

**THE STATE OF NEW HAMPSHIRE**  
**before the**  
**PUBLIC UTILITIES COMMISSION**

Public Service Company of New Hampshire  
Petition for Approval of the Issuance of Long Term Debt Securities

Docket No. DE 09-033

**OBJECTION OF**  
**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE**  
**TO**  
**CONSERVATION LAW FOUNDATION'S**  
**MOTION TO FILE SUPPLEMENT TO ITS MEMORANDUM OF LAW**

Pursuant to Rule Puc §203.07(e), Public Service Company of New Hampshire (hereinafter “PSNH” or “the Company”) hereby objects to the “Motion to File Supplement to Its Memorandum of Law on the PUC’s Duty to Make a Public Good Determination on PSNH’s Proposed Financing” (the “Motion”) filed by Conservation Law Foundation (“CLF”) dated June 4, 2009. In support of this Objection, PSNH says the following:

**I. Introduction**

This proceeding involves a routine request by PSNH for approval to issue long term debt securities necessary for the Company to provide public utility service throughout New Hampshire using a capital structure deemed reasonable and prudent by the Commission.<sup>1</sup> If this financing is disapproved or unduly delayed, PSNH would be forced to materially curtail spending and/or seek additional infusions of higher-cost equity financing from its parent -- negatively impacting the Company’s ability to provide reliable and economic service to the vast majority of this state.

PSNH filed its request for financing approval in February, seeking the authority necessary to access the markets as early as the second quarter of this year.<sup>2</sup> It is now June. No substantive progress has been made on PSNH’s application. The reason for this delay is

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<sup>1</sup> Order No. 24,750, PSNH Petition for Approval of Delivery Service Rates, Docket No. DE 06-028, May 25, 2007.

<sup>2</sup> Testimony of Randy Shoop, page 20.

the outstanding question regarding the scope of this proceeding. In a nutshell, the issue is whether an *Easton*<sup>3</sup> public interest inquiry into the potential use of the proceeds of the proposed financing to support construction of the scrubber at Merrimack Station is necessary or proper in light of the legislative findings and mandates set forth in 2006 N.H. Laws Chapter 105 (the “Scrubber Law,” codified at RSA 125-O:11, *et seq.*)<sup>4</sup>

The Commission correctly found in Docket No. DE 08-103, Investigation of PSNH’s Installation of Scrubber Technology at Merrimack Station, Order No. 24,898, dated September 19, 2008, that it “lacks the authority to make a determination pursuant to RSA 369-B:3-a as to whether this particular modification is in the public interest.” Slip op. at 13. The Commission’s legal analysis leading to that conclusion was detailed and comprehensive. As a result, the Commission reaffirmed its decision in Rehearing Order No. 24,914, dated November 12, 2008. The State of New Hampshire, by the Office of the Attorney General, has recently supported this Commission’s determination in Docket No. DE 08-103 regarding the Scrubber Law.<sup>5</sup> In addition, during this current session the Legislature reaffirmed its mandate to PSNH to proceed expeditiously with the construction of the scrubber project after resoundingly defeating two bills -- one seeking to cap cost recovery related to the project<sup>6</sup> and the other to require the Commission to investigate whether the installation of mercury scrubber technology at Merrimack Station as required by RSA 125-O:11 *et seq.* is in the public interest.<sup>7</sup>

Pursuant to the Procedural Schedule issued by the Commission on April 1, 2009, briefs on this issue of scope were filed on April 10, 2009. On May 13, 2009, the Commission suspended the Procedural Schedule due to the pending decision on the scope of this proceeding.

Despite the terms of the original Procedural Schedule and the Commission’s notice that a decision on the scope of the proceeding is pending, on June 4, 2009, CLF filed its Motion

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<sup>3</sup> *Appeal of Easton*, 125 N.H. 205 (1984).

<sup>4</sup> The scrubber project is just one of a number of uses for proceeds of this routine financing, all of which are vital for continuing to provide reliable service to PSNH’s customers.

<sup>5</sup> *Amicus Curiae* Brief for the State of New Hampshire, *Appeal of Stonyfield Farm, Inc.*, N.H. Sup. Ct. Docket No. 2008-0897, May, 6, 2009.

<sup>6</sup> House Bill 496.

<sup>7</sup> Senate Bill 152.

seeking leave to supplement its April 10 Brief. CLF claims that “highly relevant” new facts have developed since its initial filing.

PSNH vehemently objects to CLF’s Motion on a number of grounds. In particular, the purported highly relevant new facts are not at all relevant or material to the issue of scope; CLF has not been granted intervenor status in this proceeding; and, its conduct throughout this proceeding has been disruptive to the orderly and efficient conduct of the proceeding causing delays that will ultimately cost consumers millions of extra dollars.<sup>8</sup>

As the Commission determined in Docket No. DE 08-103, installation of the scrubber at Merrimack Station has been found to be in the public interest as a matter of law. PSNH must comply with the Scrubber Law, and needs to pay for the installation of the scrubber. The most economical means for PSNH to finance its utility operations is to maintain the debt-equity ratio deemed reasonable by the Commission. PSNH noted in its April 10 Brief (at fn. 10):

As the Commission has held, the statutory mandate for PSNH to install scrubber technology at Merrimack Station is unconditional. [Order No. 24,898] at 12. Even if the Commission decided to hold an *Easton* inquiry, and if based on such an inquiry the Commission were to prohibit PSNH from using the funds from this financing to pay for scrubber installation costs, the underlying statutory mandate to install the scrubber will remain. Thus, PSNH would be forced to use other, likely less economic means to pay for the scrubber’s construction costs in order to comply with governing law. This would ultimately have a detrimental impact on rates.

## **II. PROCEDURAL ISSUE – Intervention Status**

PSNH reminds the Commission that CLF has not been granted intervenor status in this proceeding.<sup>9</sup>

Per the March 6, 2009, Order of Notice issued in this proceeding, parties seeking intervenor status had to submit petitions on or before March 19, and objections to any such

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<sup>8</sup> For a \$150,000,000 financing, every one basis point (1/100<sup>th</sup> of a percent) of higher interest will cost customers an additional \$15,000 per year. Since the April 10 filing of Briefs on the issue of scope, interest rates have risen by 98 basis points, resulting in nearly \$1.5 million in potential increased costs to consumers annually. See, footnote 17, *infra*,

<sup>9</sup> PSNH timely filed an objection to CLF’s petition to intervene.

petition had to be made on or before March 24. CLF submitted such a petition on March 19, and PSNH submitted its objection to that petition on March 24.<sup>10</sup>

The Order of Notice also scheduled a Prehearing Conference for March 24<sup>th</sup> “at which each party will provide a preliminary statement of its position with regard to the petition and any of the issues set forth in N.H. Admin. Rule Puc 203.15 shall be considered.” CLF did not attend this Prehearing Conference. Thus, it failed to provide a preliminary statement of its position with regard to the petition, and was unavailable to address any of the issues set forth in N.H. Admin. Rule Puc 203.15 - - including Rule Puc 203.15(d)(2): “Consideration of any petitions for intervention and any objection filed thereto.” As a result, the Commission was unable to act on CLF’s intervention petition. To date, the Commission has not decided this matter.

The Commission also ordered in the Order of Notice that immediately following the Prehearing Conference, the Staff of the Commission and any Intervenors were to hold a Technical Session to review the petition and allow PSNH to provide any amendments or updates to its filing. During the Prehearing Conference, the development of a procedural schedule for this docket was also delegated to the Technical Session. CLF did not attend the Technical Session, where a proposed Procedural Schedule was developed.<sup>11</sup> That schedule was ultimately adopted by the Commission, and was characterized as being “in the public interest.”<sup>12</sup> That schedule found that it was in the public interest to have “Briefs Due on Issue of Scope” by April 10, 2009, and a “Hearing on the Merits” on June 10, 2009. Nowhere does the Procedural Schedule contemplate supplemental briefs, reply briefs, surreply briefs, etc.

Interventions before the Commission are governed by Rule Puc 203.17, which adopts the standards contained in RSA 541-A:32. That statute sets forth three criteria for the granting of a petition for intervention:

- I. The presiding officer shall grant one or more petitions for intervention if:
  - (a) The petition is submitted in writing to the presiding officer, with copies mailed to all parties named in the presiding officer's notice of the hearing, at least 3 days before the hearing;
  - (b) The petition states facts demonstrating that the petitioner's rights, duties, privileges, immunities or other substantial interests may be affected by

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<sup>10</sup> Per Rules Puc 203.02 and 203.11, PSNH e-mailed a copy of its Objection to CLF Attorney Kristine E. Krushaar, the attorney-of-record for CLF who submitted its Petition to Intervene, prior to the scheduled prehearing conference.

<sup>11</sup> See “Staff Report on Technical Session – Proposed Procedural Schedule,” dated May 25, 2009.

<sup>12</sup> See Secretarial Letter, April 1, 2009.

the proceeding or that the petitioner qualifies as an intervenor under any provision of law; and

(c) The presiding officer determines that the interests of justice and the orderly and prompt conduct of the proceedings would not be impaired by allowing the intervention.

CLF has only met one of these three criteria. CLF's intervention petition was filed in accordance with the requirements of RSA 541-A:32, I (a). However, CLF's petition for intervention does not satisfy the requirements of the remaining two criteria.

During the Procedural Hearing, the Commission noted CLF's failure to meet the criterion set forth in RSA 541-A:32, I (b). The Chair noted:

"[T]here's a couple of issues, at least one I had hoped to get on the record this morning. The Conservation Law Foundation indicates that it has 3,300 members, 370 members residing in New Hampshire. And, in its objection, PSNH I think indicates that it's -- it's not obvious from the Petition to Intervene whether some of those members are PSNH customers. I was hoping to get a representation or an offer of proof on that issue from the CLF attorney, and maybe we'll have to get that in writing.

Transcript, May 24, 2009, at 5.

In addition, CLF's focus, as stated in its Petition to Intervene, is environmental—not economic.<sup>13</sup> This docket is the wrong forum to raise its environmental concerns—concerns which have been thoroughly addressed by both the Legislature and the New Hampshire Department of Environmental Services, and which CLF is presently raising before the Air Resources Council.<sup>14</sup>

The law also requires that a potential intervenor not impair the orderly and prompt conduct of the proceedings. RSA 541-A:32, I (c). To date, CLF has done nothing but impair such orderly and prompt conduct of the proceedings. It failed to attend the Prehearing Conference; it failed to attend the Technical Session; it filed its Reply to PSNH's Intervention Objection ten days after the Prehearing Conference where the Order of Notice indicated intervention matters would be dealt with; and, finally, it seeks to make additional

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<sup>13</sup> "CLF's primary interest is to promote environmental protection." Petition to Intervene by the Conservation Law Foundation, ¶ 2. "The Commission must determine whether this request is in the public good. These issues raise important environmental concerns for CLF and its members." *Id.* at ¶ 3.

<sup>14</sup> Docket No. 09-11 ARC – Appeal of Conservation Law Foundation.

filings not contemplated in the Procedural Schedule to supplement its Brief on scope with matters not relevant to the legal issue being considered by the Commission.

If ever there were a situation where the statutory requirements for intervention of RSA 541-A:32, I (c) were not met – this is it. Hence, CLF’s Motion for Intervention should be denied, and its pending Motion would be moot. Wherefore, PSNH renews its Objection to CLF’s Motion to Intervene in this proceeding.

### **III. SUBSTANTIVE ISSUE – The Motion Should be Denied**

CLF seeks leave to supplement its April 10 Brief. That Motion should be denied. The Procedural Schedule for this docket does not contemplate additional filings beyond the initial Briefs of the parties. For that reason alone, the Commission should reject the Motion.

More significantly, the matters that CLF deems “highly relevant to the question of the Commission’s duty to review PSNH’s proposed financing” are neither relevant nor material to the pending issue of scope. As noted earlier, the issue of scope pending before the Commission is whether an *Easton* public interest inquiry into the potential use of the proceeds of the proposed financing to support construction of the scrubber at Merrimack Station is necessary or proper in light of the legislative findings and mandates set forth in 2006 N.H. Laws Chapter 105 (the “Scrubber Law,” codified at RSA 125-O:11, *et seq.*).

This scope issue is a matter of New Hampshire law. This issue involves an analysis of the purpose and findings made by the Legislature in the Scrubber Law, the mandates set forth therein, this Commission’s previous determinations regarding the Scrubber Law, and the New Hampshire Supreme Court’s decision found in the *Easton* case.

CLF suggests that there are two “highly relevant” matters that necessitate re-opening the briefing schedule. The first is an inquiry by the Wisconsin Public Service Commission regarding a similar pollution control device destined for installation at a coal-fired generating station in that state. The second is the FERC’s recent approval of a project-financed transmission line proposed by Northeast Utilities, NStar and Hydro-Quebec to allow Canadian carbon-free generation to be imported into the northeastern United States market.

Neither of these purportedly “highly relevant” developments has any relevance whatsoever to the issue of New Hampshire law pending before the Commission. Neither of these “developments” has any significance to this financing docket.

The Wisconsin matter involves the proposed installation of scrubber technology at the Columbia coal-fired generating station. That scrubber is estimated to cost \$627 million, not

including any accrual for AFUDC.<sup>15</sup> Its installation is proposed to comply with environmental regulations requiring reductions in mercury and SO<sub>2</sub> emissions; however, there is no statutory mandate in Wisconsin requiring the installation of scrubber technology at that plant; there is no statutory mandate that such technology be installed by a date certain; there is no statutory finding that the installation of scrubber technology is in the public interest; and there is no statutory incentive structure in place that would provide monetary benefits that accrue to customers for the expeditious installation of such technology. In brief, other than the fact that Columbia is a coal-fired station where the owners have determined that installation of scrubber technology to reduce mercury and SO<sub>2</sub> emissions is cost-beneficial, that “highly relevant” matter has no relevance at all to the legal determination pending before this Commission in this docket.<sup>16</sup>

The second matter discussed by CLF – the FERC approval of the funding arrangement for a transmission project linking Hydro-Quebec with ISO New England that would deliver low-cost hydropower to consumers in the New England region – is also interesting, but not at all relevant to the legal issue pending before the Commission. Although this FERC approval is a necessary step forward for this complex project, it is just the first of many matters that must be accomplished before this project may proceed. At best, this project will take 5 to 6 years; if it faces the same opposition as the Merrimack scrubber by parties such as CLF, it may take significantly longer. Even assuming rapid completion of the new HQ line, there is no way to foresee whether it would economically displace the coal-fired generation from Merrimack Station. Clearly, while the HQ project has cleared a major hurdle, it’s but one of many to come.

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<sup>15</sup> The cost estimates for PSNH’s scrubber at Merrimack Station includes significant amounts of AFUDC due in large part to New Hampshire’s “anti-CWIP” law, RSA 378:30-a. (*See, Re Public Service Co. of New Hampshire*, 65 NHPUC 45 (1980)). For this, and other reasons, the \$627 million cost estimate for the Columbia scrubber cannot be compared to the cost estimate for the Merrimack scrubber.

<sup>16</sup> For what it’s worth, it is interesting to note that the data request response from the owners of the Columbia plant attached to CLF’s submittal as Exhibit A finds that even when considering potential CO<sub>2</sub> emissions reduction costs, “a quantitative analysis...demonstrates that the installation of emission controls is a prudent investment.” That data request response concludes by stating, “In other words, even if future federal legislation on CO<sub>2</sub> emissions affected Columbia as early as the end of 2017, the project is still predicted to be cost effective as defined by a comparison of the total PVRR for the capital investment to the 2017 cumulative PVRR associated with the savings due to continued operation of Columbia with the proposed pollution control projects.”

In light of the present volatile economic situation, there are many ever-changing variables that CLF or others could claim are “relevant” and fodder for more and more Brief supplements. For instance, since the April 10<sup>th</sup> filing of Briefs in this docket:

- Interest rates have increased over 30% <sup>17</sup>
- The cost of oil has increased over 30% <sup>18</sup>
- The cost of natural gas has increased by over 3% <sup>19</sup>
- Development of new coal-fired generating stations continues throughout the United States, such as in Kansas,<sup>20</sup> Arkansas,<sup>21</sup> Georgia,<sup>22</sup> and Ohio<sup>23</sup>
- Installation of scrubbers at coal-fired generating stations continues throughout the United States
- The DES has indicated that the Merrimack scrubber is deemed to be the Best Available Retrofit Technology (BART) to comply with the federal Regional Haze Rule, 40 CFR 51.308 <sup>24</sup>

Although every one of these facts is “interesting” and may bear some relationship to matters affecting PSNH and the overall energy industry, not one of them is either relevant or material to the issue of scope under consideration by the Commission.

The issue of the scope of this proceeding is a matter of law concerning the impact of the Scrubber Law’s public interest determination on the need for an *Easton* inquiry; it is not an issue of fact. When considering issues regarding matters of law, the Commission has noted, “The scope of the proceeding was limited to a matter of law: the issue of this Commission’s jurisdiction. To the extent that facts were placed on the record or cited in the report, they were inconsequential and irrelevant to the Commission’s legal determination.” *Re Concord Electric Company*, 61 NHPUC 159, 160 (1984).

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<sup>17</sup> The 10-year Treasury rate has increased from 2.96% on April 9, 2009 to 3.94% on June 10, 2009 – nearly 100-basis points (a 33% increase). (As the April 10 filing date for Briefs was a bank holiday [Good Friday], the previous day’s data is being used.)

<sup>18</sup> Crude Oil NYMEX contract prices for April 9, 2009 were \$52.24/bbl and on June 9, 2009 were \$70.01/bbl.

<sup>19</sup> Natural Gas (at Henry Hub) prices for April 9, 2009 were \$3.61/mmbtu and on June 9, 2009 were \$3.73/mmbtu.

<sup>20</sup> <http://www.cattlenetwork.com/Content.asp?ContentID=318941>

<sup>21</sup> <http://www.nwanews.com/adg/Business/261608/>

<sup>22</sup> [http://chronicle.augusta.com/stories/2009/06/08/met\\_526904.shtml](http://chronicle.augusta.com/stories/2009/06/08/met_526904.shtml)

<sup>23</sup> <http://www.wsaz.com/dollarsandsense/headlines/47427632.html>

<sup>24</sup> See Attachment 1, slides 23 – 26, NH DES Air Resources Division, “New Hampshire Regional Haze SIP Revision,” presented to the Air Resources Council on June 8, 2009.



Rule Puc 203.23(d) requires that the Commission *shall* exclude irrelevant, immaterial or unduly repetitious evidence.<sup>25</sup> (Emphasis added.) CLF's Motion to supplement its Brief seeks to include additional factual matters that do not address the matter of law now pending. Therefore, CLF's Motion to addend such irrelevant, immaterial information must be denied.

#### **IV. CONCLUSION**

PSNH has an obligation to provide safe, reliable and economic utility service.<sup>26</sup> The financing authority requested by the Company on February 20, 2009, is necessary to allow PSNH to meet these obligations.

To date, PSNH's ability to gain approval to move forward with this financing has been held hostage by parties seeking to stop the Merrimack scrubber project, which would ultimately lead to the premature shut-down of that plant. This Commission has previously determined that, "The Legislature has already made an unconditional determination that the scrubber project is in the public interest. Nowhere in RSA 125-O does the Legislature suggest that an alternative to installing scrubber technology as a means of mercury compliance may be considered, whether in the form of some other technology or retirement of the facility."<sup>27</sup> Further delay impairing the orderly and prompt conduct of this proceeding to consider irrelevant and immaterial matters is both unwarranted and unjust.

For the reasons set forth herein, PSNH urges the Commission to deny CLF's Motion to Supplement its Brief, to deny CLF's Petition for Intervention, and to grant such other and further relief as may be just and equitable.

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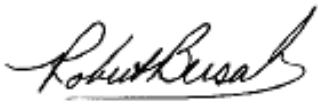
<sup>25</sup> See, *Re Hampton Water Works*, 84 NHPUC 703 (1999) ("Our rules *require* us to exclude only 'irrelevant, immaterial or unduly repetitious evidence' ....") (Emphasis added). This is a stricter standard than that found in RSA 541-A:33, II, which states that the presiding officer *may* exclude irrelevant, immaterial or unduly repetitious evidence.

<sup>26</sup> RSA 374:1; RSA 374:2

<sup>27</sup> Order No. 24,898, Investigation of PSNH's Installation of Scrubber Technology at Merrimack Station, Docket No. DE 08-103, Sept. 19, 2008, slip op. at 12.

Respectfully submitted this 11th day of June, 2009.

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE**

By:   
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## CERTIFICATE OF SERVICE

I certify that on this date I caused the attached Objection to be served pursuant to N.H. Code Admin. Rule Puc 203.11.

June 11, 2009

  
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**Attachment 1**

NH DES Air Resources Division,

*“New Hampshire Regional Haze SIP Revision,”*

presented to the Air Resources Council on June 8, 2009.

New Hampshire Air Resources Council  
June 8, 2009

## New Hampshire Regional Haze SIP Revision



Air Resources Division

1

### The Regional Haze Issue

"The Navajo Generating Station, completed in 1976 in Page, Ariz., is 15 miles north of the entrance to the Grand Canyon. On Thursday, officials of the E.P.A. disclosed that the agency had reached a preliminary decision to require the plant's owners...to install enough pollution control equipment to reduce the emissions of sulfur dioxide by 70 percent.

"It was the first time the E.P.A. had invoked the Clean Air Act, normally used to protect public health, to solve a visibility problem."

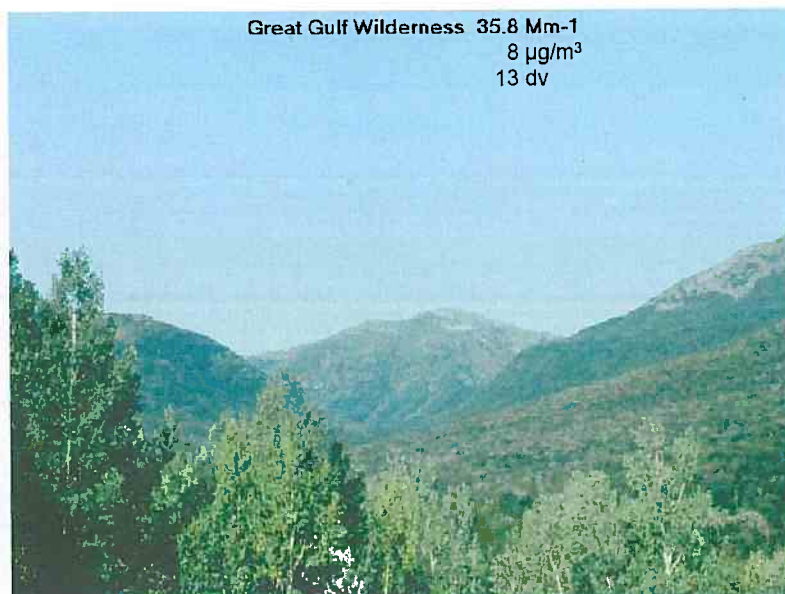
— *The New York Times*, February 2, 1991

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## What is regional haze?

- Visibility impairment caused by the cumulative emissions of air pollutants from many sources over a wide geographic area
- The result of light scattering and absorption by fine particles suspended in the atmosphere (aerosols)

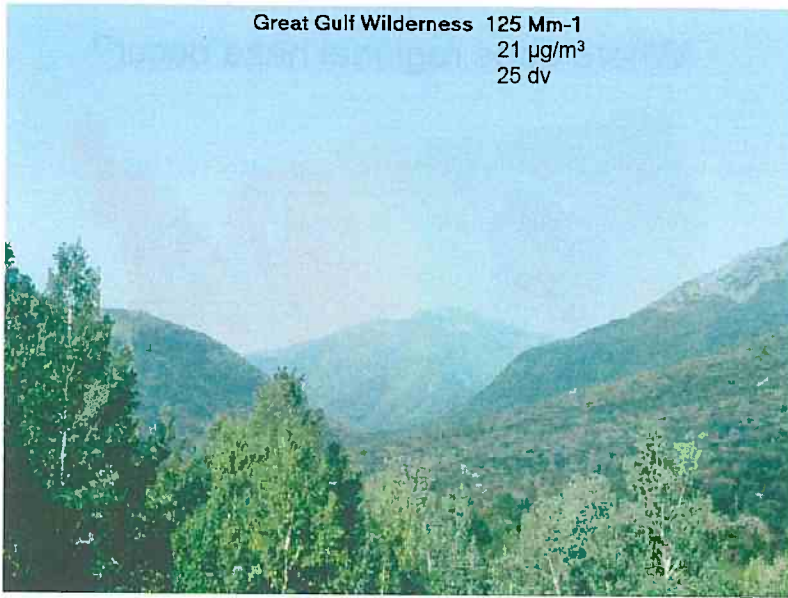
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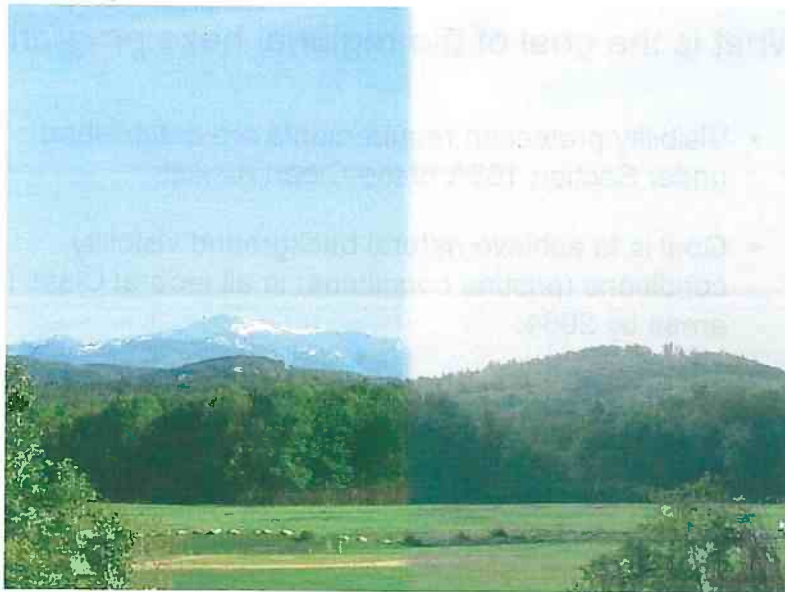
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Great Gulf Wilderness 125 Mm-1  
21  $\mu\text{g}/\text{m}^3$   
25 dv

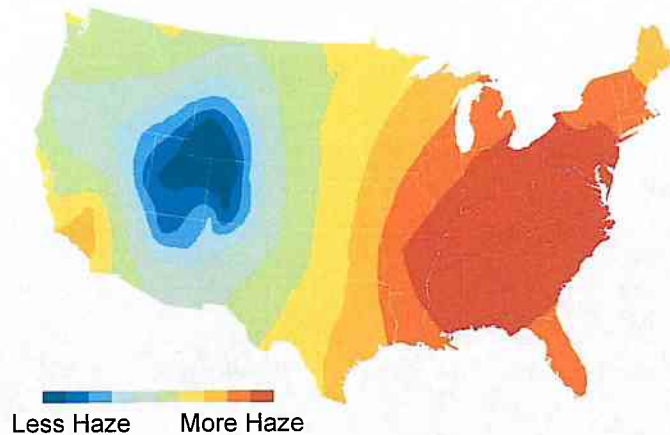


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6

## Where does regional haze occur?



Source: USEPA, "How Air pollution Affects the View"

7

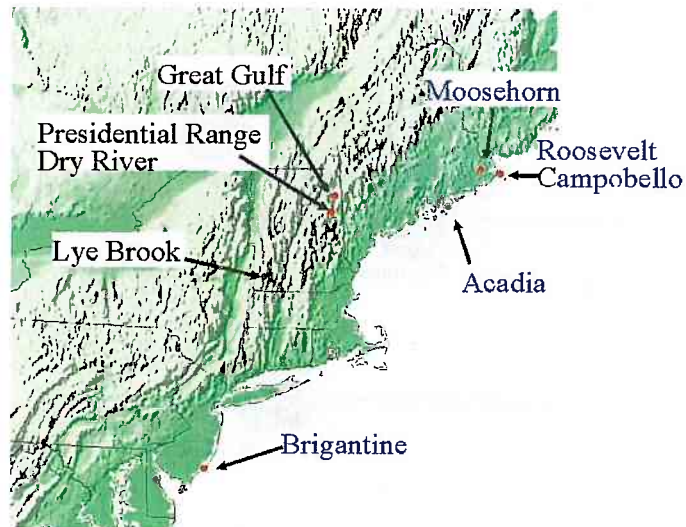
## What is the goal of the regional haze program?

- Visibility protection requirements are established under Section 169A of the Clean Air Act.
- Goal is to achieve natural background visibility conditions (pristine conditions) in all federal Class I areas by 2064.
- Class I areas include 156 national parks and wilderness areas, of which 7 are in the MANE-VU region.\*

\* MANE-VU members are the 6 New England states plus Delaware, Maryland, New Jersey, New York, Pennsylvania, and the District of Columbia.

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### Class I Areas in the MANE-VU Region



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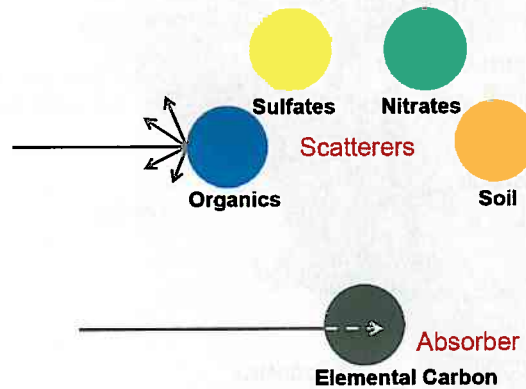
### Where does fine-particle pollution\* come from?

- Local emission sources, including stationary, mobile, and area sources
- Transported pollutants, especially from large  $\text{SO}_2$  emission sources
- Secondary pollutants, formed by atmospheric chemistry and incorporated into fine particles

\*Commonly measured as  $\text{PM}_{2.5}$   
(particulate matter with a diameter  $\leq 2.5$  micrometers)

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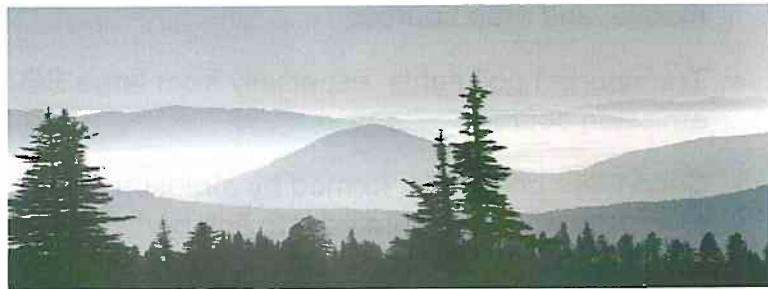
What is fine-particle pollution made of?



11

## The Regional Haze Rule

40 CFR 51.308, published July 1, 1999



12

## Core Requirements of Regional Haze Rule

- Calculation of baseline and natural visibility conditions
- Reasonable progress goals
- Long-term strategy (i.e., emission control measures needed to achieve reasonable progress)
- Monitoring strategy and other requirements (i.e., a plan for monitoring visibility progress)
- (Best Available Retrofit Technology)

13

## Baseline and Natural Visibility Conditions in MANE-VU Class I Areas

Class I Area(s)	2000-2004 Baseline		Natural Conditions		Difference	
	Best 20%	Worst 20%	Best 20%	Worst 20%	Best 20%	Worst 20%
Acadia	8.8	22.9	4.7	12.4	4.1	10.5
Moosehorn and Roosevelt Campobello	9.2	21.7	5.0	12.0	4.1	9.7
Great Gulf and Presid. Range - Dry River	7.7	22.8	3.7	12.0	3.9	10.8
Lye Brook	6.4	24.5	2.8	11.7	3.6	12.7
Brigantine	14.3	29.0	5.5	12.2	8.8	16.8

All values in *deciviews*

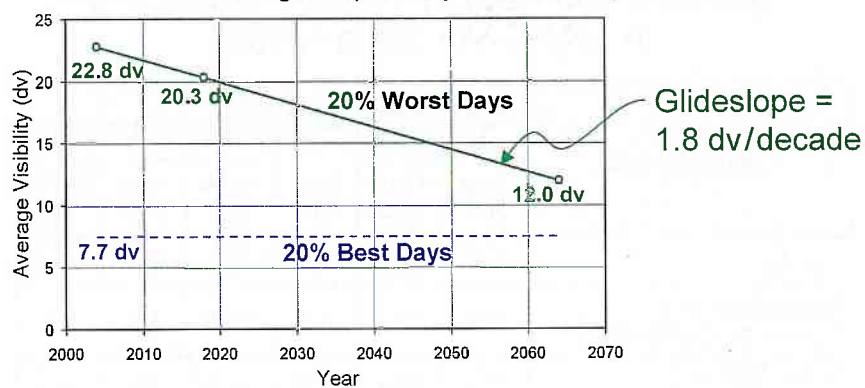
14

## Reasonable Progress Goals

- Achieve natural visibility conditions by 2064 for the 20% haziest days (presumptive goal).
- Ensure no degradation in visibility for the 20% clearest days.

15

Great Gulf and Presidential Range - Dry River  
Uniform Rate of Progress (Visibility in Deciviews)



Visibility Condition (20% Worst Days)	Year	Average Visibility	Visibility Improvement
Baseline Visibility	2002-04	22.8 dv	—
10-Year Goal @ Uniform Rate of Progress	2018	20.3 dv	2.5 dv
Long-Term Goal = Natural Visibility	2064	12.0 dv	10.8 dv

16

## Major Pollutants of Concern

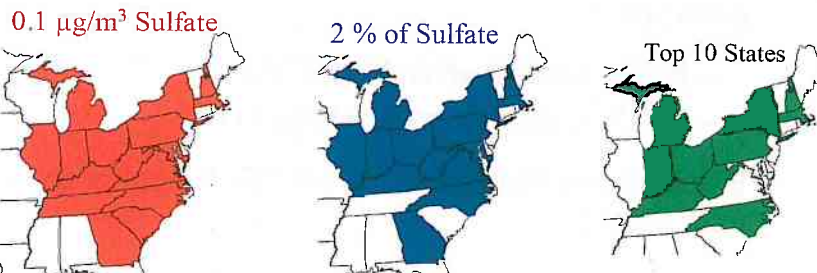
- Sulfates (formed from  $\text{SO}_2$ )
  - Account for ~70% of visibility extinction
  - Sources and chemistry well understood
- Organic Carbon
  - Account for ~10-15% of visibility extinction
  - Sources and chemistry less well understood (many variables and complex interactions)

Site	percent contribution to particle extinction					
	Sulfate	Nitrate	Org C	Elem C	Soil	Coarse Mass
Acadia	72	9	11	5	0.6	2
Moosehorn	70	8	14	5	0.5	3
Lye Brook	72	9	12	5	0.6	2
Brigantine	68	11	13	5	0.6	4
Washington DC	61	14	15	7	0.7	2
Great Gulf	76	3	13	4	0.6	3

17

## Contribution Assessment: In which states do haze-causing pollutants originate?

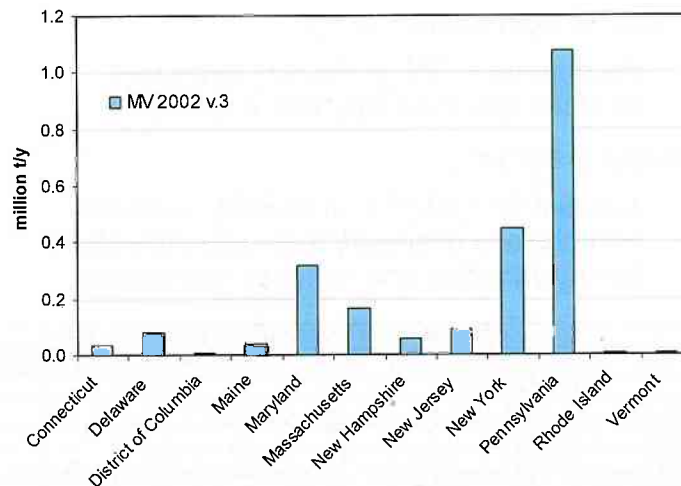
Great Gulf and Presidential Range - Dry River  
20% Worst Days REMSAD-Modeled 2002 Contributions to Sulfate



Source: MANE-VU Contribution Assessment, 2006

18

## Annual SO<sub>2</sub> Emissions, by State



Source: MANE-VU Contribution Assessment, 2006

19

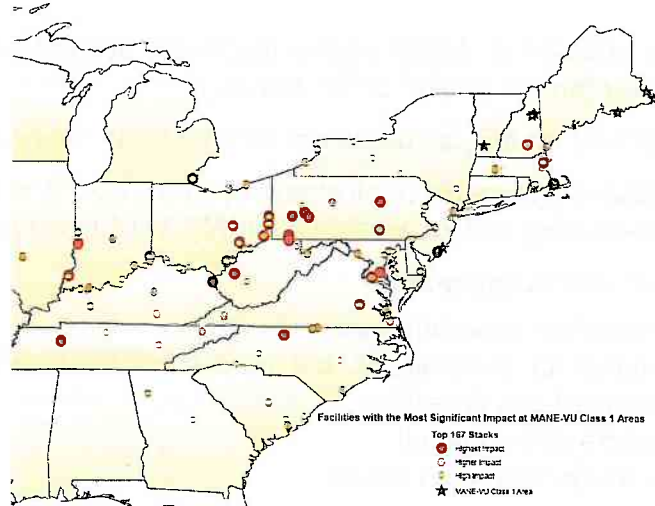
## Major Contributing Sources

- Electrical generating units (EGUs), which accounted for 70% of regional SO<sub>2</sub> emissions in 2002 (the base year)
  - EGUs located within MANE-VU
  - EGUs located outside MANE-VU
- Wood smoke from within the MANE-VU region and from Canada

20

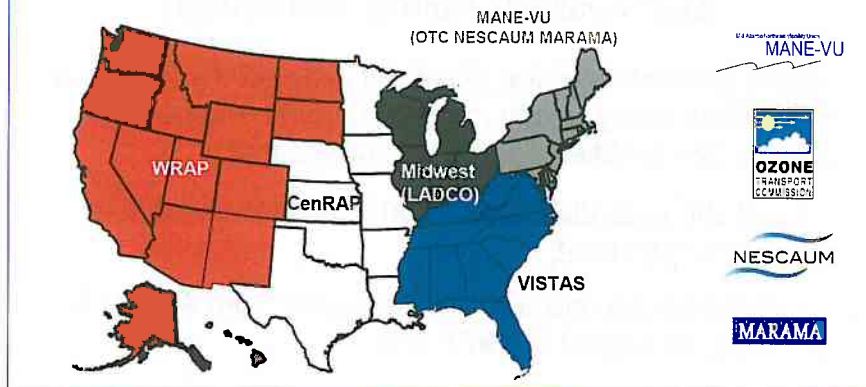


## Highest Contributing EGUs



21

## Regional Planning Organizations



## Federal Land Managers



22

## Control Measures Considered

- Cost-effective emission control measures beyond those already “on the books” or “on the way”
- Emphasis on SO<sub>2</sub> as dominant contributor to regional haze
- Measures applicable to all states contributing 2% or more of haze-causing sulfate aerosol at MANE-VU Class I Areas
- Major source categories:
  - electrical generating units (EGUs)
  - industrial, commercial, and institutional (ICI) boilers
  - cement and lime kilns
  - users of heating oil
  - residential wood stoves

23

## BART

### (Best Available Retrofit Technology)

These provisions of the Clean Air Act and the Regional Haze Rule apply to any major stationary source from among 26 identified source categories that:

- has the potential to emit 250 tons/year or more of any air pollutant;
- commenced operation in the period from August 8, 1962, to August 7, 1977; and
- emits any pollutant that may reasonably be expected to cause visibility impairment in any Class I area (primarily NO<sub>x</sub>, SO<sub>2</sub>, and PM<sub>2.5</sub>)

24

## BART Sources in New Hampshire

The state has only two BART-eligible sources, both of which are electrical generating units:

- Merrimack Station Unit MK2, a 320-MW, coal-fired power plant (base load); and
- Newington Station Unit NT1, a 400-MW, oil-fired and/or natural-gas-fired power plant (peak load)

25

### BART for Merrimack Station Unit MK2

Pollutant	Emission Controls
SO <sub>2</sub>	Flue gas desulfurization (scrubber) to achieve greater than 90% emission reduction (consistent with state law for 80% reduction of mercury emissions)
NO <sub>x</sub>	Selective catalytic reduction (current controls)
PM	Electrostatic precipitators (current controls)

### BART for Newington Station Unit NT1

Pollutant	Emission Controls
SO <sub>2</sub>	Use of 1.0%-sulfur residual fuel oil to reduce emissions by approximately 33%
NO <sub>x</sub>	Low-NO <sub>x</sub> burners (current controls)
PM	Electrostatic precipitators (current controls)

26

## Long-Term Strategy: The MANE-VU “Ask”

- New Hampshire and the other MANE-VU states determined that certain emission control strategies for achieving visibility goals were reasonable to implement by 2018 or earlier. Requested control measures are known as the “Ask.”
- The Ask represents MANE-VU’s long-term strategy as necessitated by the Regional Haze Rule.
- The proposed control measures go beyond programs that are already “on the books” or “on the way.”
- The Ask was developed in two slightly different versions: one for the MANE-VU states, and one for non-MANE-VU states.

27

## The “Ask” for MANE-VU States

- Timely implementation of BART controls.
- A 90% or greater reduction in SO<sub>2</sub> emissions from the 167 largest contributing EGU point sources affecting visibility in MANE-VU Class I Areas (or equivalent reductions by other means).
- Mandatory use of low-sulfur distillate and residual fuel oils, representing a 28% reduction in SO<sub>2</sub> emissions from the burning of these fuels.
- Continued evaluation of other measures, e.g., energy efficiency improvements, use of alternative (clean) fuels, further controls on SO<sub>2</sub> and NO<sub>x</sub> emission sources, and controls on wood smoke emissions.

28

## The “Ask” for non-MANE-VU States

- Timely implementation of BART controls.
- A 90% or greater reduction in SO<sub>2</sub> emissions from the 167 largest contributing EGU point sources affecting visibility in MANE-VU Class I Areas (or equivalent reductions by other means).
- Reasonable control measures on non-EGU sources equivalent to MANE-VU’s low-sulfur oil strategy.
- Continued evaluation of other measures, e.g., energy efficiency improvements, use of alternative (clean) fuels, further controls on SO<sub>2</sub> and NO<sub>x</sub> emission sources, and controls on wood smoke emissions.

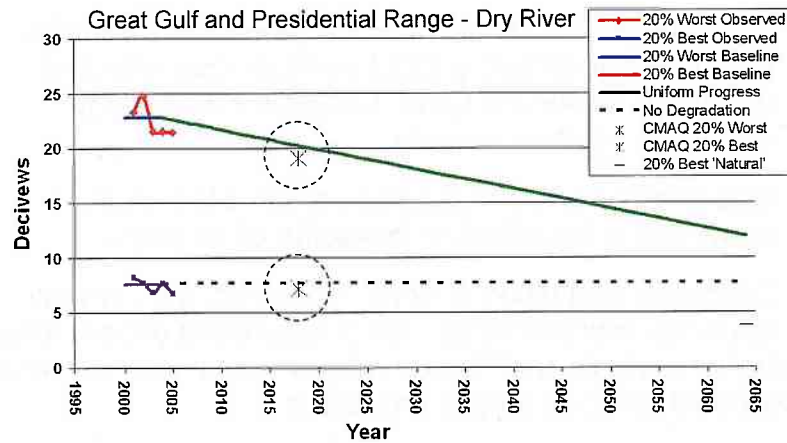
29

## New Hampshire’s Share of Emission Reductions (SO<sub>2</sub> from All Sources)

State/Region	2002 Baseline (tons)	2018 Projected (tons)	2002 - 2018 % Reduction
New Hampshire	55,300	13,605	75.4
MANE-VU Total	2,291,902	607,211	73.5

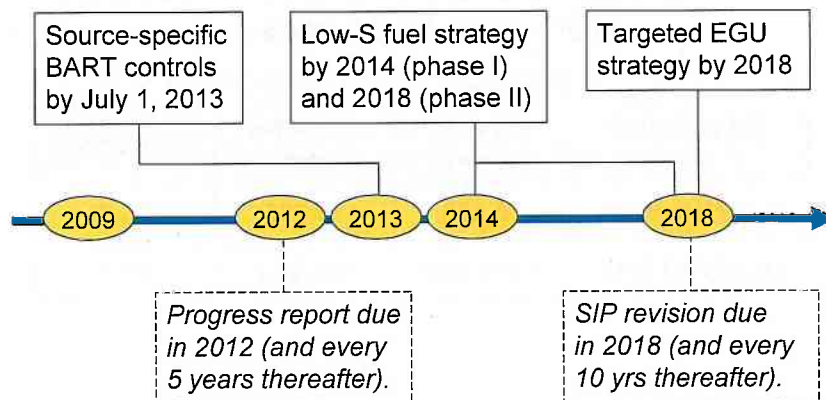
30

## Visibility Impacts of Control Measures (Air quality modeling performed by NESCAUM for MANE-VU)



31

## MANE-VU Regional Haze SIP Timeline



32