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October 1, 2008

Ms. Debra Howland
Executive Director & Secretary
New Hampshire Public Utilities Commission
21 South Fruit Street. Suite 10
Concord. New Hampshire 03301

RE: DE 08-077 Public Service Company of New Hampshire
Petition for Approval of a Power Purchase Agreement and Renewable Energy Certificate with Lempster Wind

Dear Ms. Howland,

Enclosed please find the Original and six copies of the **Redacted** Testimony of Steven E. Mullen, Assistant Director. Electric Division for the above referenced docket.

If you have any questions please don't hesitate to contact me.

Sincerely,

Suzanne G. Amidon
Staff Attorney

Encl.

CC: Service List - via Email

* REDACTED VERSION *

STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

DE 08-077

In the Matter of:
Public Service Company of New Hampshire
Power Purchase Agreement with Lempster Wind, LLC

Direct Testimony

of

Steven E. Mullen
Assistant Director – Electric Division

October 1, 2008

TABLE OF CONTENTS

Public Service Company of New Hampshire
DE 08-077

I. INTRODUCTION AND SUMMARY

1 **Q. Please state your name, position and business address.**

2 A. My name is Steven E. Mullen. I am employed by the New Hampshire Public Utilities
3 Commission as Assistant Director of the Electric Division. My business address is 21
4 South Fruit Street, Suite 10, Concord, New Hampshire.

5 **Q. Please summarize your educational background and work experience.**

6 A. In 1989, I graduated *magna cum laude* from Plymouth State College with a Bachelor of
7 Science degree in Accounting. I attended the NARUC Annual Regulatory Studies
8 Program at Michigan State University in 1997. In 1999, I attended the Eastern Utility
9 Rate School sponsored by Florida State University. I am a Certified Public Accountant
10 and have obtained numerous continuing education credits in accounting, auditing, tax,
11 finance and utility related courses.

12

13 From 1989 through 1996, I was employed as an accountant with Chester C. Raymond,
14 Public Accountant in Manchester, NH. My duties involved preparation of financial
15 statements and tax returns as well as participation in year-end engagements. In 1996, I
16 joined the Commission as a PUC Examiner in the Finance Department. In that capacity I
17 participated in field audits of regulated utilities' books and records in the electric,
18 telecommunications, water, sewer and gas industries. I also performed rate of return
19 analysis, participated in financing dockets and presented oral testimony before the
20 Commission. In 1998, I was promoted to the position of Utility Analyst III and

continued to work in all of the regulated industry fields, although the largest part of my time was concentrated on electric and water issues. As part of an internal reorganization of the Commission's Staff in 2001, I became a member of the Electric Division. I was promoted to Utility Analyst IV in 2007 and then Assistant Director of the Electric Division in 2008. Working with the Electric Division Director, I am responsible for the day-to-day management of the Electric Division including decisions on matters of policy. In addition, I evaluate and make recommendations concerning rate, financing, accounting and other general industry filings. I represent Staff in meetings with company officials, outside attorneys, accountants and consultants relative to the Commission's policies, procedures, Uniform System of Accounts, rate case, financing and other industry and regulatory matters.

Q. Have you previously testified before this Commission?

A. Yes. I have testified before the Commission on numerous occasions.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide comments and recommendations regarding Public Service Company of New Hampshire's (PSNH) May 29, 2008 filing, in accordance with RSA 362-F:9, of contracts and agreements with Lempster Wind, LLC (Lempster) for the purchase of energy, capacity and Class I Renewable Energy Certificates (RECs).

Q. You stated that PSNH filed contracts and agreements. What specific contracts and agreements were filed?

A. With its May 29, 2008 filing, PSNH submitted the following contracts and agreements:

- Power Purchase Agreement for Lempster Mountain Wind Power;

- Renewable Energy Certificate Option Agreement;
- Interconnection Agreement for Lempster Wind Project; and
- Agreement for the Joint Use of Pole Structures between PSNH and the New Hampshire Electric Cooperative (NHEC).

These documents were filed along with the prefiled direct testimony of S.B. Wicker, Jr., a Principal Engineer with PSNH. PSNH supplemented its filing on August 15, 2008 by submitting a Power Purchase Agreement between NHEC and PSNH. Of the above agreements, PSNH stated that it was only requesting approval of the Power Purchase Agreement for Lempster Mountain Wind Power and the Renewable Energy Certificate Option Agreement. For the other agreements, PSNH stated that Commission approval was either not required or the agreement is subject to the jurisdiction of the Federal Energy Regulatory Commission.

Q. What relevance does the NHEC have to the Lempster project and this proceeding?

A. The Lempster wind facility is located in NHEC's service territory. PSNH and NHEC are cooperating in developing the electrical interconnection necessary for the facility's operation.

Q. Please summarize your testimony.

A. Regarding the two agreements for which PSNH is seeking approval, based on my review of the terms and conditions of the agreements, I recommend the Commission approve them as being consistent with the requirements of RSA 362-F:9 and in the public interest.

II. REQUIREMENTS FOR MULTI-YEAR CONTRACTS IN RSA 362-F:9

Q. You mentioned that PSNH filed the contracts and agreements in accordance with

RSA 362-F:9. How are multi-year agreements for the purchase of RECs and/or energy and capacity addressed in RSA 362-F:9?

A. In its entirety, the statute reads as follows:

> **362-F:9 Purchased Power Agreements. –**
>
> I. Upon the request of one or more electric distribution companies and after notice and hearing, the commission may authorize such company or companies to enter into multi-year purchase agreements with renewable energy sources for certificates, in conjunction with or independent of purchased power agreements from such sources, to meet reasonably projected renewable portfolio requirements and default service needs to the extent of such requirements, if it finds such agreements or such an approach, as may be conditioned by the commission, to be in the public interest.
>
> II. In determining the public interest, the commission shall find that the proposal is, on balance, substantially consistent with the following factors:
>
> (a) The efficient and cost-effective realization of the purposes and goals of this chapter;
>
> (b) The restructuring policy principles of RSA 374-F:3;
>
> (c) The extent to which such multi-year procurements are likely to create a reasonable mix of resources, in combination with the company's overall energy and capacity portfolio, in light of the energy policy set forth in RSA 378:37 and either the distribution company's integrated least cost resource plan pursuant to RSA 378:37-41, if applicable, or a portfolio management strategy for default service procurement that balances potential benefits and risks to default service customers;
>
> (d) The extent to which such procurement is conducted in a manner that is administratively efficient and promotes market-driven competitive innovations and solutions; and
>
> (e) Economic development and environmental benefits for New Hampshire.
>
> III. The commission may authorize one or more distribution companies to coordinate or delegate procurement processes under this section.
>
> IV. Rural electric cooperatives for which a certificate of deregulation is on file with the commission shall not be required to seek commission authorization for multi-year purchased power agreements or certificate purchase agreements under this section.

Of the above subsections, only subsections I and II are germane to the instant proceeding.

1 **Q. Is there any specific language in the statute that you'd like to draw particular**
2 **attention to?**
3 A. Yes. Specifically, at the beginning of subsection II, it states that "In determining the
4 public interest, the commission shall find that the proposal is, *on balance, substantially*
5 *consistent with the following factors*:" (emphasis added). What that tells me is that the
6 Commission must view the deal in its entirety (i.e., "on balance") in determining whether
7 or not a multi-year proposal is in the public interest. In addition, "substantially
8 consistent" means that while it's possible to have varying degrees of consistency with the
9 required factors, overall any proposed agreements should leave no doubt as to the
10 "overall" conformance with the required factors. Applying that to this proceeding, it is
11 important to remember that the proposal involves a fifteen-year agreement for the
12 purchase of RECs, energy and capacity. While the pricing terms of each of the individual
13 components are important and must be examined, the Commission's public interest
14 determination should encompass not only the pricing terms and conditions, but also the
15 "substantial consistency" of the overall transaction with the factors included in RSA 362-
16 F:9, II (a) – (e).
17 **Q. Did PSNH address the factors listed in RSA 362-F:9, II (a) – (e)?**
18 A. Yes. Mr. Wicker addressed those factors on page 9 of his testimony. In PSNH's view,
19 the agreements meet all of the required standards.
20 **Q. Do you agree with PSNH's assessment?**
21 A. While I agree with the conclusion reached by PSNH, in my opinion, PSNH could have
22 gone further with its analysis of how the agreements are substantially consistent with the
23 required factors. For example, in addressing RSA 362-F:9, II (b), PSNH merely

indicated that "[n]othing in the Agreements is in conflict with any of the policy principles contained in [RSA 374-F:3]"[1] While many of the policy principles in that statute are not relevant to the proposed agreements, I feel it is necessary to address the ones that are.

Q. How many restructuring policy principles are contained in RSA 374-F:3, and, in your view, which ones are relevant to the proposed agreements?

A. There are fifteen restructuring policy principles contained in that statute, many of which deal with the initial implementation of electric industry restructuring. Of those fifteen, I view four as pertinent to the instant proceeding. Those three are:

- I. System Reliability
- V. Universal Service
- VIII. Environmental Improvement
- IX. Renewable Energy Resources

While the remaining eleven policy principles may not be relevant to this proceeding, I am not aware of any details in the proposed agreements that would cause them to be inconsistent with those principles.

Q. Please address the four restructuring policy principles you deem to be relevant to this proceeding.

A. The addition of a new generating source to the regional electric grid should only enhance the reliability of the regional electric system. I recognize, however, that as that new generating source is a wind facility, such enhancement is not as great as if the source was a baseload facility expected to be generating at times of system peaks. A wind generating facility also supports the goal of providing for increased commitments to renewable energy resources while simultaneously providing additional generation with no increase

[1] S.B. Wicker, Jr., testimony, page 9 at 9-11.

to regional air pollution. Finally, addressing RSA 374-F:3, V (e), although I don't view the proposed agreements as representing an "alternative means of providing transition or default services," the pricing terms in the proposed agreements should mitigate price volatility while also not creating new deferred costs, as the costs related to the proposed agreements will be included in PSNH's energy service rate which is periodically reconciled.

Q. Regarding RSA 362-F:9, II (c), what is the energy policy set forth in RSA 378:37?

A. RSA 378:37 reads as follows:

> **378:37 New Hampshire Energy Policy.** – The general court declares that it shall be the energy policy of this state to meet the energy needs of the citizens and businesses of the state at the lowest reasonable cost while providing for the reliability and diversity of energy sources; the protection of the safety and health of the citizens, the physical environment of the state, and the future supplies of nonrenewable resources; and consideration of the financial stability of the state's utilities.

Q. Do you think the proposed agreements are consistent with that policy?

A. Yes. Adding a wind facility to PSNH's supply portfolio provides further fuel source diversity as well as a new generation source that has no harmful emissions and does not draw on the supplies of nonrenewable resources. Also, the agreements contain reasonable prices for RECs, energy and capacity that will provide supply to PSNH and its customers at known pricing terms, thereby avoiding potential future supplemental purchases at uncertain pricing terms.

III. PRICING PROVISIONS FOR RECs, ENERGY AND CAPACITY

Q. Where do the pricing terms of the agreements fit in terms of an examination of whether the agreements are substantially consistent with the factors listed in RSA 362-F:9, II (a) – (e)?

1 A. The pricing terms are an integral and instructive part of assessing whether "[t]he efficient
2 and cost-effective realization of the purposes and goals of this chapter," as stated in RSA
3 362-F:9, II (a) have been met.

4 **Q. Please describe the pricing terms for RECs.**

5 A. Over the fifteen-year term of the purchase agreement, PSNH will pay Lempster the
6 following amounts for RECs:

Project Years 1 through 5
Project Years 6 through 10
Project Years 11 through 15

7

8 **Q. How can you assess whether those prices are reasonable?**

9 A. Such an assessment involves consideration of the demand and available supply of Class I
10 RECs. In addition, the applicable alternative compliance payments[2] can be used as a
11 reference point.

12 **Q. When must a NH Class I REC requirement first be met, and how many Class I**
13 **RECs will all NH electricity providers need to acquire to meet those requirements?**

14 A. The first year a Class I REC requirement must be met is for calendar year 2009. In that
15 year, approximately 61,425[3] Class I RECs, representing 0.5% of total electricity supplied,
16 must be acquired by all NH electricity providers. That requirement then increases to 1%
17 in 2010 with further increases of 1% each year thereafter until 2025.

18 **Q. What do you know about the potential sources available to supply NH Class I**
19 **RECs?**

20 A. As of the date of this testimony, the Commission has certified the following renewable

[2] *See* RSA 362-F:10 and N.H. Code Admin. Rules Puc 2503.02.
[3] Based on ISO-NE base forecast of 12,285 gigawatt-hours for NH in 2009 included in ISO-NE's 2008 CELT Report.

energy sources as eligible to produce Class I RECs:

Source	Estimated Annual Class I REC Potential
Schiller Station Unit 5 (PSNH)	283,000 – 333,000[4]
Smith Hydro (Incremental Output) – (PSNH)	17,000[5]
Lempster Wind	70,000[6]

Those are the approved NH Class I REC sources at this time; however, other projects are in development and the list of potential sources is expected to grow in the future.

Q. Why did you use the word "potential" in the above table in describing the available RECs from each facility?

A. While the amounts listed are based on the expected annual production from each facility, the facilities have also qualified or may qualify for REC status in other states.[7] In such cases, the facility may choose to sell the RECs into another state's REC market. So, with that in mind, the total RECs produced by a facility in any given year will only potentially be available for sale in the NH REC market. And, of course, the amount of RECs will depend on the actual annual production from each of the facilities.

Q. What are the estimated alternative compliance payments for Class I in 2009 and beyond?

A. While the exact alternative compliance payments will be determined by the Commission in January of each year, the 2009 Class I alternative compliance payment can be estimated to be in the range of $59-$60 per REC. Based on current law, ACPs in years

[4] PSNH response to CONST-01, Q-CONST-014-F01.
[5] Ibid.
[6] S.B. Wicker, Jr. testimony, p. 4 at 28-29.
[7] Of the three Class I facilities listed, Schiller Station has qualified for the RPS programs in Massachusetts and Rhode Island, and the Lempster facility stated in its NH Class I application that it plans to file applications in the states of Connecticut, Maine, Massachusetts and Rhode Island. To my knowledge, PSNH currently has no plans to

1 after 2009 will be indexed based on annual inflation.

2 **Q. How does the estimated 2009 ACP compare to the REC prices in the agreement**
3 **between PSNH and Lempster?**

4 A. The REC prices in the contract are [redacted] the estimated alternative compliance
5 payment. Assuming that ACP prices will continue to increase after 2009, the gap
6 between the ACP and the REC prices in the agreement will continue to [redacted]
7 [redacted].

8 **Q. In general terms, how should REC market prices change in relation to supply and**
9 **demand conditions?**

10 A. As a general concept, if demand is greater than supply, prices can be expected to
11 increase. Depending on the extent of the supply shortage, REC prices could be at or near
12 the ACP. Conversely, if supply exceeds demand, prices can be expected to decrease and,
13 therefore, be lower than the ACP.

14 **Q. Under what circumstances could the REC prices in the agreement turn out to be**
15 **above market?**

16 A. Considering the contracted REC prices are [redacted] the prevailing ACP price
17 and decline over time, for such a situation to occur there would most likely be an over-
18 abundant supply of available NH Class I RECs. The amount of available supply will
19 depend on a number of factors including the size and timing of new renewable generating
20 resources, whether eligible NH Class I resources also qualify under the RPS programs of
21 other states, and whether eligible NH Class I resources sell their RECs in the NH or other
22 states' markets. The RPS markets in NH and neighboring states are in various stages of
23 development, so while one might be able to make projections as to what the available

REC supply in NH or New England might be, to some extent the various state RPS programs will cause competition for the same RECs. The amount of available supply can also be influenced by eligible sources in a control area adjacent to the New England control area.

Q. Will PSNH retain all the Class I RECs it initially acquires from Lempster?

A. No. Lempster has the option of buying back up to [redacted] of the RECs during the first ten years of the contract and up to [redacted] of the RECs during the last five years of the contract. In addition, of the amount of RECs not bought back by Lempster, NHEC will acquire 10% from PSNH for the same price PSNH paid to Lempster.

Q. If Lempster opts to repurchase RECs from PSNH, what price must Lempster pay to PSNH?

A. For any RECs repurchased from PSNH, Lempster must pay PSNH the original purchase price plus a premium of [redacted] per REC.

Q. Is it reasonable for PSNH to enter into an agreement that allows for repurchase of RECs?

A. Yes. While it would be preferable for PSNH to retain all of the RECs, especially at the favorable pricing terms, realistically, a producer of RECs will want to obtain the highest possible value for them. As other New England states have adopted renewable portfolio standards, Lempster could simply have chosen to sell all of its RECs in other states' markets. In such a situation, PSNH would not be satisfying any of its NH Class I REC requirements via purchases from the Lempster facility. By the proposed agreement, PSNH will obtain Class I RECs to satisfy a portion of its purchase requirements, and for those RECs repurchased by Lempster, PSNH will obtain a premium payment that will

help offset its cost of fully satisfying its Class I REC purchase requirements.

Q. Has the Commission previously approved REC purchase agreements to provide for potential repurchase or retention of the RECs by the producer?

A. Yes. In Docket No. DE 07-125, the Commission approved agreements between PSNH and Pinetree Power, Inc. and Pinetree Power-Tamworth, Inc. (the Pinetree plants) that allowed the Pinetree plants to elect to sell RECs to third parties for compliance with other states' renewable portfolio standards rather than sell them to PSNH as NH Class III RECs. In such circumstances, PSNH could actually acquire zero NH RECs, although PSNH would be entitled to receive from the Pinetree plants a premium above the price it initially paid for the RECs.

Q. Please describe the energy pricing terms in the power purchase agreement.

A. For each year of the agreement, PSNH will purchase all energy from the facility at the greater of a) [redacted] of the hourly real-time ISO-NE locational marginal price (LMP) at the local node in the NH load zone or b) a floor price of [redacted] per megawatt-hour (MWH). The energy floor price is fixed at that level for the entire 15-year term of the agreement.

Q. How often is a calculation made to determine whether the floor price should be imposed and how does the calculation work?

A. The calculation is performed on a monthly basis. For any month, if the average energy price paid to Lempster is less than the floor price, an adjustment (payment) will be made to bring the average energy price equal to the floor price. Since energy will be purchased from Lempster at [redacted] of the hourly ISO-NE LMP for the local node in the NH load zone, that effectively means that the "trigger point" for the average monthly ISO-NE NH nodal price is actually higher than the stated floor price.

To demonstrate, assume PSNH was paying 75% of the NH nodal price and the floor price was set at $40 per MWH. That would mean that once the average monthly NH nodal price (taking into account the hourly prices over the month) went below $53.33 per MWH, the floor price provision would come into effect. So, if the average monthly NH nodal price was $50 per MWH, PSNH would have paid $37.50 per MWH for the month, on average. Therefore, an adjustment of $2.50 per MWH would be made to adjust the average monthly energy price paid up to the floor price.[8]

Q. Considering the existence of a floor price, is it possible that the energy prices paid by PSNH to Lempster could, at some point during the fifteen-year term of the agreement, be above market?

A. In order for that to happen, a lot of other developments (or some combination of developments) would have to take place, such as a significant increase in the energy supply, a significant decrease in demand, significantly lower fuel prices, etc. If these things were to happen, then PSNH's customers – not to mention to all customers in NH – would experience lower energy service prices. Considering today's current prices, we can only hope that energy prices move in the direction to the floor price in the contract. In addition, I reviewed the monthly average locational marginal prices for the NH load zone from January 2006 through August 2008. Those prices have been on an upward trend. Based on that review, and taking into account the energy floor price in the agreement, it's possible that at some point in time the energy floor price could be above market, but not highly likely.

[8] All numbers in the example are for illustrative purposes only and have no relation whatsoever to the confidential pricing terms of the power purchase agreement.

1 **Q. If circumstances caused the floor energy price to come into effect and that price was**
2 **above the prevailing market price, in your opinion, would that create a situation**
3 **that would result in stranded costs?**
4 A. In my opinion, it would not. Other than the length of the agreement, I view the proposed
5 agreement for the purchase of energy as essentially no different than any other bilateral
6 contract PSNH might enter into for energy purchases. Over the term of any bilateral
7 agreement, it is possible for the agreed-upon energy price to be above or below the
8 prevailing market price. The agreement with Lempster is simply one source of many,
9 including PSNH's own generation, used to compute PSNH's overall costs of providing
10 energy service to its customers. In addition, in enacting RSA 362-F:9, the Legislature
11 specifically permitted the type of multi-year contract that is at issue in this proceeding. It
12 does not seem logical that the Legislature would, on the one hand, allow electricity
13 providers to enter into multi-year contracts to help promote renewable projects while, on
14 the other hand, the costs associated with those contracts would be at risk of recovery as
15 potential stranded costs. Finally, I don't see anything in the proposed agreements that
16 would fit the definition of stranded costs contained in RSA 374-F:2.
17 **Q. Considering the long-term nature of the contract, how is the energy pricing in the**
18 **proposed power purchase agreement different from the PURPA-related long-term**
19 **rate orders and contracts with independent power producers that resulted in above-**
20 **market energy costs?**
21 A. The significant difference is that while the energy prices in the PURPA-related orders
22 and contracts were based on forecasts of increased prices, energy pricing in the proposed
23 power purchase agreement between PSNH and Lempster is tied to the prevailing

locational marginal price in the ISO-NE NH load zone. As market conditions fluctuate, so will the energy prices paid by PSNH, again, subject to the floor price described above.

Q. How is capacity priced in the proposed power purchase agreement?

A. During the first [redacted] years of the agreement, PSNH will be entitled to the entire capacity from the project at no cost. Beginning with Project Year [redacted], PSNH will make payments at [redacted] of the amount PSNH is credited for Lempster's capacity in PSNH's ISO-NE settlement account. In that way, the capacity pricing is similar to the energy pricing in that the price paid by PSNH will fluctuate as market conditions change. In any event, the capacity will always be priced at a discount from the prevailing capacity market prices.

Q. In your discussion of energy and capacity, you have not discussed NHEC. Under the terms of the agreements, is NHEC entitled to any of the energy and capacity from Lempster?

A. Yes. Similar to the provision concerning RECs, NHEC will obtain 10% of the project's energy and capacity from PSNH at the same prices paid by PSNH to Lempster.

Q. Do you think those terms are reasonable?

A. Yes. Considering that the Lempster project is located in NHEC's service territory, cooperation between PSNH and NHEC, including sharing the output of the facility, was and is important in assisting this new renewable resource in coming to fruition, consistent with NH's energy policy and recently enacted NH laws.

IV. OTHER ISSUES

Q. Does the Power Purchase Agreement contain any provisions whereby PSNH could seek to acquire the Lempster facility?

A. Yes. Specifically, Article 4.4 describes types of circumstances that would allow PSNH to

"present a proposal for purchase of the Facility." I am merely alerting the Commission to the existence of the provisions. The issue of potential PSNH acquisition of the Lempster facility is not ripe for consideration.

Q. Has the Commission approved any other multi-year contracts consistent with the requirements of RSA 362-F:9?

A. Yes. As stated earlier, in Docket No. DE 07-125, the Commission approved contracts for the purchase of energy, capacity and Class III RECs between PSNH and the Pinetree plants. Those contracts were for period of up to three years.

Q. What do you think is the main factor driving the fifteen-year length of the proposed contract with Lempster, as compared to the much shorter contracts with the Pinetree plants?

A. As I see it, the major difference is that the Pinetree plants are plants that have been in existence for a number of years, while the Lempster plant is being newly constructed. For new plants such as the Lempster facility, long-term – in this case fifteen-year – contracts are vital for financing approval. While the Pinetree plants did need to install emissions reduction equipment to qualify for Class III RECs, any financing requirements would have been significantly less than for a to-be-constructed generating facility.

Q. Does this conclude your testimony?

A. Yes, it does.