

**STATE OF NEW HAMPSHIRE
BEFORE THE
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION
DIRECT TESTIMONY OF
WILLIAM H. SMAGULA**

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
RECONCILIATION OF ENERGY SERVICE AND STRANDED COSTS FOR CALENDAR
YEAR 2013**

1 **I. Introduction**

2 **Q. Please state your name, position, employer and address.**

3 A. My name is William H. Smagula. I am Vice President of Generation for Public Service
4 Company of New Hampshire, (PSNH), a subsidiary of Northeast Utilities (NU). My business
5 address is 780 North Commercial Street, P.O. Box 330, Manchester, New Hampshire 03105.

6 **Q. Please provide a brief summary of your background.**

7 A. I received a Bachelor of Science in Mechanical Engineering from the University of New
8 Hampshire, and a Master of Science in Mechanical Engineering from Northeastern University. I
9 have worked for Public Service Company of New Hampshire and then Northeast Utilities since
10 1978. I am a Registered Professional Engineer in the states of New Hampshire, Connecticut and
11 Massachusetts. My duties have included Manager of Generation Training for the PSNH system,
12 Station Manager - Merrimack Station, Steam Production Manager - PSNH, Director Fossil
13 Generation - The Connecticut Light and Power Company, and Director, Manage and Operate
14 Services - Northeast Generation Services Company, Director - PSNH Generation in New
15 Hampshire. In January 2013, I assumed the responsibilities of Vice President - PSNH
16 Generation in New Hampshire.

1 **Q. Have you ever testified before this Commission?**

2 A. Yes. I have provided similar testimony in many previous Commission proceedings regarding the
3 operation of PSNH's fossil-fired, biomass and hydroelectric
4 generating plants.

5 **Q. Please describe your responsibilities as Vice President - PSNH Generation.**

6 A. In my present position as Vice President - PSNH Generation, I am responsible for the operation
7 and maintenance of PSNH's generating stations. I have responsibility for three fossil-fired,
8 steam electric generating stations, nine hydroelectric generating stations, two remote combustion
9 turbine/diesel generator sites and a biomass fueled boiler with the repowering of Schiller Unit 5.
10 PSNH Generation maintains a diversified fuel portfolio including gas, oil and coal-fired units as
11 well as hydro and renewable biomass with a total generation capacity of approximately 1150
12 MW.

13 **Q. What is the purpose of your testimony in this proceeding?**

14 A. The purpose of my testimony is to provide information on all outages that took place at PSNH's
15 fossil-fired, hydroelectric and biomass units and at NextEra Energy Resources, LLC's (formerly
16 FPL Energy) Wyman Station, Unit No. 4 in which PSNH is a minority owner. This information
17 will be for the period January 1, 2013 through December 31, 2013. I shall also provide
18 information on unit equivalent availability achieved by PSNH's steam generating units,
19 consistent with reporting provided in previous years. Unit availability including planned outages
20 will be calculated consistent with past submittals, as well as similar calculations, without the
21 influence of planned outages.

22 **II. Generating Unit Operation**

23 **Q. Please provide an overview of the performance of PSNH's generating units in 2013.**

24 A. PSNH's generating units produced 2,273,915 megawatt-hours (MWH) during 2013. The fleet's
25 availability during the 30 highest-priced days when customers' exposure to high market prices
26 was the greatest was 98.3%. PSNH Generation focused on safe, compliant, reliable, and cost-
27 effective operations and management of the generating fleet to provide benefit to customers.
28 These efforts resulted in the generating stations achieving an aggregate equivalent availability of
29 85.7% in 2013, similar to 2012.

PSNH successfully managed planned outages and forced outages during 2013. Merrimack Unit 1 and Unit 2's annual equivalent availability factors were 88.1% and 69.1%, respectively. Outage planning and durations continue to consider overtime costs and replacement power costs, which did result in longer outage windows but lower overall costs to customers. The Flue Gas Desulfurization system completed its second full calendar year of successful operation with overall good performance. Merrimack Station also operates four ESP's and two SCR's to significantly reduce flue gas emissions.

At Schiller Station, December 1, 2013 marked the seventh anniversary of the Northern Wood Power biomass unit (Unit 5). In 2013, Unit 5 produced its second highest annual generation of 331,675 MWH and has generated over 2,161,000 MWH during its 7 years of operation. Northern Wood Power completed a run of 103 consecutive days, the fourth longest run in its history, as well as a second Top-Ten run during the year. Units 4 and 6 had equivalent availability of 95.7% and 88.2%, respectively.

PSNH's hydroelectric facilities generated 334,761 MWH in 2013. The 9 hydro facilities, comprised of 20 units, operated successfully and produced 9.8% more generation than the prior year.

Newington Station burned more oil in 2013 than in 2012, with oil accounting for 67% of total station generation in 2013. The unit utilized its fuel diversity, blending oil and natural gas to support the system grid and maximize its value to customers. Newington Station was selected to participate in the ISO-NE Winter Reliability Program through the provision of oil inventory service. PSNH managed this Program to maximize customer benefit while maintaining unit availability and reliability. Newington Station completed the year with 96.6% equivalent availability.

Q. Please provide a summary of how PSNH's generating units continue to operate well, with high reliability and high availability, recognizing the changing market conditions and capacity demands.

A. PSNH Generation continues to focus on key items important to long-term operational success: the day-in and day-out operation and maintenance of the units; the corrective and preventative maintenance conducted during forced outages; pre-planning and execution of scheduled and

1 planned maintenance outages; and the use of a long-term maintenance outage and capital
2 expenditure planning process. While plans to accomplish these goals have been revised to
3 accommodate the changing market, our goals still remain high reliability, high availability, and
4 competitively priced energy. Long-term maintenance plans prioritize reliable plant operations
5 and are founded on operations, equipment history, on-going condition assessment, and industry
6 experience. The generating stations maintain a long-standing preventative maintenance program
7 to best execute quality maintenance and the operation of the units.

8 PSNH Generation focuses on maximizing the value of a fuel diverse fleet with reliable, cost
9 competitive energy for its customers. With changes in market forces and market conditions due
10 to economic changes in the country and the world, as well as the continuing evolution of gas
11 markets, PSNH has adjusted its management of its fleet to appropriately suit the needs of
12 customers. In doing so, PSNH has adjusted its expenses and staffing to accommodate a range of
13 operating scenarios while providing ongoing customer value at the lowest possible cost.
14 Appropriate efforts and adjustments will continue going forward. As energy market conditions
15 change, PSNH plants are being maintained and are ready to serve at a full range of operating
16 scenarios.

17 PSNH Generation continues to rely on an experienced management team and a skilled work
18 force utilizing sound practices derived from experience within our facilities, as well as working
19 with suppliers, contractors, experts, and other generating plant peers in the industry. The 2013
20 capital budget was the third lowest in over 10 years and PSNH was able to operate and maintain
21 the generation fleet's reliability while lowering O&M, overtime and capital expenditures. PSNH
22 Generation operating budgets continued to emphasize a proper balance between spending what is
23 necessary in the most critical areas, while being sensitive to the overall cost of production to our
24 customers taking Energy Service, both long term and short term. PSNH Generation works hard
25 to determine how maintenance projects can be most effectively executed and how capital
26 investments can be best applied to achieve a high level of plant performance. PSNH Generation
27 also continues to integrate into the above management focus consideration and implementation
28 of recommendations by the Commission's consultants.

III. Unit Outages and Availabilities

Q. Please provide a list of all unplanned outages that took place during the period January 1, 2013 through December 31, 2013 for PSNH's fossil, hydro, and biomass units and for NextEra's Wyman Station Unit No. 4.

A. Attachment WHS-1 lists these outages. This listing is similar to the information submitted in the past, as a reporting requirement for the fossil hydro "outage information" resulting from discussion with the Staff in Docket No. DR 91-011.

Q. Is there additional reporting with respect to outages?

A. Yes. PSNH provides outage reports for all unscheduled outages in excess of two days at either Newington Station or at the two units at Merrimack Station, and in excess of four days at the three units at Schiller Station and at Wyman Unit 4. These Outage Reports are included as Attachment WHS-2.

Q. Please provide a chronological listing of the unplanned outages for which Outage Reports are provided in the testimony.

A. The following table provides the chronological listing along with the start and end dates and times, the duration, and the causes of the unplanned outages. Unplanned outages listed below do include short term maintenance outages coordinated with wholesale marketing and scheduled with ISO-NE.

PSNH Steam Units Forced & Maintenance Outage List							
Report No.		Outage Start Date Time		Outage End Date Time		Duration Days	Reason
OR-1	MK1	1/8	2339	1/11	2045	2.9	Preventative Maintenance Outage - Air Heater
OR-2	MK2	3/21	0003	3/24	0415	3.2	Cyclone Tube Repair
OR-3	MK2	4/21	1500	5/10	1606	19.0	Preventative Maintenance Outage
OR-4	SR4	5/5	1200	5/15	1210	10.0	Preventative Maintenance Outage Generator Hydrogen coolers
OR-5	MK1	5/6	0800	5/17	1530	11.3	Forced Draft Fan
OR-6	MK2	7/25	1532	7/29	1030	3.8	Flue Gas Expansion Joint
OR-7	WY4	8/7	0001	8/11	2235	4.9	Preventative Maintenance Outage - Boiler wash
OR-8	SR5	10/25	2200	11/2	0355	7.2	Maintenance Outage - Cyclone pluggage, other
OR-9	MK2	12/29	0056	12/31	1805	2.7	Boiler Tube Repair

Q. Please discuss the longer outage durations provided in the table.

A. PSNH monitors customer load and the energy market and seeks to provide low cost energy to PSNH's customers. With that, during periods of low electrical demand and low power market prices, PSNH adjusts the outage duration to use less overtime. While this practice may extend the duration of the outage, the total outage expense is minimized, by avoiding the associated overtime costs.

Q. Please provide a brief summary of each of the Outage Reports discussed above.

A. A summary of the Outage Reports follows:

2013-OR-01

This Merrimack Unit 1 outage was 2.9 days long and began on January 8. The unit was removed from service to complete preventative maintenance, including cleaning of the air heater. An inspection of the circumferential and radial seals was performed and determined that some of the top circumferential seals needed replacement. An air heater wash and seal replacement was performed after the inspection. The boiler inspection was performed and revealed one cyclone tube leak. The tube leak was repaired with pad welding. Critical path was the air heater wash with additional jobs from the outage backlog also completed.

1 2013-OR-02

2 This Merrimack Unit 2 outage was 3.2 days long and began on March 21. The unit was removed
3 from service to repair cyclone tube leaks. A boiler inspection identified tube leaks in 4 cyclones.
4 The tube leaks were repaired with pad welding. Critical path was the tube leak repairs with
5 additional jobs from the outage backlog also completed.

6 2013-OR-03

7 This Merrimack Unit 2 outage was 19 days long and began on April 21. The unit was removed
8 from service to perform a preventative maintenance outage including the repair the #1 High
9 Pressure Feedwater Heater. An inspection of the heater and the heater outlet valve was
10 completed. Feedwater heater tube leaks had required the isolation of the heater. Heater tubes
11 were inspected and tested; and the leaking tubes plugged. Additional tubes were eddy-current
12 tested and those with indications were preventatively plugged. Replacement of the outlet valve
13 was also completed. Post-repair heat treatment, testing, and x-rays were performed on the valve
14 to complete the welding process. Critical path was the feedwater heater with additional jobs
15 from the outage backlog also completed.

16 2013-OR-04

17 This Schiller Unit 4 outage was 10.0 days long and began on May 5. The unit was removed from
18 service to perform a preventative maintenance outage including the installation of the generator
19 hydrogen coolers. Siemens was on site and supported this installation work. Repair work was
20 also completed on the seal oil tank internal float. The unit was returned to reserve shut down
21 status on May 15. Critical path was the installation of the generator hydrogen coolers with
22 additional jobs from the outage backlog also completed.

23 2013-OR-05

24 This Merrimack Unit 1 outage was 11.3 days long and began on May 6. The unit was removed
25 from service to repair 1B forced draft fan. An inspection of the fan determined that the shaft
26 needed repair. The rotating assembly was sent to an outside vendor for repair. In parallel, the
27 inlet dampers on the fan were refurbished. Prior to reassembly a new coupling was installed, the
28 repaired assembly was installed, and the fan was aligned and balanced. Critical path was the fan
29 repair with additional jobs from the outage backlog also completed.

1 2013-OR-06

2 This Merrimack Unit 2 outage was 3.8 days long and began on July 25. The unit was removed
3 from service to repair a ductwork expansion joint. A boiler inspection was performed during the
4 outage and revealed tube leaks in two cyclones. The tube leaks in “F” cyclone were repaired
5 with pad welding. A second leak in “G” cyclone was located and repaired on the cooling water
6 side of the radial burner water jacket. The targeted work for this outage included an air heater
7 wash with additional jobs also completed from the outage backlog.

8 2013-OR-07

9 This Wyman Unit 4 outage was 4.9 days long and began on August 7. This maintenance outage
10 was taken to perform a high pressure boiler wash to insure the unit was best prepared to complete
11 its summer claim capability audit test. The boiler wash was also part of the unit’s 2013/2014
12 winter readiness plan for participation in the ISO-NE Winter Reliability Program. Other work
13 from the priority outage backlog was also completed.

14 2013-OR-08

15 This Schiller Unit 5 outage was 7.2 days long and began on October 25. This biomass unit was
16 removed from service to clean pluggage from the cyclones, replace a wood feeder screw shaft,
17 and replace a circulating water pump motor bearing. The cyclones were cleaned and all pluggage
18 was removed. The wood feeder shaft and bearings were replaced. The circulating water pump
19 motor bearing was replaced. Critical path was the plugged cyclones with additional jobs from
20 the outage backlog also completed.

21 2013-OR-09

22 This Merrimack Unit 2 outage was 2.7 days long and began on December 29. The unit was
23 removed from service to repair a tube leak. The leak was found in the reheat superheater section
24 of the boiler and the tube was replaced. An inspection of the boiler identified additional tube
25 leaks in the cyclones. All cyclone tube leaks were repaired with pad welding. Critical path was
26 the reheat superheater tube leak with additional jobs from the outage backlog also completed.

1 **Q. Were scheduled overhaul outages performed at any of PSNH's fossil and hydro units**
2 **during the period January 1, 2013 through December 31, 2013?**

3 A. Yes. Attachment WHS-1 contains a list of scheduled maintenance outages for each of PSNH's
4 fossil, biomass, hydro, and combustion turbine units, as well as the Wyman 4 unit. WHS-3 also
5 summarizes the planned maintenance periods for the fossil units.

6 **Q. Please provide a list of scheduled outages at PSNH's fossil units during January 1, 2013**
7 **through December 31, 2013.**

8 A. The scheduled maintenance outages & their durations are:

Unit	Scheduled Outages
Schiller Unit 6	3/10 – 4/10
Newington Unit 1	4/01 – 4/12
Schiller Unit 5	4/13 – 5/03
Merrimack Unit 2	9/16 – 12/07
Merrimack Unit 1	10/28 – 11/22

9 The outages listed in the table above were scheduled to complete routine maintenance.

10 **Q. Are these scheduled outages usually reviewed as part of the Reconciliation of Energy**
11 **Service and Stranded Costs docket?**

12 A. Yes. A review of the scheduled outages has traditionally been completed by the Commission's
13 Staff utilizing an outside consultant. The outside consultant has performed on-site interviews
14 and a review process of the planned outages.

15 **Q. Are there any other requirements associated with this filing to be discussed?**

16 A. Yes, PSNH, consistent with Commission Order 25,647 dated April 8, 2014 and the January 16,
17 2014 settlement agreement approved in Docket No. DE 13-108, PSNH will review three
18 recommendations. There is one open recommendation remaining, 2012-10, concerning
19 coordination studies and transient stability studies, which will be reviewed with the staff
20 consultant during the upcoming interview process. Reporting will also be provided for
21 Recommendation 2012-7 regarding seasonal temperature settings at PSNH's hydro stations.
22 Finally, Recommendation 2012-11 concerning vegetation inspections along PSNH's circuits and

1 rights-of-ways, as well as hazard tree removal is closed, and PSNH will provide a 2013 status
2 summary.

3 **Q. Does this conclude your testimony?**

4 A. Yes, it does.