

**Fiscal Year 2011 (April 1, 2011 –
March 31, 2012) Cast Iron/Bare
Steel Replacement Program
Results Filing**

DG 12-_____

May 15, 2012

Submitted to:

**New Hampshire
Public Utilities Commission**

Submitted by:

**EnergyNorth Natural Gas, Inc.
d/b/a National Grid NH**

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Introduction

Pursuant to the settlement agreement approved by the New Hampshire Public Utilities Commission (the “Commission”) as part of the National Grid plc/KeySpan Corporation merger proceeding in Docket DG 06-107¹ (“Settlement Agreement”), EnergyNorth Natural Gas, Inc. d/b/a National Grid NH (“National Grid” or “Company”) now submits the results of the Cast Iron Bare Steel Replacement (“CIBS”) Program for fiscal year 2012 (April 1, 2011-March 31, 2012) (“FY 2012”). As required by the Settlement Agreement, the Company submits the following information in connection with this report and the prefiled Joint Testimony of Thomas Finneral and Mindy Rosen (“Joint Testimony”): (1) A report detailing the actual amount of capital investments made in accordance with implementing the CIBS program during FY 2012 (Attachment B to the Joint Testimony); (2) A calculation of the incremental revenue requirement associated with placing the capital investments into rate base above a base spending level of \$500,000 (Attachment C to the Joint Testimony); (3) A description of variances between actual results and the original plan, and (4) A request for a permanent increase in base distribution delivery rates in the amount of \$54,568 effective for usage on and after July 1, 2012. In addition, this report and the Joint Testimony provide an update on the status of pending road degradation fee litigation between National Grid and the cities of Concord and Manchester, respectively; a discussion of National Grid’s treatment of the Concord and Manchester road degradation fees in this filing; and a description of the repairs tax deduction for which CIBS projects are eligible.

¹ See Order No. 24,777 (July 12, 2007).

Section 1: Actual Capital Expenditures

Actual capital expenditures incurred during implementation of the CIBS program for FY 2012 are detailed in Attachment B to the Joint Testimony. Through a series of technical sessions that began in 2008, Commission Staff and the Company have agreed that the capital investments amounts to be included for recovery under the CIBS program may include all prudently incurred direct and indirect² costs associated with: (i) replacement or abandonment³ of cast iron and bare steel mains, including replacement of existing pipe with replacement pipe of the same size⁴, with recovery for the costs of “upsizing” the pipe allowed only when specifically justified,⁵ (ii) replacement or abandonment of cast iron or bare steel service lines directly connected to bare steel or cast iron main replacement projects, and (iii) tie over of connected service lines not replaced or abandoned as part of a cast iron bare steel main replacement project.

Categories of costs that may not be included for recovery under the CIBS program include: (i) replacement or abandonment of plastic main, (ii) replacement or abandonment of coated steel main, regardless of vintage, (iii) replacement or abandonment of plastic or coated steel services connected to cast iron or bare steel main replacement projects, (iv) the differential in cost to replace existing cast iron or bare steel mains with pipe of a diameter that is greater than the existing main and the cost to replace that main with a pipe that is larger than the existing main, unless specifically justified, (v) relocation of customer meters from inside to out and (vi) random cast iron or bare steel service replacements not connected to a cast iron or bare steel main replacement project.

² Indirect costs mean overheads such as pensions, OPEBs and other fringe benefits, payroll taxes, material handling costs and other general & administrative expenses that are loaded on all labor and material transactions. Categories of costs that may not be included for recovery under the plan include costs related to CIBS planning (other than normal engineering and project planning), reporting and filing.

³ For purposes of ii and iii, abandonments such as mains that are not servicing a customer via a service will not be allowed. Other abandonments will be considered by Staff on a case by case basis.

⁴ 3-inch pipes, which are no longer standard size, will be routinely replaced with 4-inch pipes.

⁵ See, Order No. 25,127 dated June 30, 2010 at 6-7.

On March 16, 2012, the Company met with Commission Staff and reviewed year-to- Page 5 of 13

date and projected year-end CIBS results for FY 2012 against the agreed upon scope of the program. No costs were removed as being beyond the scope of the FY 2012 CIBS Plan as a result of that meeting. Line 24 column S of Attachment B shows actual recoverable expenditures of \$1,922,213. After removing the CIBS base amount of \$500,000 in accordance with the terms of the merger settlement⁶ from the actual expenditures, the total incremental CIBS expenditures to be included in rate base amounts to \$1,422,213. Appendix A to this report is the New Hampshire Condition Bare Steel Main Replacement Program – Sample Analysis Report for FY 2012. This report contains photographs and descriptions of various pipe segments removed and catalogued as part of the FY 2012 CIBS.

Section 2: Calculation of Incremental Revenue Requirement

In this filing, National Grid is seeking recovery of the incremental revenue requirement associated with \$1,422,213 of the CIBS capital investments in rates. As set forth in Attachment C to the Joint Testimony, the revenue requirement associated with FY 2012 capital expenditures of \$1,422,213 is \$153,562. This amount is reduced by a credit of \$98,794 to account for an overstatement in the fiscal year 2011 (“FY 2011”) revenue requirement. As explained more fully in the Joint Testimony, the Company reflected accumulated depreciation expense, rather than annual depreciation expense, when calculating the revenue requirement upon which the FY 2011 CIBS rate adjustment was based. Upon recalculating the FY 2011 CIBS revenue requirement using the appropriate depreciation expense values, the Company concluded that it overstated the revenue requirement for the FY 2011 CIBS program by \$98,794. The Company has therefore reduced the CIBS revenue

⁶ See, Order No. 24,777

requirement for FY 2012 (\$153,362) by \$98,794 to \$54,568. Consistent with prior delivery Page 6 of 13

rate increases for the CIBS program, the Company proposes to apply the increase pro rata across all customer classes.

Attachment C to the Joint Testimony also indicates the annual bill impacts for a typical residential customer and commercial customers in rate classes G-41, G-42 and G-52. Attachment D to the Joint Testimony is a computation of the cumulative revenue requirement associated with the CIBS program since its inception in fiscal year 2009 and is provided for informational purposes only.

Section 3: Differences Between Initial Estimated Expenditures and Fiscal Year-End Estimated Expenditures

The Company's FY 2012 CIBS Plan provided for the replacement of 1.9 miles of cast iron and bare steel pipe at an estimated cost of \$2,932,831, inclusive of carry-over costs from FY 2011 projects. As shown on Attachment B, the Company actually completed 1.56 miles of replacement at a cost of \$2,009,031 (\$1,922,213 in recoverable costs and \$86,818 in non-recoverable costs), which includes \$76,278 of expenses incurred in FY 2012 for final street restoration on two projects that were part of the FY 2011 program. The Company also expects to incur an estimated \$669,192 in carry-over costs for FY 2012 projects that will be completed in fiscal year 2013 ("FY 2013"). Thus, the actual expenses incurred in FY 2012 and projected carry-over costs for FY 2012 projects total \$2,678,223. Details of the variances between estimated and actual costs by project are shown in Attachment B column AF.

**Section 4: Status of the Pending Litigation Between National Grid and the Cities of
Manchester and Concord**

On June 15, 2010, National Grid filed an action in Hillsborough Superior court against the City of Manchester seeking an injunction against enforcement of regulations concerning street opening permit fees (“degradation fees”), as well as a request for a declaratory judgment invalidating such fees. The matter was docketed as NO 216-2010-EQ 001722. Similarly, on June 29, 2010, National Grid filed an action in Merrimack Superior Court against the City of Concord seeking an injunction against enforcement of the degradation fee regulations, as well as a request for a declaratory judgment invalidating such fees. The matter was docketed as NO 217-2010-CV-00402. On April 6, 2011 the Company filed a motion for summary judgment in the Concord matter, and filed a motion for summary judgment in the Manchester matter on May 6, 2011.

On August 25, 2011, Merrimack County Superior Court granted summary judgment to National Grid on the basis that the degradation fees at issue are pre-empted. The City of Concord subsequently appealed that decision to the New Hampshire Supreme Court, and the Manchester litigation has been held in abeyance pending resolution of the Concord appeal. The New Hampshire Supreme Court has scheduled oral argument in the Concord appeal on June 13, 2012.

Section 5: Treatment of Concord and Manchester Degradation Fees

National Grid has agreed to pay degradation fees to the City of Concord under protest while the litigation and appeal are pending. The City of Manchester agreed to allow National Grid to refrain from paying the fees, subject to the issuance of bonds in sufficient amount to

pay any outstanding fees. Though National Grid has not been paying the Manchester degradation fees, it has been accruing those costs.

During FY 2011, National Grid included \$294,891 in expense (\$19,856 in fees paid to Concord and \$275,035 in accrued Manchester fees) as part of the costs of the CIBS program. In FY 2012, this amount is \$77,845 (\$37,960 in fees paid to Concord and \$39,885 in accrued Manchester fees). These fees are included for recovery in the CIBS program. Upon the successful outcome of the suit, the Company will refund the revenue requirement previously collected on these amounts. Attachment E to the Joint Testimony shows the calculation of this amount. Currently, the Company would need to return to customers \$41,984 as shown on Page 1, Line 32. This is based on the assumption that the litigations will be conclusively resolved before the filing of the FY 2013 revenue requirement. It is estimated that the degradation fees to be incurred during the FY 2013 construction season will be \$353,915. If the suit is concluded prior to the filing for the FY 2013 revenue requirement, this additional amount will not be charged to the program in FY 2013.

Section 6: Repairs Tax Deduction

In 2009, the Internal Revenue Service (“IRS”) issued guidance, under Internal Revenue Code (IRC) Section 162, regarding the eligibility of certain repair and maintenance expenses for an immediate deduction for income tax purposes, but capitalized by the Company for book purposes. This tax deduction has the effect of increasing deferred taxes and lowering the revenue requirement that customers will pay under the CIBS. Repairs resulting in the replacement of less than 20 percent of an original unit of property qualify for a repairs tax deduction. A gas company’s gas subsystem is considered a “unit of property” for the purposes of the repairs tax deduction. As explained in the Joint Testimony, projects

included in the CIBS qualify as repairs; thus, when computing the revenue requirement, the Page 9 of 13

Company currently reflects a tax deductibility of 100 percent for all CIBS jobs, pending

additional guidance from the IRS

2011 New Hampshire Condition Bare Steel Main Replacement Program – Sample Analysis

Over the course of the 2011 construction season, steel pipe and soil samples were collected from the CIBS main replacement program projects completed in New Hampshire. These samples were taken with the intention of using the analysis conclusions as a tool to assist in the selection of candidates for future CIBS replacement programs. Each sample was sand blasted to clean the exposed pipe down to the bare metal. Soil samples were taken as close to the pipe samples as possible in an effort to retrieve ‘native’ soil.

Samples were taken at the following locations:

(1) **18-56 ASH ST, NASHUA**– wo#770715 – 2 inch, low pressure - installed in 1928

- A soil sample was taken and analyzed. The pH was measured to be 6.5, slightly acidic to neutral. Testing for chlorides was negative. Testing for microbiological acid producing (APB) and sulfate reducing bacteria (SRB) were performed. The APB testing produced a reading of 1,000 bacteria colonies per ML. The testing for SRB produced a reading of 10 bacteria colonies per ML. The soil was observed to be a dark brown color, odorless, and without stone.
- The pipe sample was observed to be in very poor condition. Multiple locations of large holes with 100% wall loss were observed on the exposed steel. Pit depths were not measured as the samples are available for continued visible review. Exposure of this main should result in an immediate replacement work order.
- The following pictures were taken:



(2) **55-100 W NORTH ST, MANCHESTER- wo#747140** – 8 inch, low pressure, installed in 1960

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- A soil sample was taken and analyzed. The pH was measured to be approximately 6, acidic to neutral. Testing for chlorides was negative. Testing for microbiological acid producing (APB) and sulfate reducing bacteria (SRB) were performed. The APB testing produced a reading of 1,000 bacteria colonies per ML. The testing for SRB produced a reading of 1,000 bacteria colonies per ML. The soil was observed to be a light brown color, odorless, and containing small stones.
- The pipe sample was observed to be in poor condition with concentrated deep pitting with a single visible hole in the pipe wall. Exposure of this main should result in a recommendation for priority replacement. Pit depths were not measured as the samples are available for continued visible review.
- The following pictures were taken:



Conclusions/Recommendations:

- (1) Samples should continue to be taken as close to the area of leak activity as possible.
- (2) Crews taking the samples should specify the 12 o'clock position of the pipe taken.
- (3) Main and Service Replacement should continue to be contacted prior to each removal of the sample pipe. A representative should be on site to verify that the pipe sample is acceptable and that the soil taken is valid for analysis.
- (4) The criteria used for the segment selection process should continue to include exposed main reports that include references to deep pitting and/or poor condition. This data has proven to be useful and indicative of pipe that is in need of replacement.
- (5) Special attention should be paid to locations where the pH is highly acidic or highly alkaline.
- (6) Special attention should be paid to locations where the presence of chlorides is observed.
- (7) Special attention should be paid to locations where high levels of bacteria are recorded.
- (8) Segments for replacement should not be approved based on the attributes of the main as shown in the records system alone. Segments of coated steel main that were previously thought to be bare have been included in the replacement program in past years.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		
PR#	Work Order	Project Description	Town Code	Int Street 1	Int Street 2	Project Status	Actual Completion Date	Comments	Actual Install Footage	Service Relay/Inserts	Service Reconnects	Service Costs (YTD-3/31/2012)	Main Costs (YTD-3/31/2012)	Costs to be Removed	Degradation Fee's (Accrued / Paid)	Service Costs to be Recovered	Main Costs to be Recovered	
3	N/A	761830	420-452 MANCHESTER ST, MNC	MNC	WILSON ST	HALL ST	CASBUILT	5/17/2011	Manchester street being paved by city. No degradation fee. Actual Overhead rate exceeded estimate. 100% haul away due to poor backfill material.	494	11 (8-BS, 3-CS)	2 (PL)	\$63,789	\$135,491	\$11,278	\$0	\$52,511	\$135,491
4	N/A	747140	1750-1800 W NORTH ST, MNC	MNC	ELM ST	RIVER RD	CASBUILT	10/26/2011	Final restoration next fiscal year. Approx. \$26,310 degradation carried over to FY13.	877	0	5 (4-PL, 1-CS)	\$13,884	\$203,801	\$0	\$0	\$13,884	\$203,801
5	57	586409	16-29 FRANKLIN ST, CCD	CCD	N STATE ST	BRADLEY ST	CASBUILT	7/26/2011	\$15,139 degradation fee paid under protest. Final restoration completed. Additional 324 CF ledge removal not part of original estimate. Degradation fee \$10,439 higher than estimated due to intersection of N. State Street.	475	4 (BS)	4 (PL)	\$23,351	\$128,149	\$0	\$15,139	\$23,351	\$128,149
6	47	642276	150-160 ORANGE ST, MNC, & BEECH ST	MNC	UNION ST	BEECH ST	CASBUILT	11/22/2011	Final restoration next Fiscal year. Approx. \$6,750 degradation fee carried over to FY13. Additional 460 CF Sheathing.	225	5 (BS)	2 (PL)	\$28,434	\$64,862	\$0	\$0	\$28,434	\$64,862
7	40	761464	413-495 CALEF RD, MNC, & 21-22 WILMOT ST	MNC	MITCHELL ST	MYSTIC ST	CASBUILT	12/23/2011	Final restoration next fiscal year. Approx. \$44,850 degradation fee carried over to FY13. 1007 CF ledge removal. Installed additional 250' on side street connections.	1495	5 (BS)	4 (PL)	\$34,644	\$303,779	\$0	\$0	\$34,644	\$303,779
8	27	761506	293-325 WEBSTER ST, MNC	MNC	SHAW ST	HALL ST	CASBUILT	11/4/2011	\$30,565 degradation fee on hold. Final restoration completed. Overhead rate less than anticipated.	835	1 (PL)	4 (PL)	\$14,283	\$133,058	\$3,355	\$30,565	\$10,928	\$133,058
9	22	761473	24 DEPOT ST, MNC	MNC	ELM ST	FRANKLIN ST	CASBUILT	11/9/2011	Final restoration next fiscal year. Approx. \$8,850 degradation fee carried over to FY13. Installed footage 31% higher than estimated.	295	1 (BS)	2 (PL)	\$13,094	\$55,985	\$0	\$0	\$13,094	\$55,985
10	39	761467	753-807 CHESTNUT ST, MNC	MNC	NORTH ST	APPLETON ST	CASBUILT	11/22/2011	Final restoration next fiscal year. Approx. \$21,030 degradation fee carried over to FY13. Installed footage less than estimated.	701	8 (3-PL, 2-CS, 3-BS)	0	\$32,443	\$107,685	\$21,025	\$0	\$11,418	\$107,685
11	20	761503	19-71 TYLER AV, MNC	MNC	S BEECH ST	CAMERON ST	CASBUILT	12/1/2011	Final restoration next fiscal year. Approx. \$15,900 degradation fee carried over to FY13.	530	3 (BS)	3 (PL)	\$23,519	\$83,746	\$0	\$0	\$23,519	\$83,746
12	13	761169	93-171 SOUTH ST, CCD, & 72-88 ALLISON ST	CCD	HUMPHREY ST	PILLSBURY ST	CASBUILT	12/7/2011	\$22,821 degradation fee paid under protest. Final restoration next fiscal year. \$9,320 degradation fee on hold. Final restoration has been completed and no additional charges. 864 CF ledge removal.	1460	24 (7-PL, 17-BS)	1 (PL)	\$103,795	\$128,908	\$28,377	\$22,821	\$75,418	\$128,908
13	N/A	768234	58-80 ARNOLD ST, MNC	MNC	SECOND ST		CASBUILT	8/24/2011	Street resurfaced in 2009. Under moratorium, could not perform work.	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0
14	N/A	768265	932-1042 VALLEY ST, MNC	MNC	CYPRESS ST	JEWETT ST	GUAR	N/A	Final Restoration next Fiscal Year due to completion time.	664	19 (1-PL, 13-BS, 5-CS)	3 (PL)	\$84,698	\$64,517	\$22,783	\$0	\$61,915	\$64,517
15	N/A	770715	18-56 ASH ST, NAS	NAS	CENTRAL ST	W HOLLIS ST	CASBUILT	12/23/2011	Final Restoration next Fiscal Year due to completion time.	664	19 (1-PL, 13-BS, 5-CS)	3 (PL)	\$84,698	\$64,517	\$22,783	\$0	\$61,915	\$64,517
16	Totals								8,236	81	31	\$438,823	\$1,493,930	\$86,818	\$77,845	\$352,005	\$1,493,930	
17									1.56	Miles								
18																		
19	Carry Over Costs of FY11 Projects																	
20	628738	125-166 RUMFORD ST, CCD, & WYMAN ST	CCD	ALBIN ST	CHURCH ST	CASBUILT	12/10/2010	Final restoration has been completed and no additional charges.				\$0	\$69,510	\$0	\$0	\$0	\$69,510	
21	642267	370-452 MANCHESTER ST, MNC	MNC	LINCOLN ST	HALL ST	CASBUILT	12/17/2010	No additional restoration required, work was incorporated into city paving.				\$0	\$0	\$0	\$0	\$0	\$0	
22	752176	CHESTER ST, NAS, to 59 BERKELEY ST	NAS	BEASOM ST		CASBUILT	12/22/2010	Final restoration has been completed and no additional charges. Scope of final restoration reduced.				\$0	\$6,768	\$0	\$0	\$0	\$6,768	
23	Totals												\$76,278				\$76,278	
24	Totals								8,236	81	31	\$438,823	\$1,570,208	\$86,818	\$77,845	\$352,005	\$1,570,208	

Notes:
59 Bare Steel Services Replaced under the FY12 program.
Costs to be Removed represents the (22) CS and PL services that were replaced, but do not qualify for recovery under the CIBS Program

FY 2012 NH CIBS Final Update (YTD-3/31/2012)

S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
Total Recovered Cost	Projected Carry Over Costs FY13	Exst Diameter	Exst Material	YOI	System Pressure	Install Footage	Abandon Footage	Total Footage	Non PL Services	Total Estimated Direct Cost	Total Estimated Loaded Cost	Total Loaded Cost (YTD-3/31/2012) + Carryover Costs	Project Variance	Project Variance (%)	Estimated Overhead Rate	Overhead Rate (YTD-3/31/2012)
\$188,002	\$0	4	CI	1912	LP	465	0	465	12	\$76,965	\$131,095	\$199,280	(\$68,185)	52%	70%	118%
\$217,685	\$97,759	8	BS	1960	60	865	0	865	3	\$184,639	\$295,150	\$315,444	(\$20,294)	7%	60%	55%
\$151,500	\$0	4	CI	1892	LP	440	0	440	6	\$81,405	\$133,680	\$151,500	(\$17,820)	13%	64%	34%
\$93,296	\$30,350	2, 3 & 6	CI & WI	1894/1925	LP	255	485	740	5	\$77,458	\$124,847	\$123,646	\$1,201	-1%	61%	71%
\$338,423	\$147,687	4 & 6	CI	1929	LP	1,245	0	1,245	6	\$249,667	\$379,472	\$486,110	(\$106,638)	28%	52%	48%
\$143,986	\$0	4	CI	1940	LP	845	345	845	0	\$152,187	\$241,152	\$147,341	\$93,811	-39%	58%	23%
\$69,079	\$33,630	4	CI	1904	LP	225	0	225	2	\$70,261	\$111,210	\$102,709	\$8,501	-8%	58%	52%
\$119,103	\$78,933	4	CI	1895/1921	LP to 60	885	0	885	4	\$180,754	\$290,137	\$219,061	\$71,076	-24%	61%	56%
\$107,265	\$59,678	4	CI	1930	LP	545	0	545	3	\$103,938	\$161,815	\$166,943	(\$5,128)	3%	56%	60%
\$204,326	\$132,656	2 & 4	BS & CI	1933/1934/1949	LP	1,595	0	1,595	16	\$217,164	\$353,834	\$365,359	(\$11,525)	3%	63%	82%
\$86,838	\$0	4	CI	1912	LP	180	210	390	1	\$37,388	\$58,809	\$86,838	(\$28,029)	48%	57%	38%
\$0	\$0	3 & 4	CI	1901	LP	775	0	775	4	\$191,733	\$296,637	\$0	\$296,637	-100%	55%	N/A
\$126,432	\$88,500	2	BS	1906/1928	LP to 60	765	0	765	10	\$131,431	\$229,448	\$237,715	(\$8,267)	4%	75%	85%
\$1,845,935	\$669,192				Total Footage	9,085	1,040	9,780	72	\$1,754,990	\$2,807,286	\$2,601,945	\$205,341			
					Total Mileage	1.7	0.2	1.9								
\$69,510	\$0									\$65,672	\$65,672	\$69,510	(\$3,838)	6%	0%	18%
\$0	\$0									\$17,000	\$17,000	\$0	\$17,000	-100%	0%	N/A
\$6,768	\$0									\$42,873	\$42,873	\$6,768	\$36,105	-84%	0%	14%
\$76,278										\$125,545	\$125,545	\$76,278	\$49,267			
\$1,922,213	\$669,192					9,085	1,040	9,780	72	\$1,880,535	\$2,932,831	\$2,678,223	\$254,608			

Energy North
d/b/a National Grid
FY 2012 Cast Iron / Bare Steel Replacement Program Filing
NHPUC Docket No. DG 12-XX
Attachment C

Energy North
Cast Iron / Bare Steel Replacement Program
May 15, 2012

Computation of Revenue Requirement	1
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Bill Impacts due to Cast Iron and Bare Steel Replacement Program	5

**Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement**

	(a)	(b)	(c)	(d)	(e)	
	Actual FY09	July 1, 2009 thru March 31, 2010 9 Months FY10	Actual FY11	Actual FY12	Estimate FY13	
<u>Incremental Investment</u>						
1	CIBS Program Actual Spend-Mains	1,736,153	4,049,995	3,391,069	1,570,208	
2	CIBS Program Actual Spend-Service	729,463	798,555	668,631	352,005	
3	CIBS Program Estimated Spend-Mains					2,729,645
4	CIBS Program Estimated Spend-Service					599,190
5	Base Spending Amount	500,000	482,110	500,000	500,000	500,000
6	Incremental Amount	1,965,616	4,366,440	3,559,700	1,422,213	2,828,835
7	Cumulative CIBS Program Spend Since July 1, 2009		4,366,440	7,926,140	9,348,353	12,177,188
8						
9	<u>Deferred Tax Calculation</u>					
10	Annual Tax Depreciation	1,031,948	4,366,440	3,559,700	1,422,213	2,828,835
11	Cumulative Tax Depreciation Since July 1, 2009		4,366,440	7,926,140	9,348,353	12,177,188
12						
13	Annual Book Depreciation	49,836	98,794	179,335	212,059	276,963
14	Cumulative Book Depreciation Since July 1, 2009		98,794	278,129	490,188	767,151
15						
16	Annual Book/Tax Timer	982,112	4,267,646	3,380,365	1,210,154	2,551,872
17	Cumulative Book/Tax Timer	982,112	4,267,646	7,648,011	8,858,165	11,410,037
18	Effective Tax Rate	40.53%	40.53%	40.53%	40.53%	40.53%
19						
20	Deferred Tax Reserve	398,001	1,729,677	3,099,739	3,590,214	4,624,488
21						
22	<u>Rate Base Calculation</u>					
23	Plant In Service	1,965,616	4,366,440	7,926,140	9,348,353	12,177,188
24	Accumulated Depreciation	(49,836)	(98,794)	(278,129)	(490,188)	(767,151)
25	Net Plant in Service	1,915,780	4,267,646	7,648,011	8,858,166	11,410,037
26	Deferred Tax Reserve	(398,001)	(1,729,677)	(3,099,739)	(3,590,214)	(4,624,488)
27	Year End Rate Base	1,517,779	2,537,969	4,548,272	5,267,951	6,785,549
28						
29	<u>Revenue Requirement Calculation</u>					
30	Year End Rate Base	1,517,779	2,537,969	4,548,272	5,267,951	6,785,549
31	Pre-Tax ROR	11.53%	11.53%	11.63%	11.63%	11.63%
32	Return and Taxes	175,003	292,628	528,964	612,663	789,159
33	Book Depreciation	49,836	98,794	179,335	212,059	276,963
34	Property Taxes	37,347	88,340	194,259	231,198	297,802
35	Annual Revenue Requirement	262,185	479,762	902,558	1,055,920	1,363,924
36						
37	Prior Year Annual Revenue Requirement	-	-	479,762	902,558	1,055,920
38						
39	Incremental Annual Rate Adjustment Since July 1, 2009	262,185	479,762	422,796	153,362	308,005
40						
41	As filed in FY 2011 per Page 2, Line 39 (c)			521,590		
42						
43	Difference for one time FY 2011 true up				(98,794)	
44						
45	Final 2012 Revenue Requirement				54,568	
46						
47						
48						
49	<u>Imputed Capital Structure</u>					
50		<u>Ratio</u>	<u>Rate</u>	<u>Weighted</u>	<u>Rate</u>	<u>Pre Tax</u>
51	Long Term Debt	50.00%	6.99%	3.50%	3.50%	
52	Short Term Debt	0.00%	0.00%	0.00%	0.00%	
53	Common Equity	50.00%	9.67%	4.84%	8.13%	
54						
55		<u>100.00%</u>		<u>8.33%</u>	<u>11.63%</u>	

Line / Column Notes:

- 34 Property tax rate reflects actual calendar year 2011 ratio of municipal tax expense to average net plant in service per page 4.
- Col (b) In accordance with Exhibit EN-3 of the National Grid/KeySpan Merger Settlement Agreement (Docket No. DG 06-107), EnergyNorth is allowed to implement on July 1 of each year, a permanent increase in its base distribution delivery rates to recover the annual revenue requirement for those investments made in the preceding fiscal year ended March 31st in excess of the CIBS base amount. As shown on Attachment A of Exhibit EN-3, the revenue requirement in any year reflects deferred income tax reserves based on the cumulative book/tax timing difference of all prior year CIBS investments. However, on July 1, 2010, EnergyNorth implemented new temporary base distribution delivery rates as part of its rate case in Docket No. DG 10-017. These new rates were based on the historic test year ended June 30, 2009 which included the first three months of CIBS investment for the fiscal year ended March 31, 2010. As a consequence, the revenue requirement for the fiscal year ended March 31, 2010 reflected CIBS investment for only the last nine months of the fiscal year ended March 31, 2010. In addition, this revenue requirement did not reflect deferred income tax reserves based on cumulative book/tax timing differences on CIBS spending prior to June 30, 2009.

**Energy North
Cast Iron / Bare Steel Replacement Program
Revenue Requirement as Filed for FY 2011**

	(a)	(b) July 1, 2009 thru March 31, 2010 9 Months FY10	(c) Actual FY11	
<u>Incremental Investment</u>				
1	CIBS Program Actual Spend-Mains	1,736,153	4,049,995	3,391,069
2	CIBS Program Actual Spend-Service	729,463	798,555	668,631
3	CIBS Program Estimated Spend-Mains			
4	CIBS Program Estimated Spend-Service			
5	Base Spending Amount	500,000	482,110	500,000
6	Incremental Amount	1,965,616	4,366,440	3,559,700
7	Cumulative CIBS Program Spend Since July 1, 2009		4,366,440	7,926,140
8				
9	<u>Deferred Tax Calculation</u>			
10	Annual Tax Depreciation	1,031,948	4,366,440	3,559,700
11	Cumulative Tax Depreciation Since July 1, 2009		4,366,440	7,926,140
12				
13	Annual Book Depreciation	49,836	98,794	179,335
14	Cumulative Book Depreciation Since July 1, 2009		98,794	278,129
15				
16	Annual Book/Tax Timer	982,112	4,267,646	3,380,365
17	Cumulative Book/Tax Timer	982,112	4,267,646	7,648,011
18	Effective Tax Rate	40.53%	40.53%	40.53%
19				
20	Deferred Tax Reserve	398,001	1,729,677	3,099,739
21				
22	<u>Rate Base Calculation</u>			
23	Plant In Service	1,965,616	4,366,440	7,926,140
24	Accumulated Depreciation	(49,836)	(98,794)	(278,129)
25	Net Plant in Service	1,915,780	4,267,646	7,648,011
26	Deferred Tax Reserve	(398,001)	(1,729,677)	(3,099,739)
27	Year End Rate Base	1,517,779	2,537,969	4,548,272
28				
29	<u>Revenue Requirement Calculation</u>			
30	Year End Rate Base	1,517,779	2,537,969	4,548,272
31	Pre-Tax ROR	11.53%	11.53%	11.63%
32	Return and Taxes	175,003	292,628	528,964
33	Book Depreciation	49,836	98,794	278,129
34	Property Taxes	37,347	88,340	194,259
35	Annual Revenue Requirement	262,185	479,762	1,001,352
36				
37	Prior Year Annual Revenue Requirement	-	-	479,762
38				
39	Incremental Annual Rate Adjustment Since July 1, 2009	262,185	479,762	521,590
40				
41				
42	<u>Imputed Capital Structure</u>			
43		<u>Ratio</u>	<u>Rate</u>	<u>Weighted Rate</u>
44	Long Term Debt	50.00%	6.99%	3.50%
45	Short Term Debt	0.00%	0.00%	0.00%
46	Common Equity	50.00%	9.67%	4.84%
47				<u>8.13%</u>
48		<u>100.00%</u>	<u>8.33%</u>	<u>11.63%</u>

Line / Column Notes:

- 34 Property tax rate reflects actual calendar year 2010 ratio of municipal tax expense to net plant in service.
- Col (b) In accordance with Exhibit EN-3 of the National Grid/KeySpan Merger Settlement Agreement (Docket No. DG 06-107), EnergyNorth is allowed to implement on July 1 of each year, a permanent increase in its base distribution delivery rates to recover the annual revenue requirement for those investments made in the preceding fiscal year ended March 31st in excess of the CIBS base amount. As shown on Attachment A of Exhibit EN-3, the revenue requirement in any year reflects deferred income tax reserves based on the cumulative book/tax timing difference of all prior year CIBS investments. However, on July 1, 2010, EnergyNorth implemented new temporary base distribution delivery rates as part of its rate case in Docket No. DG 10-017. These new rates were based on the historic test year ended June 30, 2009 which included the first three months of CIBS investment for the fiscal year ended March 31, 2010. As a consequence, the revenue requirement for the fiscal year ended March 31, 2010 reflected CIBS investment for only the last nine months of the fiscal year ended March 31, 2010. In addition, this revenue requirement did not reflect deferred income tax reserves based on cumulative book/tax timing differences on CIBS spending prior to June 30, 2009.

**Energy North
Cast Iron / Bare Steel Replacement Program
Vintage Year Book Depreciation Schedule**

	(a)	(b)	(c)	(d)	(e)		
	Actual	July 1, 2009 thru March 31, 2010 9 Months	Actual	Estimate	Estimate		
	FY09	FY10	FY11	FY12	FY13		
Book Depreciation Schedule-Mains							
1	Actual CIBS spending	1,736,153	4,049,995	3,391,069	1,570,208	2,729,645	
2	Base spending	(352,073)	(402,707)	(417,650)	(408,438)	(410,000)	
3	Incremental CIBS spending	1,384,080	3,647,288	2,973,419	1,161,770	2,319,645	
4							
5	Book Depreciation Rate:						
6	Year 1	2.54%	35,065				
7	Year 1 beginning in FY10	1.92%		70,028	57,090	22,306	44,537
8	Year 2	1.92%		70,028	57,090	22,306	
9	Year 3	1.92%			70,028	57,090	
10	Year 4	1.92%				70,028	
11	Year 5	1.92%					
12							
13	Book Depreciation Expense-Mains	35,065	70,028	127,118	149,424	193,961	
14							
15	Accumulated Depreciation Mains-Beginning of Year	-	-	70,028	197,146	346,570	
16	Accumulated Depreciation Mains-End of Year	35,065	70,028	197,146	346,570	540,530	
17							
18							
19	Book Depreciation Schedule-Services						
20							
21	Actual CIBS spending	729,463	798,555	668,631	352,005	599,190	
22	Base spending	(147,927)	(79,403)	(82,350)	(91,562)	(90,000)	
23	Incremental CIBS spending	581,536	719,152	586,281	260,443	509,190	
24							
25	Book Depreciation Rate:						
26	Year 1	2.54%	14,771				
27	Year 1 beginning in FY10	4.00%		28,766	23,451	10,418	20,368
28	Year 2	4.00%		28,766	23,451	10,418	
29	Year 3	4.00%			28,766	23,451	
30	Year 4	4.00%				28,766	
31	Year 5	4.00%					
32							
33	Book Depreciation Expense-Services	14,771	28,766	52,217	62,635	83,003	
34							
35	Accumulated Depreciation Services-Beginning of Year	-	-	28,766	80,983	143,618	
36	Accumulated Depreciation Services-End of Year	14,771	28,766	80,983	143,618	226,621	
37							
38							
39							
40	Total Mains & Services Depreciation Expense	49,836	98,794	179,335	212,059	276,963	
41							
42	Total Mains & Services Accumulated Depreciation	49,836	98,794	278,129	490,188	767,151	

2(d) & 22(d) FY 2013 estimate split 82% Mains / 18% Services based upon FY 2012 results.

6(a) & 26(a) FY 2009 filing used the composite depreciation rate for both mains and services.

col. (b) See footnote regarding column (b) on page 1 of 5.

Energy North
Cast Iron / Bare Steel Replacement Program
Municipal Taxes as a Percentage of Net Plant

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	12/31/2005	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010	12/31/2011
1 Plant in Service (page 100 table 10)	258,573	272,678	289,379	305,221	319,737	332,049	344,966
2 Depreciation and Amortization Reserve (page 101 table 10)	(82,363)	(88,564)	(94,562)	(102,587)	(108,270)	(114,294)	(119,973)
3 Net Plant	<u>176,209</u>	<u>184,114</u>	<u>194,817</u>	<u>202,634</u>	<u>211,467</u>	<u>217,756</u>	<u>224,993</u>
4							
5 Average Net Plant							
6 Plant in Service		265,625	281,028	297,300	312,479	325,893	338,508
7 Depreciation Reserve		(85,463)	(91,563)	(98,575)	(105,429)	(111,282)	(117,133)
8 Net Plant		<u>180,162</u>	<u>189,465</u>	<u>198,726</u>	<u>207,051</u>	<u>214,611</u>	<u>221,375</u>
9							
10 Municipal Taxes (page 112 table 33)		<u>3,534</u>	<u>3,641</u>	<u>3,771</u>	<u>4,294</u>	<u>5,459</u>	<u>5,776</u>
11							
12 % Municipal Taxes to Net Plant		<u>1.96%</u>	<u>1.92%</u>	<u>1.90%</u>	<u>2.07%</u>	<u>2.54%</u>	<u>2.61%</u>

Note: Source of above data is the December 31 PUC Annual Report to be consistent with data previously provided to the Commission.

**Energy North
Cast Iron / Bare Steel Replacement Program
Bill Impacts due to Cast Iron and Bare Steel Replacement Program**

	(a)	(b)	(c)	(d)	(e)
	FY2009	FY2010	FY2011	FY2012	Estimate FY2013
1 Annual Increase due to Cast Iron Bare Steel program	262,185	479,762	422,796	54,568	308,005
2					
3 Annual Throughput (based on Nov 11 COG/LDAF filing)	154,702,063	150,828,182	154,648,622	163,588,592	163,588,592
4					
5 Increase Factor	\$0.0017	\$0.0032	\$0.0027	\$0.0003	\$0.0019
6					
7 Annual Actual Calendar Year Revenues	\$176,520,000	\$151,224,178	\$132,475,941	\$146,365,316	\$146,365,316
8					
9 Annual Percent Increase	0.15%	0.32%	0.32%	0.04%	0.21%
10					
11 Miles of Main Replaced Annually	2.96	3.98	2.79	1.56	1.69
12 Cumulative Miles of Main Replaced	2.96	3.98	6.77	8.33	10.02
13 Miles of Cast Iron/Bare Steel Main Remaining ¹	149.8	142.0	137.4	132.1	
14					
15 Services Replaced Annually	101	127	282	81	143
16 Cumulative Number of Services Replaced	101	127	409	490	633
17 Typical Residential bill (Based on Pk 11-12 and OffPeak 12 COG)	\$1,757	\$1,591	\$1,555	\$1,451	\$1,451
18					
19 Typical Usage	1,250	1,250	1,250	1,250	1,250
20					
21 Annual Increase for Residential Heating customer	\$2.12	\$3.98	\$3.42	\$0.42	\$2.35
22					
23 Percent Bill Increase	0.12%	0.25%	0.22%	0.03%	0.16%
24					
25					
26					
27 Typical G-41 (Based on Pk 11-12 and OffPeak 12 COG)	\$2,944	\$2,662	\$2,628	\$2,427	\$2,427
28					
29 Typical Usage	2,000	2,000	2,000	2,000	2,000
30					
31 Annual Increase for G-41 customer	\$3.39	\$6.36	\$5.47	\$0.67	\$3.77
32					
33 Percent Bill Increase	0.12%	0.24%	0.21%	0.03%	0.16%
34					
35					
36 Typical G-42 (Based on Pk 11-12 and OffPeak 12 COG)	\$28,260	\$25,188	\$23,828	\$22,015	\$22,015
37					
38 Typical Usage	21,023	21,023	21,023	21,023	21,023
39					
40 Annual Increase for G-42 customer	\$35.63	\$66.87	\$57.48	\$7.01	\$39.58
41					
42 Percent Bill Increase	0.13%	0.27%	0.24%	0.03%	0.18%
43					
44					
45 Typical G-52 (Based on Pk 11-12 and OffPeak 12 COG)	\$23,840	\$21,185	\$20,620	\$18,305	\$18,305
46					
47 Typical Usage	20,489	20,489	20,489	20,489	20,489
48					
49 Annual Increase for G-52 customer	\$34.72	\$65.17	\$56.02	\$6.83	\$38.58
50					
51 Percent Bill Increase	0.15%	0.31%	0.27%	0.04%	0.21%

Line / Column Notes:

1(b)-16(b) Amounts are cumulative from July 1, 2009

¹These figures are as of the end of the prior calendar year (i.e. FY 2012 data is as of 12/31/2011)

**Energy North
d/b/a National Grid
FY 2012 Cast Iron / Bare Steel Replacement Program Filing
NHPUC Docket No. DG 12-XX
Attachment D**

**Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Since Program Inception - Informational Only
May 15, 2012**

Computation of Revenue Requirement From Inception	1
Vintage Year Book Depreciation Schedule From Inception	2
Municipal Taxes as a Percentage of Net Plant From Inception	3
Bill Impacts due to Cast Iron and Bare Steel Replacement Program From Inception	4

**Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement From Inception**

RESTATED AS IF RATE CASE WAS NOT FILED. FOR INFORMATIONAL PURPOSES ONLY.

	(a) Actual FY09	(b) 12 Months FY10	(c) Actual FY11	(d) Actual FY12	(e) Estimate FY13	
<u>Incremental Investment</u>						
1	CIBS Program Actual Spend-Mains	1,736,153	4,206,295	3,391,069	1,570,208	
2	CIBS Program Actual Spend-Service	729,463	822,173	668,631	352,005	
3	CIBS Program Estimated Spend-Mains					2,729,645
4	CIBS Program Estimated Spend-Service					599,190
5	Base Spending Amount	500,000	500,000	500,000	500,000	500,000
6	Incremental Amount	1,965,616	4,528,468	3,559,700	1,422,213	2,828,835
7	Cumulative CIBS Program Spend	1,965,616	6,494,084	10,053,784	11,475,997	14,304,832
8						
9	<u>Deferred Tax Calculation</u>					
10	Annual Tax Depreciation	1,031,948	5,462,136	3,559,700	1,422,213	2,828,835
11	Cumulative Tax Depreciation	1,031,948	6,494,084	10,053,784	11,475,997	14,304,832
12						
13	Annual Book Depreciation	49,836	152,184	232,725	265,448	330,352
14	Cumulative Book Depreciation	49,836	202,019	434,744	700,192	1,030,544
15						
16	Annual Book/Tax Timer	982,112	5,309,953	3,326,975	1,156,765	2,498,483
17	Cumulative Book/Tax Timer	982,112	6,292,065	9,619,040	10,775,805	13,274,288
18	Effective Tax Rate	40.53%	40.53%	40.53%	40.53%	40.53%
19						
20	Deferred Tax Reserve	398,001	2,550,174	3,898,597	4,367,434	5,380,069
21						
22	<u>Rate Base Calculation</u>					
23	Plant In Service	1,965,616	6,494,084	10,053,784	11,475,997	14,304,832
24	Accumulated Depreciation	(49,836)	(202,019)	(434,744)	(700,192)	(1,030,544)
25	Net Plant in Service	1,915,780	6,292,065	9,619,040	10,775,805	13,274,288
26	Deferred Tax Reserve	(398,001)	(2,550,174)	(3,898,597)	(4,367,434)	(5,380,069)
27	Year End Rate Base	1,517,779	3,741,891	5,720,443	6,408,371	7,894,219
28						
29	<u>Revenue Requirement Calculation</u>					
30	Year End Rate Base	1,517,779	3,741,891	5,720,443	6,408,371	7,894,219
31	Pre-Tax ROR	11.53%	11.53%	11.63%	11.63%	11.63%
32	Return and Taxes	175,003	431,440	665,288	745,294	918,098
33	Book Depreciation	49,836	152,184	232,725	265,448	330,352
34	Property Taxes	37,347	130,246	244,324	281,249	346,459
35	Annual Revenue Requirement	262,185	713,870	1,142,337	1,291,991	1,594,909
36						
37	Prior Year Annual Revenue Requirement	-	262,185	713,870	1,142,337	1,291,991
38						
39	Incremental Annual Rate Adjustment	262,185	451,684	428,467	149,654	302,919
40						
41						
42	<u>Imputed Capital Structure</u>					
43		<u>Ratio</u>	<u>Rate</u>	<u>Rate</u>	<u>Pre Tax</u>	
44	Long Term Debt	50.00%	6.99%	3.50%	3.50%	
45	Short Term Debt	0.00%	0.00%	0.00%	0.00%	
46	Common Equity	50.00%	9.67%	4.84%	8.13%	
47						
48		<u>100.00%</u>		<u>8.33%</u>	<u>11.63%</u>	

Line / Column Notes:

- 34 Property tax rate reflects actual calendar year 2011 ratio of municipal tax expense to net plant in service.
- Col (b) Amounts are as if rate case was never filed in 2009; informational only.
- 11 (b) Includes repairs tax catch up for FY 2009.

Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Since Program Inception - Informational Only

Vintage Year Book Depreciation Schedule From Inception

RESTATED AS IF RATE CASE WAS NOT FILED. FOR INFORMATIONAL PURPOSES ONLY.

		(a) Actual FY09	(b) 12 Months FY10	(c) Actual FY11	(d) Estimate FY12	(e) Estimate FY13
Book Depreciation Schedule-Mains						
1	Actual CIBS spending	1,736,153	4,206,295	3,391,069	1,570,208	2,729,645
2	Base spending	(352,073)	(418,248)	(417,650)	(408,438)	(410,000)
3	Incremental CIBS spending	1,384,080	3,788,047	2,973,419	1,161,770	2,319,645
4						
5	Book Depreciation Rate:					
6	Year 1	2.54%	35,065	35,065	35,065	35,065
7	Year 1 beginning in FY10	1.92%		72,731	57,090	44,537
8	Year 2	1.92%		72,731	57,090	22,306
9	Year 3	1.92%			72,731	57,090
10	Year 4	1.92%				72,731
11	Year 5	1.92%				
12						
13	Book Depreciation Expense-Mains	35,065	107,796	164,886	187,191	231,728
14						
15	Accumulated Depreciation Mains-Beginning of Year	-	35,065	142,860	307,746	494,937
16	Accumulated Depreciation Mains-End of Year	35,065	142,860	307,746	494,937	726,665
17						
18						
19	Book Depreciation Schedule-Services					
20						
21	Actual CIBS spending	729,463	822,173	668,631	352,005	599,190
22	Base spending	(147,927)	(81,752)	(82,350)	(91,562)	(90,000)
23	Incremental CIBS spending	581,536	740,421	586,281	260,443	509,190
24						
25	Book Depreciation Rate:					
26	Year 1	2.54%	14,771	14,771	14,771	14,771
27	Year 1 beginning in FY10	4.00%		29,617	23,451	10,418
28	Year 2	4.00%		29,617	23,451	10,418
29	Year 3	4.00%			29,617	23,451
30	Year 4	4.00%				29,617
31	Year 5	4.00%				
32						
33	Book Depreciation Expense-Services	14,771	44,388	67,839	78,257	98,624
34						
35	Accumulated Depreciation-Beginning of Year	-	14,771	59,159	126,998	205,255
36	Accumulated Depreciation-End of Year	14,771	59,159	126,998	205,255	303,879
37						
38						
39						
40	Total Mains & Services Depreciation Expense	49,836	152,184	232,725	265,448	330,352
41						
42	Total Mains & Services Accumulated Depreciation	49,836	202,019	434,744	700,192	1,030,544

Line / Column Notes:

2(d) & 22(d) FY 2013 estimate split 82% Mains / 18% Services based upon FY 2012 results.

6(a) & 26(a) FY 2009 filing used the composite depreciation rate for both mains and services.

Col (b) See footnote regarding column (b) on page 1 of 4.

Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Since Program Inception - Informational Only

Municipal Taxes as a Percentage of Net Plant From Inception

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	<u>12/31/2005</u>	<u>12/31/2006</u>	<u>12/31/2007</u>	<u>12/31/2008</u>	<u>12/31/2009</u>	<u>12/31/2010</u>	<u>12/31/2011</u>
1 Plant in Service (page 100 table 10)	258,573	272,678	289,379	305,221	319,737	332,049	344,966
2 Depreciation and Amortization Reserve (page 101 table 10)	(82,363)	(88,564)	(94,562)	(102,587)	(108,270)	(114,294)	(119,973)
3 Net Plant	<u>176,209</u>	<u>184,114</u>	<u>194,817</u>	<u>202,634</u>	<u>211,467</u>	<u>217,756</u>	<u>224,993</u>
4							
5 Average Net Plant							
6 Plant in Service		265,625	281,028	297,300	312,479	325,893	338,508
7 Depreciation Reserve		(85,463)	(91,563)	(98,575)	(105,429)	(111,282)	(117,133)
8 Net Plant		<u>180,162</u>	<u>189,465</u>	<u>198,726</u>	<u>207,051</u>	<u>214,611</u>	<u>221,375</u>
9							
10 Municipal Taxes (page 112 table 33)		<u>3,534</u>	<u>3,641</u>	<u>3,771</u>	<u>4,294</u>	<u>5,459</u>	<u>5,776</u>
11							
12 % Municipal Taxes to Net Plant		<u>1.96%</u>	<u>1.92%</u>	<u>1.90%</u>	<u>2.07%</u>	<u>2.54%</u>	<u>2.61%</u>

Note: Source of above data is the December 31 PUC Annual Report to be consistent with data previously provided to the Commission.

**Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Since Program Inception - Informational Only**

Bill Impacts due to Cast Iron and Bare Steel Replacement Program From Inception

RESTATED AS IF RATE CASE WAS NOT FILED. FOR INFORMATIONAL PURPOSES ONLY.

	FY2009	FY2010	FY2011	FY2012	Estimate FY2013
1 Cumulative Increase due to Cast Iron Bare Steel program	262,185	713,870	1,142,337	1,291,991	1,594,909
2					
3 Annual Throughput (based on Nov 11 COG/LDAF filing)	154,702,063	150,828,182	154,828,182	163,588,592	163,588,592
4					
5 Cumulative Increase Factor	\$0.0017	\$0.0047	\$0.0074	\$0.0079	\$0.0097
6					
7 Annual Actual Calendar Year Revenues	\$176,520,000	\$151,224,178	\$132,475,941	\$146,365,316	\$146,365,316
8					
9 Cumulative Percent Increase	0.15%	0.47%	0.86%	0.88%	1.09%
10					
11 Miles of Main Replaced Annually	2.96	3.98	2.79	1.56	1.69
12 Cumulative Miles of Main Replaced	2.96	6.94	9.73	11.29	12.98
13 Miles of Cast Iron/Bare Steel Main Remaining ¹	149.8	142.0	137.4	132.1	
14					
15 Services Replaced Annually	101	127	282	81	143
16 Cumulative Number of Services Replaced	101	228	510	591	734
17					
18 Typical Residential bill (Based on Pk 11-12 and OffPeak 12 COG)	\$1,757	\$1,591	\$1,555	\$1,451	\$1,451
19					
20 Typical Usage	1,250	1,250	1,250	1,250	1,250
21					
22 Cumulative Increase for Residential Heating customer	\$2.12	\$5.92	\$9.22	\$9.87	\$12.19
23					
24 Percent Bill Increase	0.12%	0.37%	0.59%	0.68%	0.84%
25					
26					
27 Typical G-41 (Based on Pk 11-12 and OffPeak 12 COG)	\$2,944	\$2,662	\$2,628	\$2,427	\$2,427
28					
29 Typical Usage	2,000	2,000	2,000	2,000	2,000
30					
31 Cumulative Increase for G-41 customer	\$3.39	\$9.47	\$14.76	\$15.80	\$19.50
32					
33 Percent Bill Increase	0.12%	0.36%	0.56%	0.65%	0.80%
34					
35					
36 Typical G-42 (Based on Pk 11-12 and OffPeak 12 COG)	\$28,260	\$25,188	\$23,828	\$22,015	\$22,015
37					
38 Typical Usage	21,023	21,023	21,023	21,023	21,023
39					
40 Cumulative Increase for G-42 customer	\$35.63	\$99.50	\$155.11	\$166.04	\$204.96
41					
42 Percent Bill Increase	0.13%	0.40%	0.65%	0.75%	0.93%
43					
44					
45 Typical G-52 (Based on Pk 11-12 and OffPeak 12 COG)	\$23,840	\$21,185	\$20,620	\$18,305	\$18,305
46					
47 Typical Usage	20,489	20,489	20,489	20,489	20,489
48					
49 Cumulative Increase for G-52 customer	\$34.72	\$96.97	\$151.17	\$161.82	\$199.76
50					
51 Percent Bill Increase	0.15%	0.46%	0.73%	0.88%	1.09%

¹These figures are as of the end of the prior calendar year (i.e. FY 2012 data is as of 12/31/2011)

Energy North
d/b/a National Grid
FY 2012 Cast Iron / Bare Steel Replacement Program Filing
NHPUC Docket No. DG 12-XX
Attachment E

Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Impact of Refund of Degradation Fees - Informational Only
May 15, 2012

Computation of Revenue Requirement Refund on Degradation Fees	1
Vintage Year Book Depreciation Schedule	2
Municipal Taxes as a Percentage of Net Plant	3
Bill Impacts due to Cast Iron and Bare Steel Replacement Program	4

**Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Refund on Degradation Fees**

		<u>Refund</u>		
		<u>Year</u>		
<u>Incremental Investment</u>				
1	CIBS Program Actual - Refund of Degradation Fees	(372,736)		
2	Base Spending Amount			
3	Incremental Amount	(372,736)		
4	Cumulative CIBS Program - Refund of Degradation Fees	(372,736)		
5				
<u>Deferred Tax Calculation</u>				
7	Annual Tax Depreciation	(372,736)		
8	Cumulative Tax Depreciation on Degradation Fees	(372,736)		
9				
10	Annual Book Depreciation	(7,157)		
11	Cumulative Book Depreciation on Degradation Fees	(7,157)		
12				
13	Annual Book/Tax Timer	(365,579)		
14	Cummulative Book/Tax Timer	(365,579)		
15	Effective Tax Rate	40.53%		
16				
17	Deferred Tax Reserve	(148,169)		
18				
<u>Rate Base Calculation</u>				
20	Plant In Service	(372,736)		
21	Accumulated Depreciation	7,157		
22	Net Plant in Service	(365,579)		
23	Deferred Tax Reserve	148,169		
24	Year End Rate Base	(217,410)		
25				
<u>Revenue Requirement Calculation</u>				
27	Year End Rate Base	(217,410)		
28	Pre-Tax ROR	11.63%		
29	Return and Taxes	(25,285)		
30	Book Depreciation	(7,157)		
31	Property Taxes	(9,542)	2.61%	
32	Revenue Requirement Reduction	(41,984)		
33				
34				
<u>Imputed Capital Structure</u>				
36		<u>Ratio</u>	<u>Rate</u>	<u>Weighted</u>
37	Long Term Debt	50.00%	6.99%	3.50%
38	Short Term Debt	0.00%	0.00%	0.00%
39	Common Equity	50.00%	9.67%	4.84%
40				
41		<u>100.00%</u>		<u>8.33%</u>
				<u>11.63%</u>

Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Impact of Refund of Degradation Fees - Informational Only

Vintage Year Book Depreciation Schedule

Book Depreciation Schedule-Mains	Refund Year
1 Actual CIBS spending	(372,736)
2	
3 Incremental CIBS spending	(372,736)
4	
5 Book Depreciation Rate:	
6 Year 1 beginning in FY10	1.92% (7,157)
7 Year 2	1.92%
8 Year 3	1.92%
9 Year 4	1.92%
10	
11 Book Depreciation Expense-Mains	(7,157)
12	
13 Accumulated Depreciation-Beginning of Year	-
14 Accumulated Depreciation-End of Year	(7,157)

Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Impact of Refund of Degradation Fees - Informational Only

Municipal Taxes as a Percentage of Net Plant

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	12/31/2005	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010	12/31/2011
1 Plant in Service (page 100 table 10)	258,573	272,678	289,379	305,221	319,737	332,049	344,966
2 Depreciation and Amortization Reserve (page 101 table 10)	(82,363)	(88,564)	(94,562)	(102,587)	(108,270)	(114,294)	(119,973)
3 Net Plant	<u>176,209</u>	<u>184,114</u>	<u>194,817</u>	<u>202,634</u>	<u>211,467</u>	<u>217,756</u>	<u>224,993</u>
4							
5 Average Net Plant							
6 Plant in Service		265,625	281,028	297,300	312,479	325,893	338,508
7 Depreciation Reserve		(85,463)	(91,563)	(98,575)	(105,429)	(111,282)	(117,133)
8 Net Plant		<u>180,162</u>	<u>189,465</u>	<u>198,726</u>	<u>207,051</u>	<u>214,611</u>	<u>221,375</u>
9							
10 Municipal Taxes (page 112 table 33)		<u>3,534</u>	<u>3,641</u>	<u>3,771</u>	<u>4,294</u>	<u>5,459</u>	<u>5,776</u>
11							
12 % Municipal Taxes to Net Plant		<u>1.96%</u>	<u>1.92%</u>	<u>1.90%</u>	<u>2.07%</u>	<u>2.54%</u>	<u>2.61%</u>

Note: Source of above data is the December 31 PUC Annual Report to be consistent with data previously provided to the Commission.

Energy North
Cast Iron / Bare Steel Replacement Program
Computation of Revenue Requirement Impact of Refund of Degradation Fees - Informational Only

Bill Impacts due to Cast Iron and Bare Steel Replacement Program

		Refund Year
1	Decrease Related to Refund of Degradation Fees	(41,984)
2		
3	Annual Throughput (based on Nov 11 COG/LDAF filing)	154,648,622
4		
5	Decrease Factor	(\$0.0003)
6		
7	Annual Actual Calendar Year 2011 Revenues	\$146,365,316
8		
9	Annual Percent Decrease	-0.03%
10		
11		
12		
13	Typical Residential bill (Based on Pk 11-12 and OffPeak 12 COG)	\$1,555
14		
15	Typical Usage	1,250
16		
17	Annual Increase for Residential Heating customer	(\$0.34)
18		
19	Percent Bill Decrease	-0.02%
20		
21		
22	Typical G-41 (Based on Pk 11-12 and OffPeak 12 COG)	\$2,628
23		
24	Typical Usage	2,000
25		
26	Annual Increase for G-41 customer	(\$0.54)
27		
28	Percent Bill Decrease	-0.02%
29		
30		
31	Typical G-42 (Based on Pk 11-12 and OffPeak 12 COG)	\$23,828
32		
33	Typical Usage	21,023
34		
35	Annual Increase for G-42 customer	(\$5.71)
36		
37	Percent Bill Decrease	-0.02%
38		
39		
40	Typical G-52 (Based on Pk 11-12 and OffPeak 12 COG)	\$20,620
41		
42	Typical Usage	20,489
43		
44	Annual Increase for G-52 customer	(\$5.56)
45		
46	Percent Bill Decrease	-0.03%