYPSC Order 04-M-0159
NYPSC Order Adopting Changes to Electric Safety Standards.
Applicable National Grid Safety Rules & Procedures
Testing Equipment Operation Instructions

SUBJECT: Elevated Equipment Voltage Testing **Doc. No.:** NG-USA EOP G016
Date: 08/17/09

TYPE OF EQUIPMENT
APPENDIX A

TYPE	CODE	EQUIPMENT DESCRIPTION
Distribution	910	Pole
	911	Regulator
	912	Sectionalizer
	913	Recloser
	914	Ground
	915	Guy
	916	Riser
	917	Switch Handle Mechanical Operated
	929	Distribution – Other (use comments)
Transmission	930	Pole
	931	Tower
	932	Guy
	933	Ground
	934	Riser
	935	Switch Hand Mechanical Operator
	949	Transmission – Other (use comments)
Underground	950	Handhole
	951	Manhole
	952	Switchgear
	953	Transformer
	954	Vault – Cover/Door
	969	Underground – Other (use comments)
Street Light	970	Handhole
	971	Standard
	979	Street light – Other (use comments)
Customer Street Light/Other	980	Handhole
	981	Standard
	989	Customer SL/Other – Other (use comments)
Traffic Control	990	Handhole
	991	Standard
	992	Control Box
	993	Pedestrian Crossing Pole
	999	Traffic control – Other (use comments)

NG-USA EOP G016

"Elevated Equipment Voltage Testing"

08/17/09

Revisions made throughout document.

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-8)

Inspection and Maintenance Incremental Cost Support

Testimony of Infrastructure and Operations Panel

Schedule 1

Niagara Mohawk Power Corp.
Inspection & Maintenance Program Rate Year Adjustment
Incremental Level III Maintenance

	FY2010	FY2011	FY2012	FY2013	FY2014
O&M - Level III Incremental	$5,145,550	$7,631,615	$13,116,095	$11,407,400	$9,279,700

	CY 2011	CY 2012	CY 2013
Total Strategy - Calendar Year	11,744,975	11,834,574	9,811,625
Test Year Spending Level	9,100,000	9,100,000	9,100,000
Proposed Rate Year Adjustment	$2,644,975	$2,734,574	$711,625

Testimony of Infrastructure and Operations Panel

Schedule 2

Niagara Mohawk Power Corp.
Inspection & Maintenance Program Rate Year Adjustment
Enhanced Inspection and Maintenance

	FY2010	FY2011	FY2012	FY2013	FY2014
Inspection Dept.	$0	$150,000	$663,563	$663,563	$663,563
QA/QC Dept.	$100,000	$100,000	$1,215,000	$1,215,000	$1,215,000
Operations Dept.	$0	$971,786	$971,786	$971,786	$971,786
Total Strategy - Fiscal Year	$100,000	$1,221,786	$2,850,349	$2,850,349	$2,850,349

	CY 2011	CY 2012	CY 2013
Total Strategy - Calendar Year	2,443,209	2,850,349	2,850,349
Test Year Spending Level	0	0	0
Proposed Rate Year Adjustment Total	$2,443,209	$2,850,349	$2,850,349

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-9)

Incremental Cost Support for Tower Painting,
Comprehensive Aerial Inspections, and Footer Inspections

Testimony of Infrastructure and Operations Panel

Schedule 1

Niagara Mohawk Power Corp.

Transmission Tower Painting Incremental Estimate

CY11 TLS NY Tower Painting Budget

Line	ChgBusUnit	Activity	Segment	EXP Type	Orig DEPT	Chrg DEPT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total CY11 Budget
Contractor Work	00036	TM1165	TRAN	110	26672	26672	165,000	165,000	330,000	68,000	68,000	101,886	275,000	339,620	339,620	509,431	509,431	509,431	3,380,419

Test Year NY TLS Tower Painting Actuals

Line	ChgBusUnit	Activity	Segment	EXP Type	Orig DEPT	Chrg DEPT	OCT '08	NOV'08	DEC'08	JAN '09	FEB '09	MAR '09	APR '09	MAY '09	JUN '09	JUL '09	AUG '09	SEP'09	Total Test Year
Contractor Work	00036	TM1165	TRAN	110	26672	26672	405,836			33,193						245,000	85,000	11,239	780,268

Incremental Tower Painting Expenses	2,600,150

Notes:

1. Budget Based on painting 1,349 Towers at an average cost of $2,500 per tower
2. The budget was phased based upon when the work has been historically completed

Testimony of Infrastructure and Operations Panel

Schedule 2

Niagara Mohawk Power Corp.
Transmission Comprehensive Aerial Patrol Estimate

CY11 TLS NY Comprehensive Aerial Patrol Budget

Line	ChgBusUnit	Activity	Segment	EXP Type	Orig DEPT	Chrg DEPT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total CY11 Budget	
Contractor Work	00036	TO1135	TRAN	110	26672	26672	40,275	12,000	12,000	5,536	5,536	8,305	22,146	27,682	27,682	41,524	41,524	41,524	285,734	Note 1
Contractor Work	00036	TO1165	TRAN	110	26672	26672	70,481	23,494	23,494	9,689	9,689	14,533	38,755	48,444	48,444	64,666	64,666	64,666	481,022	Note 2
Contractor Work	00036	TO1166	TRAN	110	26672	26672	80,550	26,850	26,850	11,073	11,073	16,609	44,292	55,365	55,365	71,047	71,047	71,047	541,168	Note 3
Contractor Work	00036	TO1175	TRAN	110	26672	26672	80,270	28,036	28,036	11,562	11,562	18,434	46,248	57,810	57,810	74,758	74,758	74,758	564,042	Note 4
																	Total CY11 Expenses		1,871,965	

Test Year NY TLS Comprehensive Aerial Patrol Actuals

Line	ChgBusUnit	Activity	Segment	EXP Type	Orig DEPT	Chrg DEPT	OCT '08	NOV'08	DEC'08	JAN '09	FEB '09	MAR '09	APR '09	MAY '09	JUN '09	JUL '09	AUG '09	SEP'09	Total CY11 Budget
Contractor Work	00036	TO1165	TRAN	110	26672	26672	5,049	-	30,695	(29,726)	3,551	720	8,703	347	-	19,338	12,531	70,086	121,293
	00036	TO1166	TRAN	110	26672	26672	-	-	-	-	-	-	-	8,690	13,091	1,021	15,487	-	38,289
Contractor Work	00036	TO1175	TRAN	110	26672	26672	-	-	-	-	9,047	13,830	-	-	-	26,220	(26,220)	277,945	300,822
																Total Test Year Expenses			460,404

Incremental Comprehensive Aerial Patrol Expenses	1,411,561

Notes:

Note 1 - Projected costs for additional helicopter patrols
Note 2 - Costs for Visual Inspection of 6,000 miles of line at $80 per mile
Note 3 - Costs for Infra-red Inspection of 6,000 miles of line at $90 per mile
Note 4 - 600 hours of helicopter flight time @ $950 per hour
Note 5 - The budget was phased based upon when the work has been historically completed

Testimony of Infrastructure and Operations Panel

Schedule 3

Niagara Mohawk Power Corp.

Transmission Footer Inspection Incremental Estimate

CY11 TLS NY Footer Inspection Budget

Line	Line #	ChgBusUnit	Activity	Segment	Project	EXP Type	Orig DEPT	Chrg DEPT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total CY11 Budget
Contractor Work		00036	TM1170	TRAN		110	26672	26672	497,825	169,305	169,305	69,821	69,821	104,732	279,286	315,022	315,022	483,551	483,961	483,961	3,441,612

Test Year NY TLS Footer Inspection Actuals

Line	Line #	ChgBusUnit	Activity	Segment	Project	EXP Type	Orig DEPT	Chrg DEPT	OCT '08	NOV'08	DEC'08	JAN '09	FEB '09	MAR '09	APR '09	MAY '09	JUN '09	JUL '09	AUG '09	SEP'09	Total Test Year
Contractor Work		00036	TM1170	TRAN		110	26672	26672	227,959	847,153	5,615	53,255	-	274	1,493	-	-	946,033	112,029	644,619	2,838,429

Incremental Footer Inspection Expenses	603,183

Notes:

1. Budget Based on inspection of 1,012 Towers at an average cost of $900 per tower($911 k) plus repair on estimated 506 Towers at $5000 per tower (2.53 mil) ***
2. The budget was phased based upon when the work has been historically completed

Exhibit __ (IOP-10)

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-10)

Incremental Cost Support for Vegetation Management Activities

Testimony of Infrastructure and Operations Panel

Schedule 1

Niagara Mohawk Power Corp.

Transmission 115kV ROW Widening Incremental Estimate

CY11 Forestry 115kV Widening Program Budget

Line	ChgBusUnit	Activity	Segment	Project	EXP Type	Orig DEPT	Chrg DEPT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total CY11 Budget
Contractors	00036	TM1240	TRAN		110	62200	62200	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	1,500,000

Test Year NY Forestry 115kV Widening Program Actuals

Line	ChgBusUnit	Activity	Segment	Project	EXP Type	Orig DEPT	Chrg DEPT	OCT '08	NOV'08	DEC'08	JAN '09	FEB '09	MAR '09	APR '09	MAY '09	JUN '09	JUL '09	AUG '09	SEP'09	Total Test Year
Contractors	00036	TM1240	TRAN		110	62200	62200	-	-	-	-	-	-	-	-	-	-	-	-	-

Incremental 115kV ROW Widening Expenses	1,500,000

Notes:

1. Ten Year Project - Transmission 115kV ROW's. Average cost per tree is $18.06
2. FY11 Spend is based on anticipated work to be completed in first year of program. Costs may increase or decrease if the project scope changes.

Testimony of Infrastructure and Operations Panel

Schedule 2

nationalgrid

Michael W. Sherman
Principal Environmental Engineer
National Grid

April 30, 2009

Ms. Robyn A. Niver
Endangered Species Biologist
U.S. Fish & Wildlife Service
3817 Luker Road
Cortland, NY 13045

Dear Ms. Niver:

Re: National Grid's Draft HCP and Incidental Take Permit Application

National Grid hereby submits its draft Habitat Conservation Plan (HCP) and Incidental Take Permit application for the U.S. Fish & Wildlife Service's consideration and processing. As you are well aware, this draft HCP has been prepared for the Federally-endangered Karner blue butterfly (*Lycaeides Melissa samuelis*) and New York State-threatened frosted elfin (*Callophrys irus*), in support of National Grid's application for an Incidental Take Permit. An Incidental Take Permit is required to authorize National Grid's continuing utility activities on affected rights-of-way and properties located within portions of Albany, Schenectady, Saratoga, Warren and Oneida Counties, New York.

Since 1996, Niagara Mohawk Power Corporation, now doing business as National Grid, has been subject to a previous Federal Fish and Wildlife Permit (No. TE813745-1), which required protection of the Karner blue butterfly and its habitats, as they have occurred on identified transmission line rights-of-way. That previous permit expired on March 2, 2008 and the U.S. Fish & Wildlife Service (USFWS) has required that a new, Incidental Take Permit be obtained to continue authorizing National Grid's otherwise legal utility activities that have the potential for causing habitat disturbance and the direct take of these protected insect species.

In 2006, and in cooperation with the USFWS and New York State Department of Environmental Conservation, National Grid performed a baseline survey of Karner blue butterfly and frosted elfin habitats on various National Grid rights-of-way and other properties located within the USFWS' Glacial Lake Albany Recovery Unit and the Rome Sand Plains Potential Recovery Unit. This baseline survey mapped 129 populations of wild blue lupine (*Lupinus perennis*), which comprise approximately 34 acres of identified habitats. This baseline survey supported the development of the draft HCP and is included as Appendix A within the enclosed HCP document.

Since early 2007, National Grid and its consultants, The Chazen Companies and Kleinfelder, Inc., have worked to develop this draft HCP in close consultation with you and Kathy O'Brien of the NYSDEC. We appreciate the time and guidance that you have both provided to us during the development of this draft HCP.

Environmental Services, C-1, 300 Erie Blvd. West, Syracuse, NY 13202
T: (315) 428-6624 ■ F: (315) 428-3549 ■ michael.sherman@us.ngrid.com ■ www.nationalgrid.com

The draft HCP presents a conservation strategy of avoiding, minimizing and mitigating impacts to the covered species that could result from National Grid's covered utility activities. The conservation strategy also consists of restoring and enhancing some specific right-of-way habitat areas, as well as supporting a Karner blue butterfly translocation effort. Several other, key HCP components include: dedication of a National Grid property for a permanent butterfly preserve in the Queensbury, NY area; management of right-of-way habitat located adjacent to the Albany Pine Bush Preserve; and significant efforts to curtail and reduce chronic ATV trespass and damage of right-of-way habitats in the Queensbury, NY area .

National Grid feels that this draft HCP is supportive of and compatible with continuing its necessary utility activities and will provide long-lasting, net benefits to the covered species by complementing the conservation efforts of the USFWS, NYSDEC, The Nature Conservancy and the Albany Pine Bush Preserve Commission. This HCP and anticipated Incidental Take Permit will facilitate National Grid's continued compliance with the Endangered Species Act and NYS Environmental Conservation Law.

As presented in the draft HCP's Appendix F, National Grid has included a Funding Commitment Letter, which affirms National Grid's commitment to fund implementation of the HCP. HCP implementation over the anticipated Incidental Take Permit duration of 50 years is estimated to cost approximately $6 million. Contingent upon receiving USFWS approval of the HCP and being issued an Incidental Take Permit later this year, National Grid anticipates that the first year of HCP implementation will occur in 2010 and will continue annually through the anticipated 50-year permit duration, to 2060.

The following documents or items are hereby enclosed:

- Two copies of the draft HCP document
- Two original copies of the completed and signed Incidental Take Permit application
- A National Grid check in the amount of $100, payable to the U.S. Fish & Wildlife Service

Please note that an electronic copy of the HCP document and Incidental Take Permit application are being sent to you by email.

Thank you again for your's and Kathy O'Brien's efforts in supporting the development of this draft HCP. National Grid looks forward to implementing this important plan for conserving the covered species and their habitats, in support of safely and reliably delivering energy to our customers.

Very truly yours,

Michael W. Sherman

cc (Ltr. only): Martin Miller, USFWS
Glenn Smith, USFWS
Kathleen M. O'Brien, NYSDEC
Paul Renaud
Thomas E. Sullivan
Dawn Travalini
William Balestra
Wendy Levine
Jason Tourscher, Chazen
David Tompkins, Kleinfelder

Testimony of Infrastructure and Operations Panel

Schedule 3

Table 4: Projected HCP Costs

Activity	Startup Costs	Annual Costs*	Periodic Costs	Total Costs**
NG HCP Administration and Training				
Record Keeping and Data Management	--	$2,500	--	$184,207
Training Program	$2,500	$2,000	--	$149,866
Special Training and Seminars	$2,000	$2,500	--	$186,207
HCP Legal Review	$10,000	$5,000	--	$378,414
Subtotal	**$14,500**	**$12,000**	**--**	**$898,694**
Avoidance and Minimization Measures				
Implement new AMMs	$5,000	$2,500	--	$189,207
Subtotal	**$5,000**	**$2,500**	**--**	**$189,207**
Develop Right-of-Way Habitat Management Adjacent to the APBPC				
Contract with the APBPC to provide vegetation maintenance and habitat management services	$50,000	--	--	$50,000
Subtotal	**$50,000**	**--**	**--**	**$50,000**
Conduct Enhanced ROW Vegetation Maintenance				
Modifications to Existing Program	$5,000	$5,000	--	$373,414
Subtotal	**$5,000**	**$5,000**	**--**	**$373,414**
Restriction of Illegal ROW Trespass				
Install Barriers, Gates, Restrictive Devices	$50,000	$5,000	--	$418,414
Subtotal	**$50,000**	**$5,000**	**--**	**$418,414**
Conduct Specialized Site Restoration/Habitat Management				
Restore Covered Activity-Disturbed Work Sites	$5,000	$5,000	--	$373,414
Conduct Restoration of Trespass Areas	$20,000	$5,000	--	$388,414
Subtotal	**$25,000**	**$10,000**	**--**	**$761,828**
Establish an Off-ROW KBB/FE Preserve				
Site Development/Preparation (Cutting and Hauling)	$35,000	--	--	$35,000
Habitat Management	$5,000	$1,000	--	$78,683
Loss of Usage Rights within 5-acre Preserve	--	$1,085	--	$80,000
Subtotal	**$40,000**	**$2,085**	**--**	**$193,683**
Translocation of KBBs				
Contract with the APBPC for Intern/Temporary Worker to Implement KBB Transplantation Efforts	$15,000	--	--	$15,000
Contract with the Town of Queensbury and/or NYSDEC for Habitat Management Activities	$5,000	--	--	$5,000
Coordination with APBPC and NYSDEC (5 years total)	$5,000	$1,850	--	$12,568
Subtotal	**$25,000**	**$1,850**	**--**	**$32,568**
Conduct Public Outreach				
Letters/Mailings to Adjacent Landowners, etc.	$5,000	$1,000	--	$78,683
Subtotal	**$5,000**	**$1,000**	**--**	**$78,683**
Monitoring, Reporting, and Adaptive Management Program				
Wild Blue Lupine Surveys (every 5 years)	--	--	$50,000	$952,417
KBB/FE Surveys (every 2 years)	--	--	$20,000	$731,343
Annual Letter Report to Regulatory Agencies	--	$3,000	--	$221,048
Adaptive Management Program/Research	$7,500	$2,500	--	$191,707
Subtotal	**$7,500**	**$5,500**	**$70,000**	**$2,096,515**
Other Plan Costs				
Coordination with Enforcement Actions	$1,000	$10,000	--	$737,828
NG Security-related Efforts	$1,000	$2,000	--	$148,366
Subtotal	**$2,000**	**$12,000**	**--**	**$886,194**
Total	**$229,000**	**$56,935**	**$70,000**	**$5,979,200**

* The estimated annual cost will vary from approximately $56,935 during years that do not include lupine and/or KBB/FE surveys up to approximately $126,935 during years that include both wild blue lupine and KBB/FE survey work.

** Total cost= startup costs + (annual cost with 1.5% inflation x 50 year ITP term)

Niagara Mohawk Power Corp.
Projected HCP Costs

Exhibit ___ (IOP-10)
Schedule 3
Sheet 1of 1

Testimony of Infrastructure and Operations Panel

Schedule 4

Niagara Mohawk Power Corp.
Transmission Forestry Floor Trim Incremental Estimate

CY11 Forestry Floor Trim Sites Budget

Line	ChgBusUnit	Activity	Segment	EXP Type	Orig DEPT	Chrg DEPT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total CY11 Budget
Contractors	00036	TM1270	TRAN	110	62200	62200	77,546	77,546	77,546	74,231	74,231	74,231	74,231	74,231	74,231	74,231	74,231	74,231	900,719

Test Year NY Forestry Floor Trim Sites Actuals

Line	ChgBusUnit	Activity	Segment	EXP Type	Orig DEPT	Chrg DEPT	OCT '08	NOV'08	DEC'08	JAN '09	FEB '09	MAR '09	APR '09	MAY '09	JUN '09	JUL '09	AUG '09	SEP'09	Total Test Year
Contractors	00036	TM1270	TRAN	110	62200	62200	74,762	6,118	45,294	8,666	22,911	108,478	-	(73,300)	5,305	709,538	(553,602)	58,461	412,631

Incremental Forestry Floor Trim Expenses	488,088

Notes:
1. Budget Based on average cost of $1850/acre with 487 acres being cut in CY11
2. The budget was phased based upon when the work has been historically completed

Niagara Mohawk Power Corp.
Transmission Forestry Floor Trim Incremental Estimate

Exhibit ___ (IOP-10)
Schedule 4
Sheet 1 of 1

Testimony of Infrastructure and Operations Panel

Schedule 5

Niagara Mohawk Power Corp.
Cycle Maintenance Hazard Tree Incremental Estimate

NY FY11 Workplan Pruning Mileage	
West	*1,937*
Central	*2,919*
East	*2,279*
Total	7,135 miles

NY FY11 EHTM On-Cyle Mileage	
17 Feeders	924 miles

FY11 Workplan Miles Remaining Requiring Haz Tree Funding
Total Pruning Miles - EHTM On-Cycle Miles = 6,211 miles

NY Feeders average 35% 3 phase

2,173 Estimated 3 phase FY11 workplan miles
4,037 Estimated 1 phase FY11 workplan miles

Estimated cycle maintenance haz tree cost: Note 1

3 phase mileage - $1,100 per mile
1 phase mileage - $135 per mile

FY11 Cycle Maint. Haz Tree Funding Required	
$ 2,391,235	needed for haz tree 3 phase miles
$ 545,015	needed for haz tree 1 phase miles
$ 2,936,250	**Total**

Note 1 - The estimated cost per mile based on prior year EHTM Program costs

Exhibit __ (IOP-11)

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-11)

Calculation of Storm Fund Level

Niagara Mohawk Power Corp
Storm Fund Analysis - 2005 to 2009

Event Date	Year	Incremental Not Deferred	Incremental Deferred	Incremental Total
April 2, 2005	2005	1,568,796		1,568,796
June 6, 2005	2005	1,429,846		1,429,846
July 1, 2005	2005	567,927		567,927
July 14, 2005	2005	282,710		282,710
July 26, 2005	2005	644,520		644,520
September 29, 2005	2005	3,342,111		3,342,111
October 16, 2005	2005	465,205		465,205
October 23, 2005	2005	325,953		325,953
October 26, 2005	2005	875,105		875,105
November 6, 2005	2005	1,070,254		1,070,254
November 29, 2005	2005	275,239		275,239
January 21, 2006	2006	487,114		487,114
February 17, 2006	2006	9,951,461	2,835,937	12,787,398
May 30, 2006	2006	977,481		977,481
July 29, 2006	2006	684,562		684,562
August 2, 2006	2006	307,495		307,495
October 12, 2006	2006	5,589,169	78,435,181	84,024,350
October 28, 2006	2006	4,512,013	219,341	4,731,354
December 1, 2006	2006	4,484,805	2,117,778	6,602,583
January 15, 2007	2007	12,437,932		12,437,932
April 15, 2007	2007	4,327,766		4,327,766
June 15, 2007	2007	156,902		156,902
June 28, 2007	2007	780,366		780,366
July 9, 2007	2007	2,047,486		2,047,486
July 10, 2007	2007	373,772		373,772
August 17, 2007	2007	428,686		428,686
August 25, 2007	2007	1,401,915		1,401,915
September 27, 2007	2007	444,276		444,276
January 9, 2008	2008	7,872,993		7,872,993
January 30, 2008	2008	2,810,037	2,478,492	5,288,529
February 1, 2008	2008	1,666		1,666
February 7, 2008	2008	129,495		129,495
March 10, 2008	2008	3,034,802	5,790,752	8,825,554
June 10, 2008	2008	4,376,152	6,181,131	10,557,283
June 28, 2008	2008	100		100
July 18, 2008	2008	964,593		964,593
September 15, 2008	2008	3,286,908	5,816,459	9,103,367
October 28, 2008	2008	5,047,343	661,939	5,709,282
November 26, 2008	2008	239,356		239,356
December 11, 2008	2008	3,439,711	47,389,800	50,829,511
December 28, 2008	2008	2,667,624	52,584	2,720,208
February 12, 2009	2009	2,689,558		2,689,558
May 14, 2009	2009	285,706		285,706
June 30, 2009	2009	536		536
July 16, 2009	2009	327		327
August 9, 2009	2009	2,549,435		2,549,435
August 21, 2009	2009	404,704		404,704
		100,041,914	151,979,394	252,021,308
Average - Over 4.5 Years		22,000,000	34,000,000	

Exhibit __ (IOP-12)

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-12)

Schedule of Site Remediation Activities

Niagara Mohawk Power Corp.
Site Investigation and Remediation (SIR) MGP Site Schedule

Site Name	SFY 2009 NGFY 2010	SFY 2010 NGFY 2011	SFY 2011 NGFY 2012	SFY 2012 NGFY 2013	SFY 2013 NGFY 2014	SFY 2014 NGFY 2015
Albion (V)	FS/ROD	RD / RA	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Fort Plain (V) Hancock St.	RD	RA	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Fulton (C)	RD	RD / RA	RA	SMP O&M	SMP O&M	SMP O&M
Glens Falls (C) OU1 Mohican St.	RD	RD / RA	RA	SMP O&M	SMP O&M	SMP O&M
OU2 River	IRM PILOT	IRM PILOT / IRM RD	IRM RD / IRM RA	IRM RA		
Gloversville (C) Hill St.	RI/FS	FS/ROD	RD	RD / RA	RA	SMP O&M
Ilion (V)	FS	FS/ROD / RD	RD / RA	RA	RA / SMP O&M	SMP O&M
Johnstown (C)	FS/ROD	RD / RA	O&M	O&M	O&M	O&M
North Albany	FS	FS/ROD	RD	RD	RA	RA
Oneida (C) – Sconondoa St. Phase II	RA	RA				
Oneida (C) – Sconondoa St. Phase III		RD	RA	SMP O&M	SMP O&M	SMP O&M
Rome (C) – Jay/Madison	RI/FS	FS	ROD	RD	RD / RA	RA
Rome Kingsley OU1	RA	SMP O&M	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Rome Kingsley OU2 Off-site	ROD / SMP O&M	SMP O&M	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Schenectady (C) – Seneca	O&M	O&M	O&M	O&M	O&M	O&M
Schenectady (C) – B'way	RD	RD / RA	RA	RA	RA	SMP O&M

Niagara Mohawk Power Corp.
Site Investigation and Remediation (SIR) MGP Site Schedule

Site Name	SFY 2009 NGFY 2010	SFY 2010 NGFY 2011	SFY 2011 NGFY 2012	SFY 2012 NGFY 2013	SFY 2013 NGFY 2014	SFY 2014 NGFY 2015
Syracuse (C) – Hiawatha	FS/ROD	RD	RA	RA	SMP O&M	SMP O&M
Syracuse (C) – Erie Blvd.	FS	FS/ROD / RD	RD / RA	RA	SMP O&M	SMP O&M
Troy (C) – OU1 Smith Ave.	RD	RD / RA	RA	RA / SMP O&M	SMP O&M	SMP O&M
Troy Smith Ave (OU2 Ingalls Ave.)	IRM	IRM	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Troy Smith Ave OU-3 Sediment	FS/ROD	RD	RA	RA / SMP O&M	SMP O&M	SMP O&M
Troy – Water Sed. OU2 Area	RI	FS/ROD	RD	RA	RA	
Troy – Water Area 2 MGP Site	Supplemental Investigation / RD/RA	AROD / RD	RD / RA	RA	RA	SMP O&M
Utica Harbor Point OU1 – PM Relocation	RA					
Utica Harbor Point OU1 – Lee Street Sewer	RA					
Utica Harbor Point OU1 – MVO Area	RD	RA (Excavation) / RA (Sediment Backfill)				
Utica Harbor Point OU1 – Dredging	RD	RA (Neck) / RA (Harbor)				
Utica Harbor Point OU1 – Harbor Cap	RD	RD	RA	RA		
Utica Harbor Point OU1 – LTTD	RD	RD	RA	RA	RA	
Utica Harbor Point OU1 – Upland Capping & Restoration					RD	RA

Niagara Mohawk Power Corp.
Site Investigation and Remediation (SIR) MGP Site Schedule

Site Name	SFY 2009 NGFY 2010	SFY 2010 NGFY 2011	SFY 2011 NGFY 2012	SFY 2012 NGFY 2013	SFY 2013 NGFY 2014	SFY 2014 NGFY 2015
Utica Harbor Point OU2 – Mohawk River		FS	ROD	RD	RD	RA
Utica Harbor Point OU3 – DSA 1 Preparation	RA (Canal Corp)					
Utica Harbor Point OU3 – DSA 3	Site Mgmt (Sampling)	Complete – No Further Action Required				
Watertown Engine St. OU-1 Soil	RD	RD	RD	RA	RA	RA	SMP O&M
Watertown Engine St. OU-2 Bedrock	RD	RD	RD	RA	RA	RA	SMP O&M
Watertown Engine St. OU-3 River	RD	RD	RD	RA	RA	RA	SMP O&M
Albany – Grand	Closure					
Ballston		RI				
Canastota		RI	RI			
Cohoes	RI	RAWP/DD	RD	RA	O&M	O&M
Fort Edward	RAWP	RA				
Fulton				RI	RI	RAWP
Gloversville	RI	RAWP	RAWP/DD	RD	RA	RA			
Herkimer	RI	RAWP	RAWP/DD	RA	RA			
Little Falls	RA	O&M	O&M			
Malone	Access Road O&M	Access Road O&M	RI	RI	RI	RAWP	RAWP
Ogdensburg	RI	RAWP	RAWP/DD	RD	RA	O&M	O&M	O&M

Niagara Mohawk Power Corp.
Site Investigation and Remediation (SIR) MGP Site Schedule

Site Name	SFY 2009 NGFY 2010	SFY 2010 NGFY 2011	SFY 2011 NGFY 2012	SFY 2012 NGFY 2013	SFY 2013 NGFY 2014	SFY 2014 NGFY 2015
Oswego – Utica St.	RI	RI / RAWP/DD	RD	RD / RA	RA	
Rensselaer	RI	RI				
Saratoga	RAWP / RA	SMP O&M	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Schenectady (Clinton Street) OU1/OU2	RI / RAWP	RAWP/DD / RD OU1 / RI OU2	RA OU1			
Troy-Liberty St.	RI	RI				
Watertown (Anthony St)	RI	RAWP/DD	RD / RA	RA		
Watervliet	RI	RAWP/DD / RD	RA			
Whitehall	RI	RAWP	RA			
Hudson (Water ST)) OU-1 - Upland	SMP O&M	SMP O&M	SMP O&M	SMP O&M	SMP O&M	SMP O&M
Hudson (Water ST)) OU-2 - River	RI	FS/ROD	RD	RD / RA	RA	
Amsterdam – Sediments	FS/RAWP/DD	RD	RA	RA		
Saratoga NPL MGP Site – Red Spring Area	RI/FS	FS / ROD Modification	RD / RA			

SFY 200X = NGFYy = 4/1/0x to 3/31/0y
NGFY = National Grid Fiscal Year
SFY = State Fiscal Year
RD = Remedial Design
SMP = Site Management Plan
O&M = Operations & Maintenance
ROD = Record of Decision
OU = Operable Unit
FS = Feasibility Study
RA = Remedial Action

Niagara Mohawk Power Corp.
Site Investigation and Remediation (SIR) MGP Site Schedule

WP = Work Plan
RI = Remedial Investigation
IRM = Interim remedial measure
DD = Design Drawings

Footnotes:

1 This schedule is intended to act as a programmatic guide of activities that will take place in future years. As such, the schedule does not account for site-specific delays or modifications that may occur.

2 Remedial Investigations for these sites are identified based on the site priority ranking established with NYSDEC and NYSDOH during a January 4, 2007 meeting. The RI schedules are tentative and subject to change as information on other sites become available.

3 The following sites are currently in the "Site Management" phase:
- Troy Area 4
- Schenectady (Seneca St)
- Oneida (Cedar St)
- Hudson (OU-1)
- Amsterdam – Riverlink Park
- Saratoga NPL MGP

4 The following sites have been "Closed" with "No Further Action" necessary:
- Attica
- Cherry Valley
- Altamont
- Mohawk
- Troy Jefferson St.

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-13)

Planned Research, Development and Demonstration Projects

NIAGARA MOHAWK POWER CORPORATION

Summary Description of Research, Development and Demonstration Projects

The RD&D projects proposed by the Company are summarized below, and arrange according to the State Energy Plan objective they most closely address.

(1) **Assure that New York has reliable energy and transportation systems**

Optimizer

A project has been initiated to create a software tool or model which will take into consideration all of the potential remediation methods available to improve reliability on a circuit, group of circuits or an overall system and balance those solutions with infrastructure investment alternatives in order to develop an optimum set of solutions. The potential solutions developed by this project are key to improving National Grid's reliability performance with maximum efficiency. The annual funding associated with this initiative is CY11 $175,000; CY12 $125,000; CY13 $75,000.

Circuit Profiling

A circuit profiling project has been developed for vegetation management. Sample data at systematic random sampling points along a circuit will be taken. This program would be a pilot encompassing an entire division. The data collected is expected to provide the company with the ability to rank the circuit's risk relative to actual field conditions. The data can then be analyzed to determine circuit risk relative to identified categories. This would then allow for a more analytical vegetation management strategy based on actual circuit vegetation conditions instead of on a time based plan. Work could be extended or

pulled back based on actual circuit risk ratings. Expected benefits include an enhanced ability to maintain or improve reliability of the electric network based on field assessment and risk ranking, while ensuring the lowest cost for realizing the reliability benefit. The annual funding associated with this initiative is CY11 $118,000; CY12$115,000; CY13 $115,000.

Forest Health Metrics

Ecological Solutions Inc. has previously worked with National Grid and has been studying trees which cause interruptions on Transmission lines, specifically the impact of trees falling on the lines from outside the right-of-ways. Building on this study and using some of the same state specific forest metrics already created, a forest health metrics study can be implemented, calculating forest mortality levels across our service territory. This can then be used to calculate the quantity of trees that should be removed each year for a determined risk level. The annual funding associated with this initiative is CY11 $100,000; CY12 $80,000; CY13 $80,000.

Wireless EMS

This project will demonstrate a system of Wireless Energy Management System (EMS) that is easy to install at a lower cost than conventional EMS systems. Wireless EMS is appropriate to investigate for use in those applications when wire line communications to the remote site is prohibitively expensive or it is too time consuming to construct wire line communications. With the advancement in fiber optics, telecomm technology, satellite and Internet services, solutions for wireless EMS monitoring are now emerging. It is anticipated that several different

wireless EMS systems will be demonstrated and the attributes of these assessed. These systems will become part of a best cost solution to assure that National Grid provides customers with the best value in reliable and safe service. The introduction of wireless communications to the control system environment presents new and unique challenges to control system owners/operators. The annual funding associated with this initiative is CY11 $60,000; CY12 $100,000; CY13 $150,000.

The Advanced Security Acceleration Project (ASAP-SG)

ASAP-SG was created by the SG Security Working Group of the UCA International Users Group (UCAIug) to be a utility-driven, public-private collaborative effort to develop recommendations, and best practices for building, acquiring, integrating, and operating smart grid systems, components, and devices. The current focus is on the development of security requirements that

- utilities can use in their Request For Proposal (RFP) processes,
- vendors can use as reference material in their development processes,
- government can use to understand the measures being taken to secure critical infrastructure, and utility commissions can use to verify the protection of public interests.

By participating in this collaborative process National Grid will have the opportunity to be an early adopter of newly developed technology, while benefiting from the close interaction with equipment vendors, service providers and like minded utilities. The annual funding associated with this initiative is CY11 $50,000; CY12 $50,000; CY13 $50,000.

Realtime Fault Location

Locating faults is a real time problem that directly effects the time and cost required to restore service and/or avoid service outages. This project will identify, develop and demonstrate methods to identify and locate faults on the system in an accurate, fast and low cost manner. The annual funding associated with this initiative is CY11 $125,000; CY12 $125,000; CY13 $125,000.

Condition and Life Extension of Substation Assets

This program includes the installation and evaluation of the following projects: oil level monitors, grading capacitor condition evaluation, bus transfer capability, vacuum tap changer, and uneven dynamic voltages. These projects will enhance the ability of National Grid to predict failure and assure life extension of equipment in substations. The annual funding associated with this initiative is CY12 $50,000; CY13 $80,000.

Integrated communications strategy

As we modernize National Grid's infrastructure with intelligent devices, it is necessary to expand the reach of the company's existing communications infrastructure to connect to those devices. Today's infrastructure consists of a myriad of physical platforms including microwave, fiber, leased lines etc., however the equipment is in many cases antiquated or not capable of supporting the bandwidth needs of today. It is now necessary to envision an enhanced infrastructure that is developed to meet the company's needs both today and into

the foreseeable future. While certain applications require relatively little bandwidth, there are other applications that require significant bandwidth in order to provide real-time, secure, reliable and deterministic communications.

The SmartGrid relies on communications with intelligent devices to enable automated decision making relating to the efficient and safe flow of energy. Without an enabling communications infrastructure, the goals of optimizing energy flow cannot be realized. The annual funding associated with this initiative is CY12 $125,000; CY13 $125,000.

Transmission/Distribution Roadmap

There are many advantages to a technology assessment that looks at the overall requirements for the future power system communication, control, and data management needs. As many different applications are foreseen, it is important to look at the common requirements and evaluate the potential for a common architecture to provide the basis for these applications. For each of these applications, functional requirements need to be understood as well as requirements for security, reliability, and infrastructure management. The annual funding associated with this initiative is CY12 $250,000; CY13 $250,000.

DV2010

Equipment/software offerings from vendors often do not satisfy the needs of the utility system. The utility often needs to accommodate the system to meet equipment availability.

DV2010 is an organization of 7 utilities that works with vendors by supplying detailed specifications for equipment that meets the utilities specific needs. The

annual funding associated with this initiative is (Membership fee) CY12 $150,000; CY13 $50,000.

Advanced Distribution Feeder Automation

There are a multitude of methods, devices and companies involved in supplying equipment and software to automate the operation of distribution feeders. This project will identify and test the best two or three methods for distribution automation systems in order to develop a body of knowledge to facilitate the introduction of these technologies into the system. The annual funding associated with this initiative is CY12 $250,000; CY13 $250,000.

Remote equipment surveillance

Utilization of remote means for assessment of equipment condition will be beneficial. The technologies that will be investigated are IR and corona.

The annual funding associated with this initiative is CY12 $125,000; CY13 $250,000.

Infrastructure development for the electricity transmission network for 2020-2030

This project will develop novel/innovative solutions for the /integration of AC/DC solutions and the development of smart transmission systems focused on designing and delivering an economic and efficient transmission system in a coordinated manner to meet the government's renewable target challenges. The annual funding associated with this initiative is CY13 $250,000.

(2) **Support energy and transportation systems that enable the State to significantly reduce greenhouse gas (GHG) emissions, both to do the State's part in responding to the dangers posed by climate change and to position the State to compete in a national and global carbon constrained economy.**

Grid Impacts of Battery Electric Vehicles (BEVs - include Plug-in Hybrid Electric Vehicles (PHEVs) and Electric Vehicles (EVs))

Working with EPRI, NYSERDA and other participating New York utilities, this program will provide actual distribution circuit designs and loading data in the form of computer models so that various BEV implementation scenarios can be studied in order to determine the impacts of increasing BEV penetration on distribution system designs and operation. The scenarios will include a range of PHEVs and EVs over time and geographical area, and a range of charging profiles (kW over time). EPRI has established a framework for this study and determined the types of circuit information required for analysis. Benefits that accrue to customers include the ability to easily accommodate electric vehicles on the grid. Planning along with informed implementation of system upgrades will enable consumers in their adoption of this technology. The annual funding associated with this initiative is CY11 $45,000; CY12 $80,000; CY13 $115,000.

Electric Business Unit Adaptation Strategies for Climate Change

The purpose of this program is to develop climate change adaptation strategies for the electric distribution and transmission infrastructure. Two studies are envisioned; one focusing on network resilience and the other on flooding. The

results of these studies will provide the basis for the company to potentially modify its system design and operational procedures to mitigate the effect of and to adapt to weather trends going forward and ensure the best siting of new infrastructure and assess the locations of existing infrastructure. The primary benefit will be a more reliable system and/or a more prepared and responsive utility. Adaptation efforts will be aimed at either maintaining or improving existing reliability standards and minimizing any degradation in reliability performance in the face of a harsher environment and in the face of economic constraints. The annual funding associated with this initiative is CY11 $100,000; CY12 $100,000; CY13 $100,000.

EPRI Reactive Power Management

The byproduct of electric distribution systems using alternating current is reactive power. Reactive power (also called VARs) results when voltage and current are not in phase with each other. Reactive power is required to maintain voltage through transmission lines. Motor loads require VARs to convert the flow of electrons into useful work. Equipment such as transformers, transmission lines, and motors require reactive power. For example, in a customer's facility, electric motors need reactive power to produce magnetic fields for their operations.

The capability to forecast the reactive power demand and resources should enable secure and efficient VAR planning, and allow economic voltage support service and compensation. The project can help the system planner and operators gain insights into the reactive power profile and its characteristics and may provide new planning and operating practices.

The annual funding associated with this initiative is CY11 $80,000; CY12 $80,000; CY13 $80,000.

SF6

One of National Grid's goals is to mitigate its impact on climate change. Utilities emit carbon dioxide equivalents in many forms including emissions from its vehicle fleet and generating stations. One particularly potent form of emissions is SF6 gas. This gas is used to quench high-energy electric arcs developed during the switching of high voltages. SF6 has a global warming potential of over 20,000 times that of carbon dioxide and is very stable so that it doesn't easily break down. National Grid is taking steps to mitigate the emissions of this potent gas. Research completed to date has not found a commercially viable alternative to SF6 although there has been progress in retarding its release into the atmosphere. National Grid is replacing its older SF6 equipment that have exhibited high leakage rates with new SF6 equipment or deploying low/no leakage SF6 equipment into new substations. The annual funding associated with this initiative is CY12 $250,000; CY13 $250,000.

(3) **Address affordability concerns of residents and businesses caused by rising energy bills, and improve the State's economic competitiveness**

IEC 61850 Study

This project intends to study and develop functional specifications for IEC 61850-based protection, control, and automation (PCA) technologies and conduct

demonstrations of these specifications. National Grid believes that significant upgrades are needed to their aging protection and control schemes to maintain the current high levels of reliability and performance for these facilities. The IEC61850 protocol is new and the interaction of devices using this protocol and existing protocols needs to be investigated.

There are two main objectives for this program:

• To foster development of IEC 61850 technologies that will enable products from different vendors to interoperate. This problem is especially critical for IEC 61850-9-2 (process bus or sampled values) deployment; and

• To develop functional specifications that will enable National Grid to deploy IEC 61850 technologies at their substations faster and for less cost than the current approach.

Expected benefits include: reduced configuration costs, performance and flexibility improvements, and improved maintainability via use of generic widely available equipment. The annual funding associated with this initiative is CY11 $50,000; CY12 $100,000; CY13 $150,000.

Clarkson University

This program provides support for testing at the Clarkson High Voltage Lab. Tests performed at this facility enhance the ability of National Grid to provide safe reliable service. Clarkson is the site where we perform acceptance testing on new equipment prior to installation and testing of failed equipment that enhances our ability to determine the mode and effect of failures. The benefits that will

accrue from our work with Clarkson include driving improvements in our safety, customer and operational performance. The annual funding associated with this initiative is CY11 $50,000; CY12 $50,000; CY13 $50,000.

EPRI Smart Distribution Applications and Technologies

This program focuses on the implementation of smart grid technologies at the distribution level. Research is focused on the communications and information infrastructure to support the smart grid. The program provides industry coordination and technology assessment, as well as, a roadmap of a future state for the electric distribution system that is essential to the development of long term plans. Through this collaborative National Grid can remain focused on developments in Smart Distribution technology nation wide and access opportunities to participate with utilities in demonstration programs. National Grid will have the opportunity to evaluate new technology that is being developed by vendors. The annual funding associated with this initiative is CY11 $200,000; CY12 $200,000; CY13 $200,000.

Grid Wise Alliance

This alliance represents a broad range of organizations engaged in the energy supply chain this includes utilities, equipment manufacturers, technical solutions providers and academia. This is a cooperative alliance that is working to interact with funding agencies, and regulators to enhance the success of the members in achieving a vision of a smart enabled electric grid. This group has been very successful in becoming a go-to organization for Federal regulators regarding smart grid issues and regulation. National Grid's participation in this organization

is beneficial to the rate payer in that it assures that the information developed and distributed by this group represents initiatives that provide the best value to the customers of New York. The annual funding associated with this initiative is CY11 $20,000; CY12 $20,000; CY13 $20,000.

EPRI Reactive Power Management

The byproduct of electric distribution systems using alternating current is reactive power. Reactive power (also called VARs) results when voltage and current are not in phase with each other. Reactive power is required to maintain voltage through transmission lines. Motor loads require VARs to convert the flow of electrons into useful work. Equipment such as transformers, transmission lines, and motors require reactive power. For example, in a customer's facility, electric motors need reactive power to produce magnetic field for their operations. The annual funding associated with this initiative is CY11 $80,000; CY12 $80,000; CY13 $80,000.

Remote / Unattended Transmission Line Inspection

National Grid periodically inspects its Transmission lines to identify and correct any incipient failures. The company uses a number of inspection techniques ranging from aerial inspections with infrared cameras to detect heat signatures to foot patrols where workers visually inspect the lines looking for the ground. National Grid plans to participate in an EPRI initiative focused on line inspections. This program brings together utilities from across the country so that best practices can be indentified and shared. These best practices can then be applied to National Grid's infrastructure so failures can be anticipated and correct

before an outage can occur. The annual funding associated with this initiative is CY12 $250,000; CY13 $250,000.

(4) **Reduce health and environmental risks associated with the production and use of energy across all sectors.**

Characterization of Arc Flash Signatures

Arc flash from faults on distribution circuits is a safety issue that can impact work practices, protection requirements for line and substation workers, and relay and other over-current protection settings and practices. This program evaluates current and develops future industry practices for analyzing and protecting against arc flash hazards. This effort is being done in conjunction with other utility and industry efforts through participating in a EPRI collaborative. Additionally OSHA and NESC are in the process of introducing changes to electrical safety rules that require electric utilities to perform arc flash hazard analysis of all electric facilities operating at and above 1000 volts. The impending changes have potential significant implications for utility work practices, protective schemes, and personal protection. The annual funding associated with this initiative is CY11 $30,000; CY12 $30,000; CY13 $30,000.

Battery-Less UPS for Substations

This project will demonstrate a battery less alternative in the Substation's Uninterruptible Power Supplies (UPS) system. The UPS protects critical systems from interruptions in the electricity supply and is critical for the operation of the switches, bus etc. The technology from Energetix Group's Pnu Power involves a new type of UPS and backup power supply based on compressed air. The

principle of this back up power system is that when loss of station AC is detected the compressed air is released into a scroll expander where it drives a generator to produce electrical power. Air is stored in DOT approved cylinders. Pnu Power currently offers units sizes 1kW (DC1), 2kW (DC2) and 3kW (DC3).

Current UPS and power quality systems use expensive lead acid batteries. The high cost, short life, unpredictable failure of lead acid batteries and environmental concerns has led to an ongoing search for a realistic alternative. The annual funding associated with this initiative is CY11 $20,000; CY12 $20,000; CY13 $20,000.

(5) **Improve the State's energy independence and fuel diversity by developing in-state energy supply resources**

EPRI Energy Storage

EPRI research in energy storage will produce important new information, including 1) Strategic intelligence reports and specific technology assessments of energy storage and emerging distributed energy resource options; 2) Industry white papers to inform stakeholders on the role and value of energy storage; 3) On-line database for all energy storage and distributed energy resource (DER) options; 4) Best practices and specifications of transportable energy storage systems for grid asset management applications; and 5) Case studies and testing of emerging energy storage systems.

There are multiple benefits to both the utility and the customer from energy storage: 1) These devices are viewed as key assets which enhance the value of a "Clean Smart Grid; 2) They can help the environment by enabling renewable

integration. Energy storage can help utilities reduce greenhouse gas (GHG) emissions; and 3) They create value to utility. " The program provides the industry with technical and economic information about the options to store energy as a means to manage variability and peak loads while enhancing grid reliability The annual funding associated with this initiative is CY11 $60,000; CY12 $60,000; CY13 $60,000.

Testimony of Infrastructure and Operations Panel

Exhibit __ (IOP-14)

Provided in Accompanying Books