

**GEORGE R. McCLUSKEY**

**NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION**  
Analyst

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George McCluskey is a ratemaking specialist with over 30 years experience in utility economics. Since rejoining the New Hampshire Public Utilities Commission (“NHPUC.”) in 2005, he has worked on numerous issues including renewable power purchase contracts, default energy service and standby rates in the electric sector and cost allocation issues in the gas sector. In 2012, Mr. McCluskey was appointed Assistant Director for Wholesale Electric Markets. While at La Capra Associates, a Boston-based consulting firm specializing in electric industry restructuring, wholesale and retail power procurement, market price and risk analysis, and power systems models and planning methods, he provided strategic advice to numerous clients on a variety of issues. Prior to joining La Capra Associates, Mr. McCluskey directed the electric utility restructuring division of the NHPUC and before that was manager of least cost planning, directing and supervising the review and implementation of electric and gas utility least cost plans and demand-side management programs. He has testified as an expert witness in numerous electric and gas cases before state and federal regulatory agencies.

**ACCOMPLISHMENTS**

Recent project experience includes:

**Staff of the New Hampshire Public Utilities Commission – Expert testimony before NHPUC regarding default service design and pricing issues in case involving Unitil Energy Systems.**

**Staff of the New Hampshire Public Utilities Commission – Expert testimony before Maine Public Utilities Commission regarding interstate allocation of natural gas capacity costs in case involving Northern Utilities.**

**Staff of the Arkansas Public Service Commission – Analysis and case support regarding Entergy Arkansas Inc.’s application to transfer ownership and control of its transmission assets to a Transco. Also analyzed Entergy Arkansas Inc.’s stranded generation cost claims.**

**Massachusetts Technology Collaborative** – Evaluated proposals by renewable resource developers to sell Renewable Energy Credits to MTC in response to 2003 RFP.

**Pennsylvania Office of the Consumer Advocate** – Analysis and case support regarding horizontal and vertical market power related issues in the PECO/Unicom merger proceeding. Also advised on cost-of-service, cost allocation and rate design issues in FERC base rate case for interstate natural gas pipeline company.

**Staff of the New Hampshire Public Utilities Commission** – Expert testimony before the NHPUC regarding stranded cost issues in Restructuring Settlement Agreement submitted by Public Service Company of New Hampshire and various settling parties. Testimony presents an analysis of PSNH's stranded costs and makes recommendations regarding the recoverability of such costs.

**Town of Waterford, CT** – Advisory and expert witness services in litigation to determine property tax assessment of for nuclear power plant.

**Washington Electric Cooperative, Vt** – Prepared report on external obsolescence in rural distribution systems in property tax case.

**New Hampshire Public Utilities Commission** - Expert testimony on behalf of the NHPUC before the Federal Energy Regulatory Commission regarding the Order 888 calculation of wholesale stranded costs for utilities receiving partial requirements power supply service.

**Ohio Consumer Council** - Expert testimony regarding the transition cost recovery requests submitted by the AEP companies, including a critique of the DCF and revenues lost approaches to generation asset valuation.

## **EXPERIENCE**

**New Hampshire Public Utilities Commission (2012 to Present)**  
Assistant Director, Wholesale Electric Markets

**New Hampshire Public Utilities Commission (2005 to 2012)**  
Analyst, Electricity Division

**La Capra Associates (1999 to 2005)**  
Senior Consultant

**New Hampshire Public Utilities Commission (1987 – 1999)**  
Director, Electric Utilities Restructuring Division  
Manager, Lease Cost Planning

Analyst, Economics Department

**Electricity Council, London, England (1977-1984)**

Pricing Specialist, Commercial Department

Information Officer, Secretary's Office

**EDUCATION:**

**Ph.D. candidate in Theoretical Plasma Physics, University of Sussex Space Physics Laboratory.**

Withdrew in 1977 to take position with Electricity Council.

**B.S., University of Sussex, England, 1975.**

Theoretical Physics

Exhibit GRM-2

EnergyNorth Natural Gas  
Comparison of Propane and  
Granite Ridge Contract Prices  
(\$/MMBtu)

Tennessee Zone 6 Mid-Point	Granite Ridge Daily Commodity Price	Propane Cost Forecast	Cost Difference
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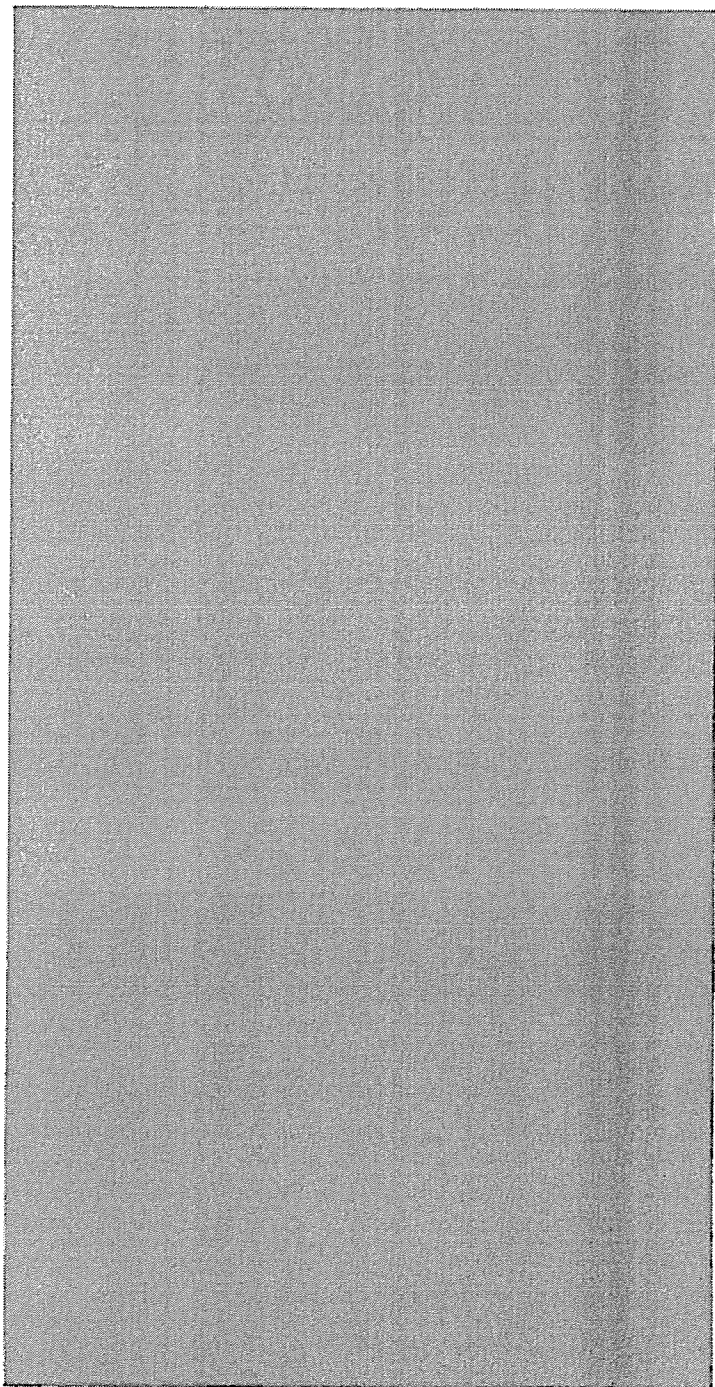


Exhibit GRM-3

Supply/Demand Balance  
(MMBtu)

	Capacity
<u>Long Haul Transportation</u>	
PNGTS	1,000
Iroquois	4,000
Niagara	3,122
Tennessee Gulf	
FT-A 1	24,777
FT-A 2	25,223
FT-A 3	21,596
Total	79,718
<u>Underground Storage</u>	
Total	28,115
<u>Supplemental Facilities</u>	
Granite Ridge	15,000
DOMAC	
Vapor	0
Liquid	0
LNG from Storage	22,800
Propane	
Vapor	34,600
Truck	0
Total	72,400
<u>Grand Total</u>	180,233

	<u>Demand</u> w/o DSM	<u>Demand</u> w/ DSM
Design-Day-2014/15	148,866	141,813
Design-Day-2010/11	140,043	137,326
Excess-2014/15	31,367	38,420
Excess-2010/11	40,190	42,907
% Excess -2014/15	21.07%	27.09%
% Excess -2010/11	28.70%	31.24%

ENERGYNORTH NATURAL GAS, INC.  
 DG 12-001  
 ENERGYNORTH'S RESPONSES TO STAFF SET 2

Date Request Received: 06/27/12  
 Request No. Staff 2-2

Date of Response: 07/25/12  
 Witness: F. Chico DaFonte/Elizabeth Arangio

**REQUEST:**

Background: Ref. Company Response to Staff 1-6. Ms. Arangio at page 7 states that “when the realities of resource planning and procurement, the Commission’s regulatory requirements, and the contractual and operational constraints under which the Company operates are taken into account, it is clear that the Company does not have an excess.” Staff interprets this excerpt to be a definitive (as opposed to tentative) conclusion by Ms. Arangio that the Company does not have excess capacity when the factors referenced in the testimony are taken into account.

With reference to the items listed in the response to Staff 1-6, please identify those that Ms. Arangio actually used to support her conclusion that “the Company does not have an excess” and explain how that conclusion was arrived at. If Ms. Arangio has workpapers that support her conclusion, please provide copies.

**RESPONSE:**

All of the factors referred to were actually considered and support the Company’s conclusion. There are no additional workpapers that were specifically used as a basis for the response beyond the calculations previously provided in the testimony and through discovery. Please see the table below which shows the items listed in response to Staff 1-6 and briefly explains how each supports the conclusion in the response to Staff 1-6. Please also see the response to Staff 2-7 as well as the Company’s responses to Staff Set 1 and the direct testimony filed by the Company.

Reality/Requirement/Constraint	How Reality/Requirement/ Constraint Supports Conclusion
<b>1. Resource Planning and Procurement Realities</b>	
Design Day Planning	Requires assets to be available to meet design day planning obligation—see response to Staff 2-7.
Design Season Planning	Requires assets to be available to meet design season planning obligation—affects which assets can be relied upon on a given day and their order of dispatch within the resource portfolio.
Design Year Planning	Requires assets to be available to meet design year planning obligation—similar to design season planning considerations.

Reality/Requirement/Constraint	How Reality/Requirement/ Constraint Supports Conclusion
Changes in customer consumption patterns in the short-term (day-to-day) and long term (winter-to-winter)	Fluctuations in customer requirements, both in the short-term and long-term, affect the flexibility that must be inherent in the overall resource portfolio. Assets such as the Company's on-system resources are particularly valuable in this regard. See also the response to Staff 1-13.
Resource project availability at the time the Company needs to add or restructure resources within its portfolio	Assets must be available in a particular time frame to meet additional customer requirements and/or meet existing customer requirements. Company must consider resource availability when making portfolio decisions.
<b>2. Regulatory Requirements</b>	
Provider of last resort ("POLR") obligation	Least-cost, reliable, flexible portfolio required to meet POLR obligation for those non-grandfathered customers that return to sales service on a no-notice or short-notice basis.
Storage rule curve obligation	Per Commission Order No. 24,388 (DG-04-152, October 29, 2004), Company must maintain certain inventory levels and must, as of the end of each month, maintain the level of inventory in storage called for under the design storage rule curve for that given month. Requires availability of other assets to meet customer requirements once certain storage inventory levels are reached.
Seven day storage requirement	Company must maintain assets in order to comply with Rule Puc 506.03(c)—see responses to Staff 2-7 and Staff Set 1 generally, including particularly Staff 1-24 and 1-33.
<b>3. Contractual and Operational Constraints</b>	
Pipeline and storage contract force majeure provisions	Requires reliable and flexible assets to account for situations of force majeure. See also the response to Staff 1-14.
Underground storage ratchets	Acts as a potential limiting factor on the availability of underground storage resources and requires availability of other assets to meet customer requirements once storage ratchet levels are reached.
Must-turn underground storage inventory requirements	Requires Company to withdraw certain volumes of underground storage inventory from underground storage and therefore inherent flexibility of other assets in the portfolio is required to accommodate in a least-cost manner.
Maximum daily underground storage withdrawal quantities	Limits availability of underground storage inventory, affecting extent of other assets needed to meet customer requirements.
Underground storage withdrawal restrictions	Affects size and other characteristics of other assets in resource portfolio to meet customer requirements once storage withdrawal restrictions are imposed. See the responses to Staff 1-12 and 1-13.
Maximum storage quantities	Limits volume of gas that is stored in inventory, requiring other assets to be available to meet customer requirements.
Pipeline maximum daily delivery quantities ("MDQ")	Limits volume of gas that can be transported on each contract and overall volume of gas deliverable by pipeline, requiring other, non-pipeline assets to be available to meet customer requirements. See also response to Staff 2-7.

Reality/Requirement/Constraint	How Reality/Requirement/ Constraint Supports Conclusion
Pipeline balancing alerts	Indicates potential operating limit pending, which will impose limits on balancing tolerance allowed for a particular time period (typically daily). The potential for operating limits on the pipeline requires the Company to maintain other non-pipeline assets that are sufficiently flexible that the Company will be able to meet its service reliability obligations at least cost.
Pipeline Operational Flow Orders ("OFOs")	Imposes limits on contractual flexibilities including but not limited to balancing tolerance allowed for a particular time period (typically daily), ability to flow gas from one point to another, etc. See "Pipeline balance alerts" above.
Pipeline emergency curtailments & restrictions	Imposes limits on contractual flexibilities including but not limited to balancing tolerance allowed for a particular time period (typically daily), ability to flow gas from one point to another, availability of pipeline supplies, etc. See "Pipeline balance alerts" above.
Pipeline emergency interruptions	Limits the availability of pipeline supplies, requiring availability of on-system assets to meet customer requirements. See "Pipeline balance alerts" above.
Upstream pipeline pressures	Influences operation of the distribution system, and if low enough, may not allow distribution system to operate efficiently or at all. On-system supplies are used to provide pressure support, as and when needed.
Weather	Requires flexible portfolio of assets in order to respond to varying weather. In particular, on-system capacity is a critical part of the Company's plan to meet its obligations during periods of extreme cold. See response to Staff 2-7.
Distribution system pressures	Influences operation and dispatch of on-system assets.
The number of available trucks to transport LNG and LPG cargoes	Influences operation and dispatch of on-system assets, as well as cost of the resource portfolio. See response to Staff 2-7.
Maximum and minimum LNG and LPG contract quantities	Influences operation and dispatch of on-system assets, as well as cost of the resource portfolio.
Maximum LNG storage quantities	Influences operation and dispatch of on-system assets, as well as cost of the resource portfolio. See responses to Staff 1-24 and 2-7.
Availability and price of spot LNG and LPG purchases	Influences operation and dispatch of on-system assets, as well as cost of the resource portfolio.
LNG and LPG supply curtailments	Influences operation and dispatch of on-system assets, as well as cost of the resource portfolio.
LNG and LPG supply interruptions	Influences operation and dispatch of on-system assets, as well as cost of the resource portfolio.



Exhibit GRM-5

Supply/Demand Balance  
(MMBtu)

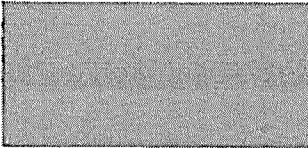
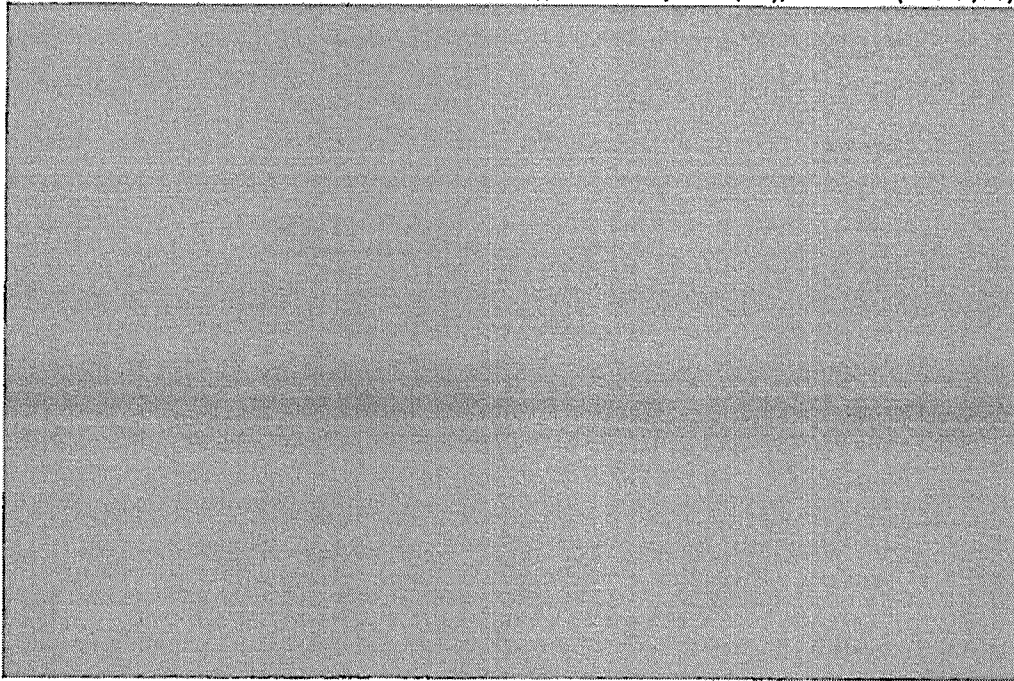
	Capacity
<u>Long Haul Transportation</u>	
PNGTS	1,000
Iroquois	4,000
Niagara	3,122
Tennessee Gulf	
FT-A 1	24,777
FT-A 2	25,223
FT-A 3	21,596
Total	79,718
<u>Underground Storage</u>	
Total	28,115
<u>Supplemental Facilities</u>	
Granite Ridge	0
DOMAC	
Vapor	0
Liquid	0
LNG from Storage	22,800
Propane	
Vapor	34,600
Truck	0
Total	57,400
<u>Grand Total</u>	165,233

	<u>Demand</u> w/o DSM	<u>Demand</u> w/ DSM
Design-Day-2014/15	148,866	141,813
Design-Day-2010/11	140,043	137,326
Excess-2014/15	16,367	23,420
Excess-2010/11	25,190	27,907
% Excess -2014/15	10.99%	16.51%
% Excess -2010/11	17.99%	20.32%

Exhibit GRM-6

**Northeast Gas Association  
Liquid Propane Gas Facilities  
Vaporization Capacity**

Winter 2011/12 (MMBtu/Day)	Winter 2007/08 (MMBtu/Day)	Winter 2001/02 (MMBtu/Day)
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**EnergyNorth Natural Gas Inc.  
Seven-Day Storage Requirement  
(October 2011)**

Seven-Day ENGI Regression Coefficients	
Firm Sales Base Load	78,069.1 MMBtu
Firm Sales Heat Load	681,596.0 MMBtu
Seven Day Sales Load	759,665.1 MMBtu
Pipeline Resources	
Supplemental Resources	

Summary of available pipeline supply	MMBtu
Canadian	8,122.0
Gulf Coast	21,596.0
Tennessee Short Haul	50,000.0
Underground Storage	28,115.0
Citygate service 1	0.0
Citygate service 2	0.0
Winter Peaking Contract	15,000.0
<b>Total Pipeline</b>	<b>122,833.0</b>
<b>Total Pipeline less Granite Ridge</b>	<b>107,833.0</b>

Base Load/Day 11,152.7 MMBtu  
 Heat Load/DD 1,721.20 MMBtu/DD  
 Supplemental MMBtu to Gallons Factor 0.0916 MMBtu/gal

Seven Coldest Days - Manchester, NH  
 January 9 through 15, 2004

Day	Degree Days	Average Temperature	Firm Sales	Available Pipeline	Supplemental MMBtu	Supplemental Gallons	On-System Capacity MMBtu
1/9/2004	65.5	-0.5	123,891.5	122,833.0	1,058.5	11,555.2	
1/10/2004	61.5	3.5	117,006.7	117,006.7	0.0	0.0	
1/11/2004	45.0	20.0	88,606.8	88,606.8	0.0	0.0	
1/12/2004	38.5	26.5	77,419.0	77,419.0	0.0	0.0	
1/13/2004	50.5	14.5	98,073.4	98,073.4	0.0	0.0	
1/14/2004	66.5	-1.5	125,612.7	122,833.0	2,779.7	30,345.7	
1/15/2004	68.5	-3.5	129,055.1	122,833.0	6,222.1	67,926.5	
	396.0	8.4	759,665.1	749,604.9	10,060.2	109,827.4	110,868.0
	Total	Mean					Total

Available Pipeline less Granite Ridge	Supplemental MMBtu less Granite Ridge
107,833.0	16,058.5
107,833.0	9,173.7
88,606.8	0.0
77,419.0	0.0
98,073.4	0.0
107,833.0	17,779.7
107,833.0	21,222.1
695,431.3	64,233.8

On-System Capacity MMBtu	
LPG	86,116.0
Manchester	47,774.0
Nashua	9,555.0
Tilton	28,787.0
LNG	24,752.0
<b>Total</b>	<b>110,868.0</b>
<b>Total less Manch+Nash</b>	<b>53,539.0</b>

ENERGYNORTH NATURAL GAS, INC.  
DG 12-001  
ENERGYNORTH'S RESPONSES TO STAFF SET 2

Date Request Received: 06/27/12  
Request No. Staff 2-4

Date of Response: 07/25/12  
Witness: Ann E. Leary

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**REQUEST:**

Background: proposed Fifth Revised Page 86 to ENGI's Winter 2011/12 COG filing shows a total anticipated cost of gas of \$65,492,914 including \$1,980,428 of indirect gas costs related to on-system production and storage facilities. The \$1,980,428 amount originates from a settlement agreement filed in ENGI's last base rate case (Docket DG 10-017) that was subsequently approved by the Commission. Based on that settlement, the \$1,980,428 comprises in broad terms (see Appendix 1, page1) a tax adjusted revenue deficiency in the amount of \$593,000, depreciation in the amount of \$449,000, and O&M in the amount of \$876,000. Please respond to the following questions:

- a. Provide a breakdown of the \$876,000 O&M expense amount by LPG and LNG facilities.
- b. Provide a breakdown of the \$593,000 tax adjusted revenue deficiency by LPG and LNG facilities.
- c. Provide a breakdown of the \$449,000 depreciation amount by LPG and LNG facilities.

**RESPONSE:**

- a. The Company does not record O&M expenses to the LPG and LNG facilities on an individual facility basis or to the facilities as a group, and therefore does not have the requested information.
- b. An individual facility does not have a revenue deficiency. Revenue deficiency is only relevant on an overall Company basis, except to the extent that it is considered on a class basis for rate design purposes. In addition, as noted in Parts a and c of the response to this data request, the Company does not have a breakdown of the O&M expense and depreciation associated with each facility, and therefore cannot calculate what, if any, portion of the revenue deficiency referred to is directly related to each facility.
- c. The Company has not recorded depreciation expense for the LPG and LNG facilities on an individual facility basis, and therefore does not have the requested information.