

ORIGINAL	
P.U.C. Case No.	DE 11-250
Exhibit No.	#55
Witness	Thomas C. Frantz
DO NOT REMOVE FROM FILE	

Public Service Company of New Hampshire
DE 11-250

NH PUC Staff Responses to Data Requests of PSNH

Date Received: January 16, 2014
Request: PSNH - 1-1

Date of Response: February 14, 2014
Witness: Steven E. Mullen

REQUEST:

Please provide a copy of any document provided by Staff or the Commission to any elected or appointed government official in New Hampshire related to "An ACT relative to the reduction of mercury emissions" that took effect on June 8, 2006.

RESPONSE:

Attached is a copy of a) the Fiscal Note Worksheet submitted to the Office of Legislative Budget Assistant (LBAO) on November 16, 2005 and b) a supplemental document submitted to the LBAO on November 23, 2005.

I am not aware of any other documents.

**STATE OF NEW HAMPSHIRE
OFFICE OF LEGISLATIVE BUDGET ASSISTANT
FISCAL NOTE WORKSHEET**

Date Sent to Agency 11/1/05 LSR # 06-2816.0
 Agency Public Utilities Commission Bill # _____
 Due to LBAO 11/16/05 Amendment #(s) _____
 Correction to prior response? (Y/N) N

State Fund(s) Affected

General: _____ Federal: _____ Other: _____

	FIRST BIENNIUM			SECOND BIENNIUM	
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
State Revenue	0	0	unknown	unknown	unknown
State Expenditure	0	\$162.500 *	unknown	unknown	unknown
Net State Impact	0	\$162.500 *	unknown	unknown	unknown
County Revenue	0	0	unknown	unknown	unknown
County Expenditure	0	See above	unknown	unknown	unknown
Net County Impact	0	See above	unknown	unknown	unknown
Local Revenue	0	0	unknown	unknown	unknown
Local Expenditure	0	See above	unknown	unknown	unknown
Net Local Impact	0	See above	unknown	unknown	unknown

- NOTE. (1) List only the amount of change in the appropriate column.
 (2) Place all negative numbers in parenthesis.
 (3) You may replicate this worksheet.
 (4) Refer to Guidelines for Fiscal Note Worksheets for further information

* Amount shown is combined impact for the State, counties and localities for the research phase of the legislation.

- (A) **ASSUMPTIONS:** Explain how estimate was derived. Describe costs that can be absorbed without additional funding. If no estimate can be prepared, **explain why in detail**. If no fiscal impact, **explain why in detail**.

The proposed legislation requires PSNH or a potential successor owner of the Merrimack Station coal-fired power plant in Bow, NH to install a wet flue gas desulphurization scrubber system at the plant no later than July 1, 2013 for the purpose of significantly reducing sulphur dioxide (SO₂) emissions and, as a consequence, also reducing mercury emissions by a minimum of 80 percent. Prior to installation, the owner of the plant must receive necessary permits and approvals from the Department of Environmental Services (DES), the Public Utilities Commission (PUC), the United States Environmental Protection Agency, and the Town of Bow. While the draft legislation requires initial filings to be made with DES and the PUC within one year of the effective date of RSA 125-O:13, the timetables for receipt of the necessary permits and approvals are unknown and could be quite lengthy. With that in mind, it is unknown when the necessary capital additions will be installed at Merrimack Station. The scrubber costs are currently estimated to be \$250 million (in 2013 dollars), costs that would be offset in part by PSNH no longer having to purchase allowances each year for SO₂ emissions and further by sales of SO₂ allowance credits. These costs and offsets will not occur, however, until after the period of time called for in the fiscal note. PSNH can only charge its customers (via electric bills) for the cost of plant additions after a finding by the PUC that PSNH may recover the costs.

Prior to the July 1, 2013 compliance deadline for installation of the scrubber technology, the owner of the plant may make other modifications to the plant to achieve mercury reductions, thereby earning early reduction credits. PSNH has stated that it has applied for a grant with the U.S. Department of Energy seeking up to \$2.5 million, with PSNH picking up the remaining \$2.5 million to conduct a \$5 million research project at Merrimack Station using carbon injection technology to reduce mercury emissions. If PSNH is awarded the grant, the project would run approximately six months, from the end of 2006 into 2007. Considering the limited time frame of the research project, PSNH's \$2.5 million of the estimated costs are expected to be treated as expenses rather than as capital additions. Such costs would be recovered by PSNH via its Energy Service rate. Using PSNH's annual level of kilowatt-hour sales to its customers and the annual portion of those sales that are to state, county and local entities, the estimated cost to state, county and local entities, as ratepayers, is approximately \$162,500 in FY 2007.

While it is possible that PSNH may make other mercury reduction modifications at Merrimack Station prior to July 1, 2013, the PUC has no information regarding any plans by PSNH to do so.

(B) **METHOD:** Show calculations used to determine fiscal impact. Calculations must agree with and explain totals on first page.

Total estimated costs by PSNH for mercury reduction research project	\$2,500.00C
Divide by PSNH's annual kilowatt-hour (kWh) sales	8,000,000.00C
Cost per kilowatt-hour to be included in customers' bills	<u>\$0.0003125</u>
PSNH's annual kWh sales to state, counties, localities	<u>520,000.000</u>
Estimated cost of mercury reduction research project to state, counties, localities in FY 2007	<u>\$162,500</u>

(C) **ESTIMATED FISCAL IMPACT (from A and B):** Estimated Fiscal Impact must agree with the totals on first page.

See calculations provided in (B) above.

(D) **ADDITIONAL COUNTY, LOCAL OR LONG-RANGE EFFECTS:**

As mentioned in (A) above, PSNH or another potential owner of Merrimack Station is required to install a wet flue gas desulphurization scrubber system no later than July 1, 2013 in order to significantly reduce SO₂ emissions, and as a consequence, achieve a minimum 80 percent decrease in mercury emissions. Reduction in SO₂ emissions will thereby reduce the amount of SO₂ allowances the owner of the plant would be required to purchase in future years. If the owner of the plant is able to exceed the minimum 80 percent mercury emission reduction threshold, then it is eligible to earn over-compliance credits which may, at the request of the plant owner, be converted to SO₂ allowance credits

PSNH's preliminary estimate is that the total costs of installing the scrubber system will not exceed \$250 million (in 2013 dollars). In addition, PSNH has estimated that the future value of SO₂ allowances for the first year of operation of the scrubber system and the ten years following will be between \$500 to \$1,500 per allowance. Assuming that the capital costs will be amortized over ten years, that PSNH will not have to purchase SO₂ allowances and that the

allowances are valued at slightly more than \$1,000 each (based on PSNH's estimated midpoint). PSNH's estimates yield an average cost of \$0.0033 per kWh during the first year Using PSNH's estimates. the first year of operation of the scrubber system represents the highest costs to its customers. Over time the estimated annual costs to customers fluctuate depending in large part on the actual amount of mercury and SO₂ emissions reductions. the quantity of SO₂ allowances available for sale by the plant owner, the amount of SO₂ allowances that the plant owner would no longer be required to purchase, and the value of those allowances. PSNH has estimated that in some years there would be a net cost to its customers while in other years there would be a net benefit.

In preparing its estimates, PSNH assumed that its annual kilowatt-hour sales would increase 1% per year. Using that assumption along with the midpoint of the estimated future value of SO₂ allowances, PSNH estimated that the highest net cost year for customers would be the first year following installation of the scrubber system while the tenth year following installation would be the year customers would see the highest net benefit. The intervening years vary between net costs, no net costs, and net benefits. Using PSNH's assumptions, its cost estimates, and assuming the scrubber system is installed in 2013, the estimated fiscal impact to state, county and local entities in the first and tenth years following installation would be as follows:

First year following installation of scrubber system (highest net cost year):	
Estimated annual cost to PSNH customers (\$/kWh)	\$0.0033
PSNH's annual kWh sales to state, counties, localities (estimated for 2013)	563,000,000
Estimated annual cost to state, counties, localities in the first year of scrubber system operation	<u>\$1,857,900</u>
Tenth year following installation of scrubber system (highest net benefit year):	
Estimated annual benefit to PSNH customers (\$/kWh)	(\$0.0008)
PSNH's annual kWh sales to state, counties, localities (estimated for 2023)	622,000,000
Estimated annual cost to state, counties, localities in the tenth year of scrubber system operation	<u>\$-497,600</u>

It is important to note that the above estimates rely heavily on assumptions regarding, among other things, the capital costs of installing the scrubber system, the actual date of installation of the scrubber system, actual mercury and SO₂ reductions realized, the future value of SO₂ allowances and PSNH's actual kilowatt-hour sales in future years. In addition, proposed RSA 125-O:13 III allows the owner of the plant to invest in capital improvements to increase the net power output of the plant in the event that operation of the scrubber technology reduces the net power output of the plant. At this time, it is unclear how much the net power output of the plant may be reduced by the installation of the scrubber technology, how much the necessary capital improvements might cost and whether those costs are included in PSNH's estimated total costs of \$250 million.

(E) **TECHNICAL OR MECHANICAL DEFECTS:** Note any conflicts with existing law. Do not comment on the merits of the legislation.

(F) **OTHER COMMENTS:** Include tax variables, federal mandates, etc.

AGENCY REPRESENTATIVE PREPARING WORKSHEET:

Amy Ignatius
Name/Signature
General Counsel
Public Utilities Commission
271-2431
Title, Agency and Phone Number

November 16, 2005
Date

Mullen, Steve

From: Ignatius, Amy
Sent: Wednesday, November 23, 2005 2:12 PM
To: Hadley, Eileen; Mullen, Steve; Getz, Tom
Subject: supplemental FIS on mercury

This was faxed off to LBAO this afternoon. It is in addition, rather than a replacement for the initial FIS on the mercury bill.

Amy Ignatius

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**Additional Information for LSR 06-2816.0
Supplementing November 16, 2005 FIS**

Summary of Key Provisions and Rate Impacts

This LSR is intended to reduce mercury emissions from Merrimack Station, a coal burning electric generation plant in Bow, New Hampshire, currently owned by Public Service Company of New Hampshire (PSNH).¹

As proposed, PSNH would install a wet flue desulphurization scrubber system at the plant. The technology would significantly reduce the plant's sulfur dioxide (SO₂) emissions and, secondarily, is expected to reduce the plant's mercury emissions by at least 80%. The equipment is to be installed no later than July 1, 2013; PSNH estimates that the installation will be at a cost not to exceed \$250 million (in 2013 dollars). Any rate impact, therefore, would most likely be felt after the period of time identified in the FIS statement (which only runs through FY 2010).

In assessing the rate impact for the control equipment, the \$250 million would be offset to some degree by savings resulting from PSNH's reduced need to purchase SO₂ allowances (valued at approximately \$1,000 per allowance) and additional revenues, as PSNH would be able to sell excess SO₂ allowances if it achieves greater than 80% mercury reduction. Based on PSNH's estimates, the cost charged to the State, counties and localities in the first year of operation of the scrubber system would be approximately \$1.9 million. After 10 years of operation, those entities would experience a net savings of approximately \$500,000 per year.

¹ It is possible that PSNH may divest its generation in the future. For these purposes, references to PSNH should be read to include any successor owners of the plant.

In addition, the LSR allows PSNH to make other modifications to the plant to achieve mercury reductions prior to the installation of the scrubber system, thereby earning early reduction credits. Although no specific modifications are mentioned or required in the LSR, PSNH has stated that, pending receipt of grant money, it would conduct a six month study of the carbon injection technology during late 2006 and early 2007. The research would be funded 50% (\$2.5 million) by a grant from the U.S. Department of Energy and 50% (\$2.5 million) by PSNH. Presumably, PSNH would seek ratepayer recovery for its share, which the Public Utilities Commission would most likely treat as an expense rather than a capital addition, to be recovered in the normal course. The rate impact of the research project on the State, local and county governments, as ratepayers, combined, would be approximately \$162,500 for FY 2007.

Details of all calculations are included in the full FIS dated November 16, 2005, submitted by the N.H. Public Utilities Commission and attached hereto.

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November 23, 2005