BEFORE THE
STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of

Niagara Mohawk Power Corporation d/b/a National Grid

Cases 17-E-0238 & 17-G-0239

August 2017

Prepared Exhibits of:

Staff Policy Panel

Mary Ann Sorrentino
Utility Supervisor

Aric Rider
Utility Supervisor
Office of Electric, Gas & Water

Allison Manz
Supervisor, Utility Accounting and Finance

Michael Augstell
Principal Utility Financial Analyst
Office of Accounting, Audits and Finance

Robert Cully
Utility Engineer 2
Office of Markets and Innovation

Monica M. Ferreri
Utility Consumer Program Specialist IV
Office of Consumer Services

State of New York
Department of Public Service
Three Empire State Plaza
Albany, New York 12223-1350

List of Exhibits

Exhibit SPP-1

Table of Contents

Date of Request: May 12, 2017 Request No. DPS-055 MZS-10
Due Date: May 22, 2017 NMPC Req. No. NM-442

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID
Case No. 17-E-0238 and 17-G-0239 –
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: DPS Staff, Paul Darmetko/Roman Sosiak

TO: National Grid, Advanced Metering Infrastructure Panel

SUBJECT: ***ADVANCED METERING INFRASTRUCTURE***

Request:

In these interrogatories, all requests for data, workpapers, or supporting calculations should be construed as requesting any Word, Excel, or other computer spreadsheet models in original electronic format with all formulae intact.

1. The AMI Panel indicated that the proposed electric AMI meter deployment period aligns closely with the planned replacement cycle of electric AMR meters. For each electric plant account 370.10, 370.20, 370.30, and 370.35, provide:
    a. The number of meters/installations in service by vintage.
    b. The plant investment and recorded reserve.
    c. The schedule of the replacement cycle for the existing electric AMR meters.
    d. The projected stranded costs at the end of the proposed AMI/AMI compatible ETR deployment period.

2. The AMI Panel indicated that the proposed gas AMI compatible ERT deployment period aligns closely with the planned replacement cycle of gas ERTs. For plant accounts 381 and 382, provide:
    a. The number of meters/installations in service by vintage.
    b. The plant investment and recorded reserve.
    c. The schedule of the replacement cycle for the existing gas ERTs.
3. The projected stranded costs at the end of the proposed AMI/AMI compatible ETR deployment period.

Response:
1.a Attachment 1 includes the number of electric meters in service by vintage year.

1.b Attachment 2 includes the plant investment and recorded depreciation reserve for electric plant meter accounts 370.10, 370.20, 370.30, and 370.35, as of December 31, 2016. Please note that the debit balance in the recorded depreciation reserve of the small (*i.e.,* residential) meter bare cost and install cost (accounts 370.10 and 370.20, respectively) is attributable primarily to the early retirement of the pre-AMR meters as a result of the AMR deployment. Prior to the AMR deployment beginning in 2002, the unrecovered net book value of the combined meter accounts was approximately $94 million.

1.c Attachment 3 includes the forecast of AMR electric meter replacements through the end of FY 2024. The forecast is broken down into two replacement categories: 1) AMR meters replaced with AMR meters for growth and mandated programs such as Pick-For Test and Retirement Program; and 2) AMR meters replaced by AMI meters as part of the AMI program that will deploy AMI meters beginning in FY 2021 and ending in FY 2024. Both the meter replacement categories are required as the Company will need to maintain AMR collections while the AMI program is rolled-out geographically over the 4-year deployment period.

1.d Attachment 4 includes an estimate of approximately $165 million for the unrecovered net book value of the electric meter and installation accounts as of the end of the proposed AMI deployment, April 2024. As discussed in response to question 1.b, approximately $94 million of the $165M relates to pre-AMR meters. Additionally, although AMR meters initially were installed beginning in 2002, the deployment extended years and new AMR meters continue to be installed annually as part of the electric meter replacement programs. Note at this time, the Company is not proposing to address the unrecovered net book value in this case.

2. Per discussions with PSC Staff, the Company communicated that the gas ERT equipment is booked in a separate gas general communication equipment ERT account 397.5 and not in the gas meter accounts 381 or 382. Per agreement with Staff, the Company will provide information for the gas communication ERT account 397.5 for purposes of responding to questions 2a-c and question 3.

2.a Attachment 5 includes the number of gas ERTS in service by vintage year.

2.b Attachment 6 includes the plant investment and recorded depreciation reserve for gas plant communication equipment ERT account 397.5, as of December 31, 2016.

2.c Attachment 7 includes the forecast of gas ERT replacements through the end of FY 2024. The forecast is broken down into three replacement categories: 1) AMR ERTs replaced with AMR ERTs for growth and mandated programs; 2) AMR and AMI ERTs replaced with AMI ERTs for the mandated program; and 3) as part of the AMI program that will deploy AMI ERTs beginning in FY 2021 and ending in FY 2024. All of the ERT replacement categories are required as the Company will need to maintain AMR collections while the AMI program is rolled-out geographically over the 4-year deployment period.

3. Attachment 8 includes an estimate of approximately $9 million for the unrecovered net book value of the existing gas ERT equipment as of the end of the proposed AMI deployment, April 2024.

Name of Respondent:
John Leana
Mike Avery
Joan Godlewski

Date of Reply:
May 22, 2017

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 1 to DPS-055 NM-442
Question 1 (a)
Page 1 of 1

Electric Meters in Service by Vintage through December 31, 2016

Vintage Year	Electric Meters	
2002	315,936	0.185358
2003	855,548	0.501945
2004	285,993	
2005	20,325	
2006	11,392	
2007	7,327	
2008	15,391	
2009	3,235	
2010	18,300	
2011	33,983	
2012	5,613	
2013	35,041	
2014	30,317	
2015	32,781	
2016	6,056	
Unknown	27,227	
	1,704,465	

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 2 to DPS-055 NM-442
Question 1 (b)
Page 1 of 1

Electric Meters Plant and Depreciation Reserve Balance as of December 31, 2016

Electric Meter Accounts	12/16 Gross Plant Balance Per PowerPlan Debit/(Credit)	12/16 Depreciation Reserve Balance Per PowerPlan Debit/(Credit)	12/16 Net Book Value Balance Debit/(Credit)	
370.10 - Small Meters - Bare Cost	57,751,741	23,344,094	81,095,836	Note 1
370.20 - Small Meters - Install Cost	43,545,797	21,616,252	65,162,049	Note 1
370.30 - Large Meters - Bare Cost	14,518,960	(7,025,963)	7,492,997	
370.35 - Large Meters - Install Cost	32,187,212	(13,402,005)	18,785,207	
Total	148,003,710	24,532,378	172,536,088	

Note 1

Debit depreciation reserve balances are primarily due to the early retirement of pre-AMR meters booked CY2002 - CY2007. Prior to the AMR deployment beginning in 2002, the unrecovered net book value for the combined meter accounts was approximately $94 million. In Case 10-E-0050, the Company's depreciation consultant recommended rebalancing the depreciation reserves to redistribute the deficient reserves. However, that recommendation was not adopted in the Commission's order.

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 3 to DPS-055 NM-442
Question 1 (c)
Page 1 of 1

Schedule of Replacement for Existing Electric AMR Meters in Service

	AMR Meters Replaced w/ AMR Meters		AMR Meters Replaced w/ AMI Meters	
Fiscal Year	Growth Electric Meters	Mandated Electric Meters	AMI Program	Total
FY18	10,273	22,096	0	32,369
FY19	10,478	22,538	0	33,016
FY20	10,688	22,489	0	33,177
FY21	10,902	15,624	338,000	364,526
FY22	11,120	13,056	507,000	531,176
FY23	11,342	9,133	507,000	527,475
FY24	11,569	8,562	338,000	358,131
	76,372	113,498	1,690,000	1,879,870

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 4 to DPS-055 NM-442
Question 1 (d)
Page 1 of 4

Estimated Unrecovered Net Book Value of Electric Meters

Electric Meter Accounts	12/16 Gross Plant Balance Per PowerPlan Debit/(Credit)	12/16 Depreciation Reserve Balance Per PowerPlan Debit/(Credit)	12/16 Net Book Value Balance Debit/(Credit)
370.10 - Small Meters - Bare Cost	57,751,741	23,344,094	81,095,836
370.20 - Small Meters - Install Cost	43,545,797	21,616,252	65,162,049
370.30 - Large Meters - Bare Cost	14,518,960	(7,025,963)	7,492,997
370.35 - Large Meters - Install Cost	32,187,212	(13,402,005)	18,785,207
Total	148,003,710	24,532,378	172,536,088
Estimated AMR meter plant closings (incl CWIP) - Based on Plant Forecast Model (page 2)			
Jan'17 - Mar'18	13,733,622		
FY19	10,833,605		
FY20	10,592,838		
FY21	9,648,582		
FY22	9,658,532		
FY23 (closing delay from FY22 only)	1,279,470		
FY24 (assume no AMR meters added)	0		
	55,746,649		
Estimated AMR meter retirements - Based on historic retirement 10.81% of capital additions (page 2)			
Jan'17 - Mar'18	(1,484,705)	1,484,705	
FY19	(1,171,192)	1,171,192	
FY20	(1,401,909)	1,401,909	
FY21	(6,957,919)	6,957,919	
FY22	(10,681,066)	10,681,066	
FY23	(10,399,156)	10,399,156	
FY24	(7,607,817)	7,607,817	
FY25 (timing delay)	(951,500)	951,500	
	(40,655,263)	40,655,263	
Estimated AMR meter cost of removal (incl RWIP) - Based on AMR and AMI COR specific forecast (page 3)			
Jan'17 - Mar'18		1,084,025	
FY19		455,022	
FY20		455,556	
FY21		1,626,776	
FY22		2,341,367	
FY23		1,932,958	
FY24		1,314,411	
		9,210,115	
Estimated AMR meter depreciation - Calculated using the plant balance and associated depreciation rate (page 4)			
Jan'17 - Mar'18		(11,313,047)	
FY19		(9,681,544)	
FY20		(10,244,420)	
FY21		(10,593,167)	
FY22		(10,642,130)	
FY23		(10,344,437)	
FY24		(9,853,453)	
		(72,672,197)	
Estimated AMR meter balances as of April 2024	163,095,096	1,725,559	164,820,655

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 4 to DPS-055 NM-442
Question 1 (d)
Page 2 of 4

Estimated Electric Meter Retirements Based on Plant Closings

Estimated electric meter plant closings (incl CWIP):	Closings associated with AMR Forecast	Closings associated with AMI Forecast	Total COR	Capex (incl CWIP) associated with AMR Forecast	Capex associated with AMI Forecast	% Not Closed in current FY	Capex not closed in current FY	Calculated AMI closings in current year	Prior FY Capex not closed	Total Calculated AMI Closings
Jan'17 - Mar'18	13,733,622		13,733,622	15,141,649						
FY19	10,833,605		10,833,605	10,861,000						
FY20	10,592,838	2,374,914	12,967,752	10,552,000	2,736,590	13.22%	361,676	2,374,914		2,374,914
FY21	9,648,582	54,712,650	64,361,232	9,511,000	62,628,092		8,277,118	54,350,974	361,676	54,712,650
FY22	9,658,532	89,142,069	98,800,601	9,681,000	93,179,887		12,314,935	80,864,952	8,277,118	89,142,069
FY23	1,279,470	94,913,446	96,192,916	0	95,177,450		12,578,939	82,598,511	12,314,935	94,913,446
FY24	0	70,372,835	70,372,835	0	66,595,337		8,801,441	57,793,896	12,578,939	70,372,835
FY25	0	8,801,441	8,801,441	0	0		0	0	8,801,441	8,801,441
	55,746,649	320,317,356	376,064,005	55,746,649	320,317,356					320,317,356

Estimated electric retirement % based on historic test year retirements as a % of plant additions	10.81%

Estimated electric meter retirements:			
Jan'17 - Mar'18	1,484,705	0	1,484,705
FY19	1,171,192	0	1,171,192
FY20	1,145,163	256,746	1,401,909
FY21	1,043,082	5,914,837	6,957,919
FY22	1,044,158	9,636,908	10,681,066
FY23	138,320	10,260,836	10,399,156
FY24	0	7,607,817	7,607,817
FY25	0	951,500	951,500
	6,026,620	34,628,644	40,655,263

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 4 to DPS-055 NM-442
Question 1 (d)
Page 3 of 4

Estimated Electric Meter Cost of Removal

	Dec '16 RWIP Allocated Balance	COR associated with AMR Forecast	COR associated with AMI Forecast	Total COR
Jan'17 - Mar'18	528,764	555,261	0	1,084,025
FY19		455,022	0	455,022
FY20		455,556	0	455,556
FY21		437,511	1,189,265	1,626,776
FY22		446,311	1,895,056	2,341,367
FY23		0	1,932,958	1,932,958
FY24		0	1,314,411	1,314,411
				9,210,115

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 4 to DPS-055 NM-442
Question 1 (d)
Page 4 of 4

Estimated Electric Meter Depreciation

	Plant Balance	Deprec thru FY20 per Plant Forecast	Associated Deprec Rate
Jan'17 - Mar'18	160,252,627	11,313,047	
FY19	169,915,040	9,681,544	5.86%
FY20	179,105,970	10,244,420	5.87%
FY21	181,796,633	10,593,167	5.87%
FY22	180,774,099	10,642,130	5.87%
FY23	171,654,413	10,344,437	5.87%
FY24	164,046,596	9,853,453	5.87%
		72,672,197	

Jan'17 - FY20 calculated using the plant forecast model's distribution meter line by excluding the $7.594 in account 371 included in the meter line & applying the meter depreciation rate.
FY21 and on needs to consider retirements associated with both AMR and AMI plant closings. Calculated FY21 and on depreciation based on estimated plant balances using the 5.87% meter depreciation rate.

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 5 to DPS-055 NM-442
Question 2 (a)
Page 1 of 1

Gas ERTs in Service by Vintage through December 31, 2016

Vintage Year	Gas ERTs
2002	105,831
2003	301,163
2004	32,169
2005	13,006
2006	11,652
2007	917
2008	13,407
2009	10,882
2010	16,475
2011	25,341
2012	22,943
2013	8,778
2014	29,926
2015	22,553
2016	12,973
	628,016

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 6 to DPS-055 NM-442
Question 2 (b)
Page 1 of 1

Gas Meter Accounts	12/16 Gross Plant Balance Per PowerPlan Debit/(Credit)	12/16 Depreciation Reserve Balance Per PowerPlan Debit/(Credit)	12/16 Net Book Value Balance Debit/(Credit)
397.5 - Communication equipment (ERT)	20,067,532	(5,584,212)	14,483,320
Total	20,067,532	(5,584,212)	14,483,320

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 7 to DPS-055 NM-442
Question 1 (c)
Page 1 of 1

Schedule of Replacement for Existing Gas ERTs in Service

Fiscal Year	Replacements w/ AMR Gas ERTs	Replacements w/ AMI Gas ERTs in Mandated Program	Replacements w/ AMI Gas ERTs in AMI Program	Total
FY18	26,538	-	-	26,538
FY19	-	19,906	-	19,906
FY20	-	20,304	-	20,304
FY21	-	20,710	128,000	148,710
FY22	-	19,800	192,000	211,800
FY23	-	18,063	192,000	210,063
FY24	-	16,249	128,000	144,249
	26,538	115,032	640,000	714,822

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 8 to DPS-055 NM-442
Question 3
Page 1 of 2

Electric Meter Accounts	12/16 Gross Plant Balance Per PowerPlan Debit/(Credit)	12/16 Depreciation Reserve Balance Per PowerPlan Debit/(Credit)	12/16 Net Book Value Balance Debit/(Credit)
397.50 - Communication equipment (ERTs)	20,067,532	(5,584,212)	14,483,320
Total	20,067,532	(5,584,212)	14,483,320
Estimated AMR ERT plant closings - Based on Capex forecast			
FY18	1,084,979		
Total	1,084,979		
Estimated ERT depreciation - Calculated using the plant balance and associated depreciation rate (page 2)			
Jan'17 - Mar'18		(1,201,847)	
FY19		(961,478)	
FY20		(961,478)	
FY21		(961,478)	
FY22		(961,478)	
FY23		(961,478)	
FY24		(961,478)	
		(6,970,714)	
Estimated AMR meter balances as of April 2024	21,152,511	(12,554,926)	8,597,585

Note 1: Account 397.50 is an amortizable account that retires assets based on the vintages' expiration of the amortizable life. The first retirements will be booked in 2026 when the earliest vintage 2004 reaches the end of its 22 year amortizable life.

Note 2: Cost of removal for gas meters and ERTs are booked as part of the overall gas meter work order to the meter accounts.

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 8 to DPS-055 NM-442
Question 3

Estimated Gas ERT Depreciation

	Plant Balance	Deprec through FY20 per Plant Forecast	Associated Deprec Rate
Jan'13 - Mar'18	21,152,511	1,201,847	4.55%
FY19	21,152,511	961,478	4.55%
FY20	21,152,511	961,478	4.55%
FY21	21,152,511	961,478	4.55%
FY22	21,152,511	961,478	4.55%
FY23	21,152,511	961,478	4.55%
FY24	21,152,511	961,478	4.55%
		6,970,714	

Date of Request: June 30, 2017 Request No. DPS-466 MSZ-12
Due Date: July 10, 2017 NMPC Req. No. NM-1043

NIAGARA MOHAWK POWER CORPORATION d/b/a NATIONAL GRID
Case No. 17-E-0238 and 17-G-0239 –
Niagara Mohawk Power Corporation d/b/a National Grid – Electric and Gas Rates

Request for Information

FROM: DPS Staff, Mary Ann Sorrentino/Paul Darmetko

TO: National Grid, Advanced Metering Infrastructure Panel

SUBJECT: **ADVANCED METERING INFRASTRUCTURE**

Request:

In these interrogatories, all requests for data, workpapers, or supporting calculations should be construed as requesting any Word, Excel, or other computer spreadsheet models in original electronic format with all formulae intact.

With reference to the Company's response to DPS-055:

1. Provide the AMR cost/benefit business case, including all sanction papers.

2. Explain if expected stranded costs of pre-AMR meters were considered in the AMR business case.

3. Provide the stranded costs associated with pre-AMR meters annually at the commencement of AMR meter deployment (i.e., Jan 2002) through the end of AMR meter deployment.

4. Have the stranded costs associated with pre-AMR meters changed due to accumulated depreciation?

5. Explain why NMPC has not proposed recovery of stranded cost associated with pre-AMR meters.

6. Explain if the Company has identified stranded costs associated with pre-AMR meters as a cost to utility ratepayers (e.g., in the merger filing or subsequent electric rate filings).

7. Prior to Niagara Mohawk deployment of AMR meters/infrastructure, the Commission stated that "new utility investment in enhanced metering technology and metering infrastructures

should not create new, additional stranded costs nor be anti-competitive in nature (see Competitive Opportunities Opinion and Order 97-13, Establishing Regulatory Policies for Competitive Metering in Case 94-E-0952, issued on August 1,1997). Explain why customers should be responsible for the stranded costs associated with pre-AMR meters.

8. Are there stranded costs associated with pre-AMR gas meters?

Response:

1. and 2. National Grid objects to this question because it requests information that has not been shown to be relevant or likely to lead to the development of relevant evidence in this proceeding. The AMR-related costs discussed in the requested documents have been included in rates for many years, having been included in rate filings submitted by the Company in 2010 and 2012, and the Company's filing in this proceeding reflects no change in the pre-existing ratemaking treatment of AMR costs or the costs of pre-AMR meters. Moreover, due to the fact that the requested documents are more than a decade old, such information will be unduly burdensome to locate and produce. Notwithstanding the foregoing objections, Attachment 1 includes the Company's response to IR DPS-339 (DxM-15) filed in Case 08-G-609 that includes internal documents that show the cost benefits associated with the AMR project at two different points in time, including a re-sanctioning request for the AMR project. The Company is attempting to retrieve the original sanction paper and will supplement this response if the information becomes available. Attachment 2 includes the Company's response to IR DPS-362 (DxM-16) filed in Case 08-G-609. Additionally, Attachment 3 includes the Company's response to IR PSC-28 (RAV-22) filed in Case 07-E-1533 that also included the cost benefits associated with the AMR project. None of these documents indicates that "expected stranded costs" were considered in the AMR business case.

3. The Company does not believe that it has incurred any "stranded costs associated with pre-AMR meters." The Company's investment in pre-AMR meters has been accounted for in accordance with applicable accounting regulations and policies and reflected in Commission-approved rates in a number of rate proceedings. Notwithstanding the foregoing, Attachment 4 presents the electric meter FERC account 370 annual balances of gross plant, depreciation reserve and net book value beginning December 31, 2001 through December 31, 2005. AMR deployment initiated in 2002 and was substantially completed by end of fiscal year 2005 with the accounting for retirements being fully completed by 2007. The December 31, 2001 net book value of electric meter accounts of approximately $94 million would be considered the recorded net book value in the meter accounts prior to AMR deployment. This net book value represents the meter accounts from the inception of Niagara Mohawk's plant records and does not represent solely the net book value of the pre-AMR meters that were in service as of December 31, 2001. Therefore, any previous meter retirements from the inception of the Company, would be included in this net book value.

4. As discussed in response to question No. 3, the Company does not agree that it has incurred any "stranded costs" associated with pre-AMR meters. The Company did not segregate the pre-AMR meters from the AMR meters in separate meter accounts, therefore the current pre-AMR

meters recorded net book value cannot be specifically identified. However, because all of the pre-AMR meters were not fully retired until 2007, the Company continued to depreciate the pre-AMR meters until retirement. Therefore, the pre-AMR recorded net book value would be lower than the $94 million amount noted in response to question 3 above.

5. As discussed in response to questions Nos. 3-4, the Company does not agree that it has incurred "stranded costs" associated with pre-AMR meters. The Company's investment in pre-AMR meters has been accounted for in accordance with applicable accounting regulations and policies and included in net plant in the same manner as other facilities that are retired before they are fully depreciated. In addition, in Case 10-E-0050, the Company did propose a method for recovery of the recorded net book value of pre–AMR meters. While the Company's proposal was rejected, the Company was nonetheless granted an alternative method of reflecting the values of pre-AMR meters in rates.

The recovery requested by the Company would have been achieved by the rebalancing of reserves and applying remaining-life depreciation rates as recommended by Dr. Ronald E. White, the Company's depreciation consultant. Dr. White proposed to re-allocate depreciation reserves among all accounts within a function. Under that proposal, the recorded reserves for all depreciable plant accounts were rebalanced by multiplying the calculated reserve for each primary account within a function by the ratio of the function total recorded reserve to the function total calculated reserve. This reallocation proposal would have shifted approximately $86.7 million to the meter accounts and resulted in a credit depreciation reserve balance of approximately $22.1 million in the meter accounts. Dr. White's testimony further stated that a remaining life technique would better achieve the goals and objectives of depreciation accounting by allocating reserve imbalances over the remaining life of each account contributing to the aggregate imbalance. Dr. White's testimony acknowledged that whole-life depreciation rates are not affected by rebalancing depreciation reserves, but that a redistribution of recorded reserves was nevertheless considered appropriate for Niagara Mohawk. Rebalancing reserves would reduce offsetting imbalances and partially mitigate the potential for sustained imbalances created by the continuing use of whole–life rates.

In Case 10–E–0050, the NY PSC Staff's Depreciation Panel testified they did not believe it was necessary to rebalance the accounts unless an adjustment to the total book reserve was made. The ALJ accepted Staff's position and no party took exception to the ALJ's decision. Denial of the redistribution of reserves, however, did not deny the Company capital recovery. The allowed rate base was increased in Case 10–E–0050 by a negative recorded reserve attributable to the retirement of pre-AMR meters. This reserve continued to be included in the rate base used to establish rates in Cases 12-E-0201 and 12-G-0202.

6. As discussed in response to question Nos. 3-5, the Company does not believe that it has incurred any stranded costs associated with pre-AMR meters. Notwithstanding the foregoing, in Attachment 3 included in response to question 1 and 2 above, the Company's response stated that the AMR project cost and associated benefits were not reflected in the Merger Rate Plan forecast. Additionally, please see response in question 5 above.

7. The Company objects to this question to the extent that it asserts that the quoted sentence from the Commission's August 1, 1997 Order in Case 94-E-0952 is somehow applicable or relevant to the ratemaking treatment of the Company's pre-AMR meters where the costs of such meters have been included and reflected in rates approved by the Commission in a number of prior Company rate proceedings. Moreover, for the reasons discussed in responses to question Nos. 3 to 6, the Company does not believe that it has proposed in the past or is proposing now to recover "stranded costs" associated with pre-AMR meters. Notwithstanding the foregoing objections, Attachments 1 and 2 included in response to question 1 and 2 above set forth the financial and non-financial benefits of AMR deployment. As part of Attachment 1, the document dated February 20, 2003 with updated cost projections estimates financial benefits of $16 million on a 15-year NPV basis. Attachments 1 and 2 describe the customer service benefits of AMR including fewer estimated bills, reduced customer concerns over alleged misread meter readings and elimination of the need for monthly meter access. These benefits were expected to improve customer satisfaction. The Company believes that the combination of projected financial and consumer benefits over the life of the AMR assets, which will exceed the 15-year financial evaluation, have provided positive overall benefits to consumers . The Company is aware of no reason why its costs of pre-AMR meters should not continue to be reflected in rates.

8. In Attachment 1 included in response to questions 1 and 2 above, the Company's response stated that the AMR project retrofitted approximately .55 million gas meters with ERTs. Although older gas meters that were ending their useful life were replaced with new gas meters that include the ERT, the majority of gas meters were retrofitted and not replaced. The Company does not believe that there are "stranded costs" associated with pre-AMR gas meters.

Name of Respondent:
John Leana
Joan Godlewski

Date of Reply:
July 10, 2017

Date of Request: 9/3/08 Request No.: DxM-15

NMPC Req. No.: NM 347 DPS-339 DxM-15 #1-3

NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid
Case 08-G-0609 Gas Rate Case
Request for Information

FROM: Davide Maioriello

Request: Capital Expenditures

In response to DxM-1, the company included the actual capital expenditures for AMR for fiscal years 2003 through 2006. Please provide the following:

1. Detailed description of the work completed to install the AMR system.

2. Cost benefit analysis calculations completed for the justification of the program.

3. Actual savings achieved on an annual basis from the implementation of the AMR system.

4. Have these expenditures been included in the starting plant balance for the plant roll forward model provided by the company?

5. Please provide the depreciation treatment applicable to the expenditures identified above.

Where applicable in responding to the questions above, please provide the information in digital Excel spreadsheet format with full access rights.

Response:

1. The Company installed approximately 1.6 million new solid-state electric meters mostly non-demand meters with built in Electronic Radio Transmission (ERT) technology and retrofitted approximately .55 million-gas meters with ERT's. Older gas meters that were ending their useful life were replaced with new gas meters that included the ERT. The installations of both gas and electric meters/ERT's began in the summer of 2002, using both Niagara Mohawk employees and outside contractors and were substantially completed by the end of fiscal year 2005.

   On gas meters, the desired installation approach was to go to the meter in the field, unscrew the dials, insert the new ERT behind the dials, then replace the

dials, and test the unit. In cases where the desired routine was not doable, then the meter was replaced with a meter with an ERT and the old meter was retrofitted back at the meter shop. The second installation methodology was significantly costlier as it required the interruption of service at the premise to pull the meter, install a new meter then reenergize the premise and the need to coordinate with the customer for access to all gas appliances.

2. Attached are two internal documents that show the cost benefits associated with the AMR Project at two different points in time. Attachment 1 is an internal re-sanctioning request to the National Grid Executive Committee, which reflects updated cost and timeframes from the original internal AMR Project internal sanctioning process. This document dated February 20, 2003 with updated cost projections has a nominal after-tax 15-year present value (NPV) of 16 million and a 7.8-year payback. Attachment 2 is an analysis prepared in June 2003 of the benefits and costs expected from the AMR project, for both electric and gas.

3 Actual savings have not been precisely tracked; however, a substantial reduction in the meter reader workforce, more than 280 positions has occurred, representing the vast majority of the savings. All cost reductions are reflected in the historic test year as the cost of the project was completed by the end of Fiscal year 2005. Attachment 3 is a Power Point Presentation given to members of the PSC Staff on July 15, 2002 as an overview on the Automated Reading Project. In addition to the meter reader reductions expected savings in the call center were expected based on 2001 call volumes. Approximately 20% of calls in 2001 were related to meter reading questions. Nearly 50% of all cancelled bills and then issuance of a new bill were related to estimated meter readings. Nearly 5.4 million estimated meter readings were used in 2001. We issued 184,000 letters about Access to Meters in 2001. Between 10% and 15% of PSC contacts by our customers are related to perceived inaccurate or estimated meter readings.

Other savings reflected in the historic year include reductions in lost time injuries and accidents. Historically our meter readers had the highest level of OSHA recordable injuries in the Company. While not quantifiable, it is fair to say that with out AMR our test year would have reflected high cost associated with injuries, accidents, and more phone calls into the Contact Centers.

Date of Request: 9/3/08 Request No.: DxM-15

NMPC Req. No.: NM 347 DPS-339 DxM-15 #4&5

NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid
Case 08-G-0609 Gas Rate Case
Request for Information

FROM: Davide Maioriello

Request: Capital Expenditures

In response to DxM-1, the company included the actual capital expenditures for AMR for fiscal years 2003 through 2006. Please provide the following:

1. Detailed description of the work completed to install the AMR system.

2. Cost benefit analysis calculations completed for the justification of the program.

3. Actual savings achieved on an annual basis from the implementation of the AMR system.

4. Have these expenditures been included in the starting plant balance for the plant roll forward model provided by the company?

5. Please provide the depreciation treatment applicable to the expenditures identified above.

Where applicable in responding to the questions above, please provide the information in digital Excel spreadsheet format with full access rights.

Response:
4. Yes.
5. Charges related to the program have been charged to either Account 381- Meters (proposed Rate Year Depreciation rate of 3.29%), Account 382- Meter Installations (proposed Rate Year Depreciation rate of 3.15%) or Account 397- Communication Equipment (proposed Rate Year Depreciation rate of 5.0%).

Name of Respondent: Date of Reply:
Peter Luvera 9/16/08

For Agenda
20th February 2003
Item No.: 7.5

23 Jan 2003

Resanction of New York Automated Meter Reading Project "TSRC Ref XX/XX/XX"

Scheme Description
The New York Automated Meter Reading (AMR) scheme covers the following:

- Installation of and AMR equipment for 1.5 million electric residential customers and for .5 million residential gas customers in New York
- Purchase and integration of the software and hardware needed to faciltate field installations and automated readings.
- system.

Reason for Resanction

National Grid USA is requesting additional spending authority for the New York AMR Project of $18 million, comprised of the following components: a) $6 million additional labor, b) $3 million additional materials, c) $5 million unbudgeted transportation and stores handling, d) $1 million reduced O&M expenses and e) $5 million contingency. The project is now scheduled to be completed in two years versus the original plan of three years. With these new costs added, the project acceleration, and the inclusion of capital cost savings the project remains economically attractive, yielding an unlevered, nominal after-tax 15-year net present value (NPV) of $16 million, and an 7.8-year payback

Aspect	Current sanction	Proposed resanction	Comments
Costs (Central – High)	$117 million	$135 miilion	Increased installation and equipment costs.
Benefits	$17 million	$20.7 million	Increased .
NPV (including Severance)	£7.3m – £6.1m	£20.3m - £38.5m	Delivers greater value (severance costs included in analysis)
Scope	Uses STORMS field product as tactical solution. Single interface to existing systems.	Uses MDSI Advantex, Excelenet Afaria, Brand Apollo product stack. SeeBeyond integration.	Strategic product and three interfaces gives greater functionality and benefits but also increases complexity.
Timescales	Implementation before Winter 2002.	Implementation before Winter 2003.	To avoid major changes during winter peak period.

The Key Business Benefit:

- Expected project benefits remain at 17.1 million/year in reduced operating expenses primarily due to reduction of 305 meter readers and staff. In addition, non-labor savings include uniforms and transportation costs ($1.4 million per year) and avoided replacement electric meter purchases ($1.2 million per year). Upon completion of this project, meter readers will continue to read business customer demand type meters..
- Increased revenues from installation of 1.5M new residential electric meters due to more accurate usage registration. (Based on test results in 2002, where we tested 28,000 meters that are to be replaced with Schlumberger meters, we found the accuracy rate to be 99.88%. The Schlumberger meters are testing at an average accuracy rate of 100%.)
- Reduced employee lost-time accidents.

1. Reduced customer complaints, due to fewer estimated bills, which will reduce customer service costs and improve Collections**.** Reduced back office work with the elimination of 18,000 monthly cancel rebills due to estimated reads.

Summary of Financials

COSTS (£m outturn)	Fiscal 03	Fiscal 04	Fiscal 05	Total	
New Electric Meters	30	41	-	71	
Gas ERTs and Meters	12	18	-	30	
Labour	3	12	1	16	
Transportation/Handling	1	3	1	5	
Other Installation cost	1	3	-	4	
Contingency	-	-	5	5	
Total capital cost	47	77	7	131	
Expenses	1	2	1	4	
TOTAL cost	**48**	**79**	**8**	**135**	
		-			
	-	**-**			

In addition to the above costs, there will be ongoing support costs of approx. £3.7m pa.

Of the total of $135 million, $110 million is in the Business Plan budget and $25 million is currently unbudgeted.

BENEFITS ($ million)	f2003	f2004	f2005	f2006	f2007
Earnings after Tax benefit	.8	6.8	8.4	9.5	10.0
TOTAL	**.8**	**6.8**	**8.4**	**9.5**	**10.0**

Anticipated savings have been determined on a prudent, risks adjusted basis and are expected to continue beyond 2006/07 at approx. £26.3m pa. After Earnings Tax benefit for years six through ten average 11.0

Scheme NPV: **$24.3 million**
Scheme Value Creation Ratio: **1.51???**
Scheme Discounted Payback Period: **7.2 years**

Expenditure to date, plus commitments already made, amount to $14 million.

Status to date:	Key Dates:

23 Jan 2003

As of 30 March 2003, over 290,000 devices have been installed versus our 3-year project target of 211,000.

An average of 100 installers are currently working on the project each day. They are averaging 30 installs per day. The meter reading van is currently reading over 160,000 meters monthly.

Key Risks:

- Insufficient business resources. (£2.0m)
- Technical integration overruns. (£0.5m)
- Technical infrastructure overruns. (£0.5m)
- Increased cost of NRSWA solution (£0.5m).
- Working practice changes not accepted by TU.

- Design Baseline complete: 17.01.03
- Factory Acceptance Test complete: 07.05.03
- Site Install complete: 19.05.03
- Interface Build & Test complete: 05.06.03
- System Integration Test complete: 29.07.03
- Go Live: 08.08.03
- Roll-out WM/NW/EoE complete: 03.09.03
- Roll-out Scot/NoE/NL complete: 01.10.03
- Roll-out SE/SW complete: 29.10.03
- Scheme completion (final interfaces): 31.01.04

Income Statement/Cash Flow Summary - 2 Yr Implementation Schedule

NG receives all benefits years 1-10, customer receives all benefits years 11 and beyond
NG receives return on asset in years 11 and beyond **Revised 6/2003**

Fiscal	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	Total YR1 thru 10	YR 11	YR 12	YR 13	YR 14	YR 15	Total YR 15
Income Statement																	
Savings/Revenue	2,969	7,262	13,972	19,450	20,405	21,079	21,675	22,290	22,922	23,574	175,599	0	0	0	0	0	175,599
Accelerated Savings (2 year installation Vs 3 yr.)		7,500	4,000								11,500						11,500
Enhanced metering accuracy		1,200	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	20,400						20,400
*Return of/on assets				-	-	-	-	-	-	-	0	11,644	11,224	10,802	10,388	9,977	54,035
Meter Salvage	400	1,300	300								2,000						2,000
Remainder deferred tax benefit	-	-	-	-	-	-	-	-	-		0					3,676	3,676
	3,369	17,262	20,672	21,850	22,805	23,479	24,075	24,690	25,322	25,974	209,499	11,644	11,224	10,802	10,388	13,653	267,210
Expense:																	
reduced											0						
Project O&M	(894)	(1,940)	(871)	0	0	0	0	0	0	0	(3,705)	0	0	0	0	0	(3,705)
Van Lease/Maintenance	(86)	(180)	(240)	(243)	(246)	(256)	(268)	(273)	(277)	(288)	(2,359)	(302)	(308)	(312)	(325)	(339)	(3,944)
Depreciation	(1,023)	(3,724)	(5,543)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(50,079)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(78,500)
Total Expense	(2,003)	(5,844)	(6,654)	(5,927)	(5,931)	(5,940)	(5,952)	(5,958)	(5,962)	(5,973)	(56,142)	(5,986)	(5,992)	(5,996)	(6,009)	(6,024)	(86,149)
EBT	1,367	11,418	14,018	15,923	16,874	17,539	18,123	18,732	19,361	20,001	153,356	5,658	5,232	4,806	4,379	7,629	181,061
Current Tax	(6,512)	(9,169)	108	3,975	5,553	6,427	7,945	9,054	9,399	9,665	36,444	3,900	3,728	3,557	3,386	4,692	55,707
Deferred Tax	7,062	13,759	5,527	2,426	1,231	624	(660)	(1,523)	(1,616)	(1,625)	25,206	(1,625)	(1,625)	(1,625)	(1,625)	(1,625)	17,079
Total Taxes	549	4,590	5,635	6,401	6,784	7,051	7,286	7,530	7,783	8,041	61,649	2,275	2,103	1,932	1,761	3,067	72,786
Earnings after Tax	817	6,828	8,383	9,522	10,091	10,488	10,838	11,202	11,578	11,961	91,707	3,384	3,129	2,874	2,619	4,562	108,274
Pre-Tax ROI																	
EBT	1,367	11,418	14,018	15,923	16,874	17,539	18,123	18,732	19,361	20,001	153,356	5,658	5,232	4,806	4,379	7,629	181,061
Net Investment	38,816	98,833	94,562	86,452	79,537	73,229	68,204	64,043	59,975	55,916	719,567	51,857	47,798	43,739	39,680	35,621	938,261
Average Net Investment	19,408	68,824	96,697	90,507	82,994	76,383	70,717	66,124	62,009	57,945	691,609	53,886	49,827	45,768	41,709	37,651	920,451
Pre-tax ROI	7.0%	16.6%	14.5%	17.6%	20.3%	23.0%	25.6%	28.3%	31.2%	34.5%	22.2%	10.5%	10.5%	10.5%	10.5%	20.3%	19.7%

Cash Flow	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	Total YR 10	YR 11	YR 12	YR 13	YR 14	YR 15	Total
Savings/Revenue	3,369	17,262	20,672	21,850	22,805	23,479	24,075	24,690	25,322	25,974	209,499	11,644	11,224	10,802	10,388	13,653	267,210
Avoided New Meter Purchases	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	12,000						12,000
Costs/Expenses	(980)	(2,120)	(1,111)	(243)	(246)	(256)	(268)	(273)	(277)	(288)	(6,064)	(302)	(308)	(312)	(325)	(339)	(7,649)
Taxes	6,512	9,169	(108)	(3,975)	(5,553)	(6,427)	(7,945)	(9,054)	(9,399)	(9,665)	(36,444)	(3,900)	(3,728)	(3,557)	(3,386)	(4,692)	(55,707)
Capital Cost	(46,900)	(77,500)	(6,800)	-	-	-	-	-	-	-	(131,200)	-	-	-	-	-	(131,200)
Net Cash Flow	(36,799)	(51,989)	13,853	18,832	18,206	17,996	17,062	16,563	16,846	17,220	47,792	7,442	7,188	6,933	6,678	8,621	84,653
							(2,838)										

EBT Premium Above 10.5% Pre-Tax ROI																	
EBT	1,367	11,418	14,018	15,923	16,874	17,539	18,123	18,732	19,361	20,001	153,356	5,658	5,232	4,806	4,379	7,629	181,061
Average Net Investment	19,408	68,824	96,697	90,507	82,994	76,383	70,717	66,124	62,009	57,945	691,609	53,886	49,827	45,768	41,709	37,651	920,451
Return (EBT) Required for 10.5% Pre-Tax ROI on AMR Investment	2,038	7,227	10,153	9,503	8,714	8,020	7,425	6,943	6,511	6,084	72,619	5,658	5,232	4,806	4,379	3,953	96,647
Excess AMR Project Return over 10.5%	(671)	4,192	3,864	6,420	8,160	9,518	10,698	11,789	12,850	13,917	80,737	0	0	0	0	3,676	84,413

NPV 15 Yr. **24,348** 7.0% discount rate
IRR 15 Yr. **12.4%**
Value Creation **1.21**

	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	YR 11	YR 12	YR 13	YR 14	YR 15
Net Cash Flow	(36,799)	(51,989)	13,853	18,832	18,206	17,996	17,062	16,563	16,846	17,220	7,442	7,188	6,933	6,678	8,621

Depreciation Schedules

Includes Contingency in year 3

		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15
Meter - 30 year book life		1.667%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%
Yr 1 Investment	$18,000	$300	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600
Yr 2 Investment	$31,050		$518	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035
Yr 3 Investment	$3,500			$58	$117	$117	$117	$117	$117	$117	$117	$117	$117	$117	$117	$117
Yr 4 Investment					$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$52,550															
Book Depreciation - Meter		$300	$1,118	$1,693	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752
Technology - 20 year book life		2.500%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%
Yr 1 Investment	$28,900	$723	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445
Yr 2 Investment	$46,450		$1,161	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323
Yr 3 Investment	$3,300			$83	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165
Yr 4 Investment					$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$131,200	$78,650														
Book Depreciation - Technology		$723	$2,606	$3,850	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933

Co 39.6%
60.4% 5000.0

		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15
Meter - 20 year tax life		3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	4.888%	4.522%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%
Yr 1 Investment	$18,000	$5,873	$910	$841	$778	$720	$666	$616	$570	$562	$562	$562	$562	$562	$562	$562
Yr 2 Investment	$31,050		$10,130	$1,569	$1,451	$1,343	$1,242	$1,149	$1,062	$983	$970	$970	$970	$970	$970	$970
Yr 3 Investment	$3,500			$1,142	$177	$164	$151	$140	$129	$120	$111	$109	$109	$109	$109	$109
Yr 4 Investment	$0				$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$52,550															
Tax Depreciation - Meter		$5,873	$11,040	$3,552	$2,406	$2,226	$2,059	$1,905	$1,762	$1,665	$1,643	$1,641	$1,641	$1,641	$1,641	$1,641
Technology - 5 year tax life		20.000%	32.000%	19.200%	11.520%	11.520%	5.760%									
Yr 1 Investment	$28,900	$12,716	$6,474	$3,884	$2,330	$2,330	$1,165									
Yr 2 Investment	$46,450		$20,438	$10,405	$6,243	$3,746	$3,746	$1,873								
Yr 3 Investment	$3,300			$1,452	$739	$444	$266	$266	$133							
Yr 4 Investment	$0				$0	$0	$0	$0	$0	$0						
131200.0	$78,650															
Tax Depreciation - Technology		$12,716	$26,912	$15,741	$9,313	$6,520	$5,177	$2,139	$133	$0						
Total Book Depreciation		$1,023	$3,724	$5,543	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684
Total Tax Depreciation		$18,589	$37,951	$19,293	$11,719	$8,746	$7,236	$4,044	$1,895	$1,665	$1,643	$1,641	$1,641	$1,641	$1,641	$1,641
Tax over Book		$17,566	$34,228	$13,750	$6,035	$3,062	$1,552	($1,641)	($3,789)	($4,019)	($4,041)	($4,043)	($4,043)	($4,043)	($4,043)	($4,043)
Deferred Tax	40.20%	$7,062	$13,759	$5,527	$2,426	$1,231	$624	($660)	($1,523)	($1,616)	($1,625)	($1,625)	($1,625)	($1,625)	($1,625)	($1,625)

Niagara Mohawk
A National Grid Company

Automated Meter Reading at Niagara Mohawk

Evelyn Kaye

July 15, 2002

Agenda

- Background
- Who Has Implemented AMR?
- National Grid Experience in New England
- New York Implementation
- Benefits
- Risks
- The Schedule

1. Typical Cross Dock

Background

Niagara Mohawk

- Automated Meter Reading
  - Automated Meter Reading (AMR), is a system that collects meter readings without requiring the Meter Reader to gain physical access to the meter.
  - For the system we plan to use, a small radio device is installed in residential electric and gas meters. The device transmits usage information to a van driving down the street (drive-by system).
  - Oldest, simplist, and most common system in Country
- Equipment Demonstration
- Metering today at Niagara Mohawk
  - There are 1.57M electric meters and .57M gas meters in service in the Niagara Mohawk service territory.
  - 100,000 meters are read manually each business day.
  - 570,000 meters are read on a bi-monthly schedule which means meters are read every other month and billed every month.

Who Has Implemented AMR?

Many electric and gas companies across the U.S. are using AMR, including Central Hudson and National Grid-New England.

- Some of the larger deployments of similar systems include:

- Arizona Public Service
- Baltimore Gas & Electric (700,000 electric and gas meters)
- Cinergy
- Concord Electric Company
- Exeter & Hampton Utility
- FG&E
- Greenfield Power & Light
- Louisville Gas & Electric
- Marietta Power
- Missouri Gas Energy (497,000 gas meters)
- Montana Power (260,000 elec./153,000 gas meters)
- Nevada Power Company
- Northeast Utilities (NU)
- NSTAR Electric
- Providence Gas (170,000 meters)
- Public Service of New Hampshire (PSNH-NU)
- Rayle EMC
- Salt River Project
- Solvay Electric C1SR - 5000 Meters
- Southern California Edison (360,000 electric meters)
- Southern Connecticut Gas (172,000 gas meters)
- Xcel Energy (800,000 elec./700,000 gas meters)
- Yankee Gas (175,000 gas meters)

National Grid Experience in New England

National Grid Experience in New England:

- National Grid in New England is currently installing this system for 1.5M electric meters and currently have over 1.3M electric meters equipped with AMR modules.
  - ITRON drive-by solution adopted.
  - Deployment commenced in October 2000; expected to be complete by October 2002.
  - Each van reads on average 12,000 meters per day
  - New England is experiencing benefits beyond what they expected.

New York Implementation

Niagara Mohawk will commence installing AMR meters in September 2002 and proceed across its service territory.

- Approximately 1.47M electric meters and .55M gas meters will be converted.
- Residential and small commercial electric and gas meters will be included, demand meters will not.
- A drive-by solution will be adopted. Why was the drive-by solution selected?
  - Plain vanilla...Proven technology
  - Proven application in use at National Grid today
  - Refined installation protocols with no unknowns
  - Rapid deployment/prompt realization of benefits for customers
  - Higher tech solutions and their associated costs are not valued by this market segment
- Deployment is expected to take up to three (3) years.
- Subject to final negotiation with Vendors:
  - Replace electric meters with new solid state electric meter with ERT in circuit board
  - Gas meters will be retrofit
- Customer Communications:
  - Call Center training
  - Bill inserts
  - Customer letters prior to installation

Benefits

AMR will result in dramatic changes to the way we do business and improve customer confidence in our billing process and customer satisfaction.

- From a customer perspective:
  - Meter Readers do not have to go onto customers' property or into their homes to read meters.
    - Eliminates the need to have the customer at home for transactions that involve reading the meter
    - Relieves customers of the burden of arranging for access by leaving premise open or giving us a key
  - It virtually eliminates estimated bills, which are a source of many customer calls and complaints leading to dissatisfaction.
  - Bill accuracy is improved as meter reading errors are virtually eliminated, thereby, reducing high bill, estimated, and meter reading complaints.
  - Combination of better access and accuracy yields more timely bills.

Benefits

AMR will result in some dramatic changes to the way we do business and improve customer confidence in our billing process.

We can expect that:	
1. Call volumes will decrease.	◊ 20% of the 2001 call volume was driven by Meter Reading questions, problems, and/or concerns
2. Work Flow Manager (WFM) work items will be reduced.	◊ 50% of cancel rebills were related to estimated reads
3. Virtually 100% of our customers will receive an actual meter read. Access performance for indoor meters is approximately 77%.	◊ 2.2M meters scheduled to be read were estimated for billing in 2001 ◊ 50,000 customer read cards processed in 2001 ◊ 3.4M meters scheduled to be estimated and were estimated for billing in 2001
4. Access to Meter letters will decrease to an insignificant amount.	◊ 184,000 Access to Meter letters sent in 2001
5. Customer satisfaction will increase.	◊ 23.6% of customers feel NM reads meters inaccurately ◊ 36.2% of Niagara Mohawk customers have concerns about estimated bills
6. PSC contacts will decrease.	◊ 10- 15% of all PSC contacts are related to inaccurate or estimated readings

Benefits

AMR will result in some significant changes in the way we do business and improve customer confidence in our billing process.

- From a company perspective:
  - **AMR is a critical step to providing the best service at the lowest cost.**
  - Reduces employee exposure to high crime areas
  - Reduces lost time accidents and injuries. Meter Reading has the highest OSHA-recordable rate in our company.
  - AMR can be used to detect meter tampering and theft of service, which will also reduce costs.

Risks

Deployment of AMR temporarily creates increased customer activity.

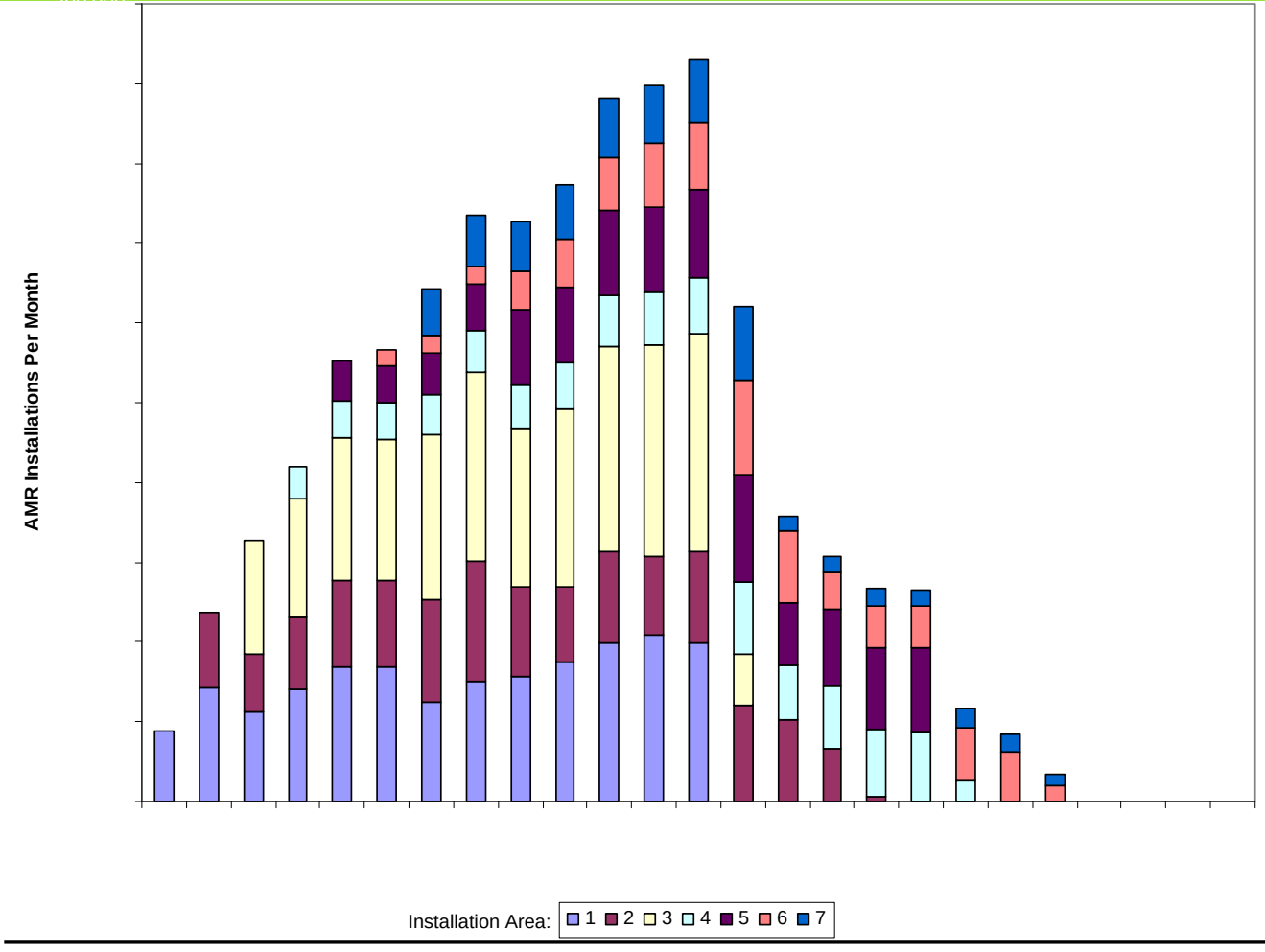
- Service levels may fluctuate during the transition period.
  - Additional calls will be generated during the transition period.
    - Curious customers
    - Worried customers
    - Customers calling about billing questions

The Schedule

The Schedule:

- 3-year implementation
- Initial implementation - Location TBD
- Progress rapidly throughout New York with plans to have installation happening in multiple areas at same time

Conceptual Schedule



Typical Cross Dock

Typical Cross Dock:

- Secure physical location within existing Niagara Mohawk facility
- Reporting location for all installers
- Meter/AMR module delivery location
- Scheduling and Coordination
- Customer Interface
- Data Processing

Date of Request: 9/11/2008 Request No.: DxM-16
NMPC Req. No.: NM 371 DPS-362 DxM-16 #1

NIAGARA MOHAWK POWER CORPORATION d/b/a National Grid
Case 08-G-0609 Gas Rate Case
Request for Information

FROM: Davide Maioriello

Request: Capital Expenditures

1. In response to DxM-1, the company included the actual capital expenditures for AMR for fiscal years 2003 through 2006. Please provide the following:

A. Prior to the installation of the AMR program, did the Company consult with staff? If yes, please provide a description of the discussions and agreements.

B. Did the Company take into consideration the discussions in Cases 02-M-0514, 00E-0165 and 94-E-0952 before deciding to implement the program? If yes, please explain why the Company decided to implement the AMR program based on the case discussions.

C. Please explain why the company implemented its AMR program prior to the completion of commission set standards.

D. In relation to the proposed minimum standards issued in Cases 02-M-0514, 00E-0165 and 94-E-0952 on October 10, 2007 does the AMR infrastructure installed create stranded cost for implementing future enhanced metering technologies?

2. Based on the forecast increase in capital expenditures for the rate year what O&M savings is the Company expecting to achieve.

Response:

1.A. The Company did a formal presentation to members of the PSC Staff on July 15, 2002 at the Delmar Staff facility and reviewed Attachment 1. Prior to and subsequent to that meeting many informal meetings and phone conversations took place between Staff and the Company. There were discussions on the benefits of AMR and discussions on other emerging two-way metering communications options. Discussions also took place regarding the communications plan to customers and the potential for PSC complaints. James Gallagher of Staff was interested in exploring newer technologies and at a minimum a pilot program of two-way communications. The Company stated it had researched the cost of two-way communications and concluded that the then current cost of the enhanced

metering and associated equipment was economically prohibitive. No agreements were reached during these discussions other than that approval of the project by the PSC was not required.

1.B,C.. The Company did take into consideration the various proceedings related to enhanced metering and retail choice issues. The Company decided to move forward with this particular low cost proven technology option that would significantly increase the percentage number or meter readings each month, replace an aging electric meter inventory, increase customer satisfaction by providing fewer estimated bills, reduce customer concerns over alleged misread meter readings and eliminate the need for monthly meter access. The Company focused the majority of its efforts on replacing non-demand residential and small commercial meters. The Company felt this would be the last area that would migrate to competitive metering. The Company believed that the installation of the AMR option it had chosen would yield clear benefits in the near term with a high degree of reliability. Other technology options were still not mature, and given their costs, risks and uncertainties, the Company deemed it undesirable to bypass the obvious benefits of AMR in order to wait indefinitely for a superior option to emerge.

1.D. The company is actively evaluating its strategy for investment in Advanced Metering Infrastructure or “Smart Grid” technology, but no specific plans related to the natural gas system have been adopted. Insofar as Case 08-G-0609 is concerned, the company has not projected any investment in AMI technology before or during the rate year that would result in a material displacement of gas AMR equipment on the Niagara Mohawk system.

Name of Respondent:	Date of Reply:
Evelyn Kaye	10/01/08

Date of Request_2/14/08_ Request No. _PSC-28 Visalli (RAV-22)__

NMPC Req. No. _28_

NIAGARA MOHAWK POWER CORPORATION
Case 07-E-1533 Petition of Niagara Mohawk Power Corporation
For Authorization to Defer Electric Transmission and Distribution
Investment Costs
Request for Information

FROM: PSC-28 Visalli (RAV-22) ___

Request:

On page 20 of the CAPEX deferral petition, and as shown on Figure 2 of the filing, the Company claims that for the period 2002 – 2006, it has incurred $295.5 million more in capital expenditures, and $127.7 million more in O&M, than was allowed in rates under the Merger Rate Plan. Regarding this claim, please provide the following information:

A. 1. How much of the $295.5 million of incremental capital expenditures is due to the Automated Meter Reading (AMR) project? Provide the actual AMR electric capital expenditures by year.

2. Indicate whether the costs and the benefits of the AMR project were built into the MJP financial forecast which established base rates for the 10 year rate plan period. If so, provide the MJP references, source documents and related workpapers which show the costs and the benefits of the AMR project were built into the MJP financial forecast. If not, please provide the actual / estimated annual gross and net-of-expense benefits related to implementation of the AMR project beginning with the first year AMR was installed through 2011.

B. How much of the $295.5 million of incremental capital expenditures is due to capitalizing a portion of the MJP's Costs to Achieve? In responding, please provide the actual capitalized MJP Costs to Achieve for each of the years 2002 – 2007, along with a brief explanation of what those capitalized Costs to Achieve represent.

Response:

A. 1.	2002 -	$14M
	2003 -	$34M
	2004 -	$13M

Total 370 (meter and installation costs) - $61M

Note that ERT costs are not included in T&D costs and are excluded from the $61 million total, and do not contribute to the $295.5 incremental capital cost in 2002 to 2006. ERT's are the communication devices installed as part of the AMR project.

A. 2. Attachment 1 is an analysis prepared in June 2003 of the benefits and costs expected from the AMR project, for both electric and gas. Actual savings and expenses have not been precisely tracked, however a substantial reduction in the meter reader workforce has occurred, representing much of the anticipated labor savings.

The AMR project cost and associated benefits were not reflected in the Merger Rate Plan forecast.

B. None of the $295.5 million of incremental T&D capital expenditures are CTA related. Please see the attached response to PSC 319 in the Second CTC Reset filing detailing the CTA through 2006. The only capitalized items are $50,884,785 in separation costs recorded in 2002 and being amortized as detailed in Attachment 16 of the Joint Proposal and $13,088,735 attributable to NIMO from ERP capital costs at the Service Company.

Name of Respondent:	Date of Reply:
James Molloy	March 19, 2008

Income Statement/Cash Flow Summary - 2 Yr Implementation Schedule

NG receives all benefits years 1-10, customer receives all benefits years 11 and beyond
NG receives return on asset in years 11 and beyond **Revised 6/2003**

Fiscal	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	Total YR1 thru 10	YR 11	YR 12	YR 13	YR 14	YR 15	Total YR 15
Income Statement																	
Savings/Revenue	2,969	7,262	13,972	19,450	20,405	21,079	21,675	22,290	22,922	23,574	175,599	0	0	0	0	0	175,599
Accelerated Savings (2 year installation Vs 3 yr.)		7,500	4,000								11,500						11,500
Enhanced metering accuracy		1,200	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	20,400						20,400
*Return of/on assets				-	-	-	-	-	-	-	0	11,644	11,224	10,802	10,388	9,977	54,035
Meter Salvage	400	1,300	300								2,000						2,000
Remainder deferred tax benefit	-	-	-	-	-	-	-	-	-	-	0					3,676	3,676
	3,369	17,262	20,672	21,850	22,805	23,479	24,075	24,690	25,322	25,974	209,499	11,644	11,224	10,802	10,388	13,653	267,210
Expense:																	
reduced											0						
Project O&M	(894)	(1,940)	(871)	0	0	0	0	0	0	0	(3,705)	0	0	0	0	0	(3,705)
Van Lease/Maintenance	(86)	(180)	(240)	(243)	(246)	(256)	(268)	(273)	(277)	(288)	(2,359)	(302)	(308)	(312)	(325)	(339)	(3,944)
Depreciation	(1,023)	(3,724)	(5,543)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(50,079)	(5,684)	(5,684)	(5,684)	(5,684)	(5,684)	(78,500)
Total Expense	(2,003)	(5,844)	(6,654)	(5,927)	(5,931)	(5,940)	(5,952)	(5,958)	(5,962)	(5,973)	(56,142)	(5,986)	(5,992)	(5,996)	(6,009)	(6,024)	(86,149)
EBT	1,367	11,418	14,018	15,923	16,874	17,539	18,123	18,732	19,361	20,001	153,356	5,658	5,232	4,806	4,379	7,629	181,061
Current Tax	(6,512)	(9,169)	108	3,975	5,553	6,427	7,945	9,054	9,399	9,665	36,444	3,900	3,728	3,557	3,386	4,692	55,707
Deferred Tax	7,062	13,759	5,527	2,426	1,231	624	(660)	(1,523)	(1,616)	(1,625)	25,206	(1,625)	(1,625)	(1,625)	(1,625)	(1,625)	17,079
Total Taxes	549	4,590	5,635	6,401	6,784	7,051	7,286	7,530	7,783	8,041	61,649	2,275	2,103	1,932	1,761	3,067	72,786
Earnings after Tax	817	6,828	8,383	9,522	10,091	10,488	10,838	11,202	11,578	11,961	91,707	3,384	3,129	2,874	2,619	4,562	108,274
Pre-Tax ROI																	
EBT	1,367	11,418	14,018	15,923	16,874	17,539	18,123	18,732	19,361	20,001	153,356	5,658	5,232	4,806	4,379	7,629	181,061
Net Investment	38,816	98,833	94,562	86,452	79,537	73,229	68,204	64,043	59,975	55,916	719,567	51,857	47,798	43,739	39,680	35,621	938,261
Average Net Investment	19,408	68,824	96,697	90,507	82,994	76,383	70,717	66,124	62,009	57,945	691,609	53,886	49,827	45,768	41,709	37,651	920,451
Pre-tax ROI	7.0%	16.6%	14.5%	17.6%	20.3%	23.0%	25.6%	28.3%	31.2%	34.5%	22.2%	10.5%	10.5%	10.5%	10.5%	20.3%	19.7%
Cash Flow																	
	YR 1	**YR 2**	**YR 3**	**YR 4**	**YR 5**	**YR 6**	**YR 7**	**YR 8**	**YR 9**	**YR 10**	**Total YR 10**	**YR 11**	**YR 12**	**YR 13**	**YR 14**	**YR 15**	**Total**
Savings/Revenue	3,369	17,262	20,672	21,850	22,805	23,479	24,075	24,690	25,322	25,974	209,499	11,644	11,224	10,802	10,388	13,653	267,210
Avoided New Meter Purchases	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	12,000						12,000
Costs/Expenses	(980)	(2,120)	(1,111)	(243)	(246)	(256)	(268)	(273)	(277)	(288)	(6,064)	(302)	(308)	(312)	(325)	(339)	(7,649)
Taxes	6,512	9,169	(108)	(3,975)	(5,553)	(6,427)	(7,945)	(9,054)	(9,399)	(9,665)	(36,444)	(3,900)	(3,728)	(3,557)	(3,386)	(4,692)	(55,707)
Capital Cost	(46,900)	(77,500)	(6,800)	-	-	-	-	-	-	-	(131,200)	-	-	-	-	-	(131,200)
Net Cash Flow	(36,799)	(51,989)	13,853	18,832	18,206	17,996	17,062	16,563	16,846	17,220	47,792	7,442	7,188	6,933	6,678	8,621	84,653
							(2,838)										
EBT Premium Above 10.5% Pre-Tax ROI																	
EBT	1,367	11,418	14,018	15,923	16,874	17,539	18,123	18,732	19,361	20,001	153,356	5,658	5,232	4,806	4,379	7,629	181,061
Average Net Investment	19,408	68,824	96,697	90,507	82,994	76,383	70,717	66,124	62,009	57,945	691,609	53,886	49,827	45,768	41,709	37,651	920,451
Return (EBT) Required for 10.5% Pre-Tax ROI on AMR Investment	2,038	7,227	10,153	9,503	8,714	8,020	7,425	6,943	6,511	6,084	72,619	5,658	5,232	4,806	4,379	3,953	96,647
Excess AMR Project Return over 10.5%	(671)	4,192	3,864	6,420	8,160	9,518	10,698	11,789	12,850	13,917	80,737	0	0	0	0	3,676	84,413

NPV 15 Yr. **24,348** 7.0% discount rate
IRR 15 Yr. **12.4%**
Value Creation **1.21**

	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	YR 11	YR 12	YR 13	YR 14	YR 15
Net Cash Flow	(36,799)	(51,989)	13,853	18,832	18,206	17,996	17,062	16,563	16,846	17,220	7,442	7,188	6,933	6,678	8,621

Depreciation Schedules Includes Contingency in year 3

		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15
Meter - 30 year book life		1.667%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%	3.333%
Yr 1 Investment	$18,000	$300	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600
Yr 2 Investment	$31,050		$518	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035	$1,035
Yr 3 Investment	$3,500			$58	$117	$117	$117	$117	$117	$117	$117	$117	$117	$117	$117	$117
Yr 4 Investment					$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$52,550															
Book Depreciation - Meter		$300	$1,118	$1,693	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752	$1,752
Technology - 20 year book life		2.500%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%
Yr 1 Investment	$28,900	$723	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445	$1,445
Yr 2 Investment	$46,450		$1,161	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323	$2,323
Yr 3 Investment	$3,300			$83	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165	$165
Yr 4 Investment					$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$131,200	$78,650														
Book Depreciation - Technology		$723	$2,606	$3,850	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933	$3,933
Co	39.6%															
60.4%	5000.0															
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15
Meter - 20 year tax life		3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	4.888%	4.522%	4.462%	4.461%	4.462%	4.461%	4.462%	4.461%	4.462%
Yr 1 Investment	$18,000	$5,873	$910	$841	$778	$720	$666	$616	$570	$562	$562	$562	$562	$562	$562	$562
Yr 2 Investment	$31,050		$10,130	$1,569	$1,451	$1,343	$1,242	$1,149	$1,062	$983	$970	$970	$970	$970	$970	$970
Yr 3 Investment	$3,500			$1,142	$177	$164	$151	$140	$129	$120	$111	$109	$109	$109	$109	$109
Yr 4 Investment	$0				$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$52,550															
Tax Depreciation - Meter		$5,873	$11,040	$3,552	$2,406	$2,226	$2,059	$1,905	$1,762	$1,665	$1,643	$1,641	$1,641	$1,641	$1,641	$1,641
Technology - 5 year tax life		20.000%	32.000%	19.200%	11.520%	11.520%	5.760%									
Yr 1 Investment	$28,900	$12,716	$6,474	$3,884	$2,330	$2,330	$1,165									
Yr 2 Investment	$46,450		$20,438	$10,405	$6,243	$3,746	$3,746	$1,873								
Yr 3 Investment	$3,300			$1,452	$739	$444	$266	$266	$133							
Yr 4 Investment	$0				$0	$0	$0	$0	$0	$0						
131200.0	$78,650															
Tax Depreciation - Technology		$12,716	$26,912	$15,741	$9,313	$6,520	$5,177	$2,139	$133	$0						
Total Book Depreciation		$1,023	$3,724	$5,543	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684	$5,684
Total Tax Depreciation		$18,589	$37,951	$19,293	$11,719	$8,746	$7,236	$4,044	$1,895	$1,665	$1,643	$1,641	$1,641	$1,641	$1,641	$1,641
Tax over Book		$17,566	$34,228	$13,750	$6,035	$3,062	$1,552	($1,641)	($3,789)	($4,019)	($4,041)	($4,043)	($4,043)	($4,043)	($4,043)	($4,043)
Deferred Tax	40.20%	$7,062	$13,759	$5,527	$2,426	$1,231	$624	($660)	($1,523)	($1,616)	($1,625)	($1,625)	($1,625)	($1,625)	($1,625)	($1,625)

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 4 to DPS-466 MSZ-12
Question 3
Page 1 of 1

Estimated Net Book Value of Electric Meters

FERC 370 Electric Meter Accounts	Gross Plant Balance Debit/(Credit)	Depreciation Reserve Balance Debit/(Credit)	Net Book Value Balance Debit/(Credit)
Balance ending December 31, 2001	151,292,566	(56,529,511)	94,763,055
Balance ending December 31, 2002	147,290,622	(53,486,174)	93,804,448
Balance ending December 31, 2003	164,939,560	(35,177,285)	129,762,275
Balance ending December 31, 2004	113,006,383	18,208,754	131,215,137
Balance ending December 31, 2005	142,325,957	19,544,299	161,870,256

Niagara Mohawk Power Corporation
d/b/a National Grid
Case 17-E-0238 & 17-G-0239
Attachment 4 to DPS-466 MSZ-12
Question 3
Page 1 of 1

Estimated Net Book Value of Electric Meters

FERC 370 Electric Meter Accounts	Gross Plant Balance Debit/(Credit)	Depreciation Reserve Balance Debit/(Credit)	Net Book Value Balance Debit/(Credit)
Balance ending December 31, 2001	151,292,566	(56,529,511)	94,763,055
Balance ending December 31, 2002	147,290,622	(53,486,174)	93,804,448
Balance ending December 31, 2003	164,939,560	(35,177,285)	129,762,275
Balance ending December 31, 2004	113,006,383	18,208,754	131,215,137
Balance ending December 31, 2005	142,325,957	19,544,299	161,870,256

Summary of Incentive Mechanisms

Staff:	Electric	Gas
1bps	$409,900	$95,600

			Basis Points		Dollars	
Incentive	**Electric, Gas or Both**	**Existing, Changed or New**	**PRA (EAM)**	**NRA**	**PRA (EAM)**	**NRA**
Reliability-SAIFI/CAIDI ($3M each)	Electric	Existing		14.6		$ 6,000,000
I&M	Electric	Existing		4.9		$ 2,000,000
Estimating (3 tiers)	Electric	Change		9.8		$ 4,000,000
SIR	Electric	Change		9.8		$ 4,000,000
Peak Reduction EAM	Electric	New	10.0		$ 4,099,000	
DER Utilization EAM	Electric	New	6.0		$ 2,459,400	
Incremental Electric Energy Efficiency EAM	Electric	New	10.0		$ 4,099,000	
Residential Electric Energy Intensity EAM	Electric	New	7.0		$ 2,869,300	
Commercial Electric Energy Intensity EAM	Electric	New	7.0		$ 2,869,300	
Interconnection EAM	Electric	New	5.0		$ 2,049,500	
Incremental Gas Energy Efficiency EAM	Gas	New	10.0		$ 4,099,000	
Gas Estimating	Gas	Existing		11.7		$ 1,120,000
Leak Prone Pipe (LPP) Replacement	Gas	New & Existing	10.0	8.0	$ 956,000	$ 764,800
LPP Unit Cost	Gas	New	10.0		$ 956,000	
Leak Target	Gas	New & Existing	5.0	12.0	$ 478,000	$ 1,147,200
Emergency Response	Gas	New & Existing	12.0	12.0	$ 1,147,200	$ 1,147,200
Damage Prevention	Gas	New & Existing	6.0	18.0	$ 573,600	$ 1,720,800
Gas Safety Violations	Gas	Existing		100.0		$ 9,560,000
OSS – Gas Off-System Sales	Gas	Existing	85/15 sharing		85/15 sharing	
LAUF/SPA	Gas	Existing	Penalized 100% above deadband of 2.516% or incentivized below deadband of 0.516%	Penalized 100% above deadband of 2.516% or incentivized below deadband of 0.516%	Penalized 100% above deadband of 2.516% or incentivized below deadband of 0.516%	Penalized 100% above deadband of 2.516% or incentivized below deadband of 0.516%
SC-6 Interruption	Gas	Existing	90/10 sharing	90/10 sharing	90/10 sharing	90/10 sharing
Residential Service Terminations and Uncollectibles	Both	New	7.0	7.0	$ 669,200	$ 669,200
Customer Service Quality Performance Incentive	Both	Existing		48.3		$ 19,800,000

Quantification of AMR Benefits

Electric Meters in Service by Vintage through December 31, 2016[1]		Calcualted by Staff		$ in millions					$ in millions
		Meters Installed	Percent	Annual AMR Benefits from Re-sanction Paper[2]					Pro-rated
				Avoided Costs			Incremental	Total Annual	Annual
Vintage Year	Electric Meters	Through 2002 - 2007		Labor	Non-labor	Meters	Sales	Benefits	Benefits
2002	315,936		21.1%	17.1	1.4	1.2	1.5	21.2	4.5
2003	855,548	1,171,484	78.3%	17.1	1.4	1.2	1.5	21.2	16.6
2004	285,993	1,457,477	97.4%	17.1	1.4	1.2	1.5	21.2	20.6
2005	20,325	1,477,802	98.7%	17.1	1.4	1.2	1.5	21.2	20.9
2006	11,392	1,489,194	99.5%	17.1	1.4	1.2	1.5	21.2	21.1
2007	7,327	1,496,521	100.0%	17.1	1.4	1.2	1.5	21.2	21.2
2008	15,391		100.0%	17.1	1.4	1.2	1.5	21.2	21.2
2009	3,235		100.0%	17.1	1.4	1.2	1.5	21.2	21.2
2010	18,300		100.0%	17.1	1.4	1.2	1.5	21.2	21.2
2011	33,983		100.0%	17.1	1.4	1.2	1.5	21.2	21.2
2012	5,613								
2013	35,041								
2014	30,317								
2015	32,781								
2016	6,056								
Unknown	27,227								
	1,704,465								189.75 Total

Sources:

[1]Attachment 1 of Company response to DPS-055

[2]Attachment 1 of Company response to DPS-466

Illustration of Early Retirements

Effect of Retirements on Rate Base

No early retirement

Assumptions for illustrative purposes
Average Service Life = 10
Net Salvage = 0%
Depreciation Rate = 10%
Straight line depreciation

Year	Gross Plant Start of Year	Additions	Retirements	Gross Plant End of Year	Depreciation Expense	Booked Depreciation Reserve End of Year	Net Plant End of Year
-						$ -	
1	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 100	$ 900
2	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 200	$ 800
3	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 300	$ 700
4	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 400	$ 600
5	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 500	$ 500
6	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 600	$ 400
7	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 700	$ 300
8	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 800	$ 200
9	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 900	$ 100
10	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 1,000	$ -

Effect of Retirements on Rate Base

Early retirement

Assumptions for illustrative purposes
Average Service Life = 10
Net Salvage = 0%
Depreciation Rate = 10%
Straight line depreciation

Year	Gross Plant Start of Year	Additions	Retirements	Gross Plant End of Year	Depreciation Expense	Booked Depreciation Reserve End of Year	Net Plant End of Year
-						$ -	
1	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 100	$ 900
2	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 200	$ 800
3	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 300	$ 700
4	$ 1,000	$ -	$ -	$ 1,000	$ 100	$ 400	$ 600
5	$ 1,000	$ -	$ 1,000	$ -	$ 50	$ (550)	$ 550
6	$ -	$ -	$ -	$ -	$ -	$ (550)	$ 550
7	$ -	$ -	$ -	$ -	$ -	$ (550)	$ 550
8	$ -	$ -	$ -	$ -	$ -	$ (550)	$ 550
9	$ -	$ -	$ -	$ -	$ -	$ (550)	$ 550
10	$ -	$ -	$ -	$ -	$ -	$ (550)	$ 550

Staff Estimate of Stranded Cost as of EOY 2007

	BOY SM-Bare Cost	BOY SM-Install Cost	Total SM Meter Cost
Gross Plant Balance	$ 91,922,016.00	$ 42,284,617.00	$ 134,206,633.00
Depreciation Rate in effect during period	3.13%	2.78%	
Composite Meter Account Rate	3.02%		

	BOY Gross Plant	AMR Electric Meters Installed Number	AMR Electric Meters Installed Percent	Reduction to Gross Plant Due to AMR Meters	EOY Gross Balance	Average Gross Balance	Depreciation Expense
2002	$ 134,206,633.00	315,936	21.11%	$ 28,332,851.20	$ 105,873,781.80	$ 120,040,207.40	$ 3,624,884
2003	$ 105,873,781.80	855,548	57.17%	$ 76,724,761.26	$ 29,149,020.54	$ 67,511,401.17	$ 2,038,659
2004	$ 29,149,020.54	285,993	19.11%	$ 25,647,590.37	$ 3,501,430.17	$ 16,325,225.36	$ 492,977
2005	$ 3,501,430.17	20,325	1.36%	$ 1,822,727.39	$ 1,678,702.78	$ 2,590,066.47	$ 78,213
2006	$ 1,678,702.78	11,392	0.76%	$ 1,021,624.13	$ 657,078.65	$ 1,167,890.72	$ 35,267
2007	$ 657,078.65	7,327	0.49%	$ 657,078.65	$ 0.00	$ 328,539.33	$ 9,921
Total		1,496,521	100.00%				

Total Depreciation Expense to offset the unrecovered net book value from 2002 - 2007	$ 6,279,921
Unrecovered Net Book Value of Pre-AMR meters as of 2002 per Response to DPS-055 attachment 2	$ 94,000,000
Adjustment to the Book Reserve Small Meter accounts	**$ 87,720,079**

	SM-Bare Cost	SM-Install Cost	
Adjustment per Account	**$ 60,082,027**	**$ 27,638,052**	**$ 87,720,079**

Notes:

Assumes mid-year convention for depreciation expense calculation
Gross plant balances from Depreciation Study pages 419 & 427
Number of AMR meters installed from Company Response to DPS-55