

1 requirements were met with the generation resources listed on FBW-1. These figures
2 also include the energy produced by Lempster Wind. The remaining energy needs were
3 met through bilateral or spot market energy purchases. As noted on Attachment FBW-2,
4 the energy procured via the Bethlehem and Tamworth PPAs is included in the bilateral
5 purchase category.

6 Q. Was PSNH's generation sufficient to meet PSNH's energy requirements in every month?

7 A. No. PSNH does not own sufficient generating capability to meet its customers' energy
8 requirements in all hours and, therefore, must purchase a portion of its customers' needs.
9 The purchase requirement changes hourly and can range from zero to a significant
10 portion, depending on the availability of PSNH's resources, the level of demand, the
11 migration of customers to competitive energy service options, and the relative economics
12 of PSNH's generation versus purchase alternatives. PSNH's supplemental purchase
13 requirement is heavily influenced by the economics of Newington. When Newington's
14 fuel expense is lower than the cost of purchasing power, the unit can be dispatched and
15 PSNH's supplemental need is significantly reduced. Forced and planned outages of
16 PSNH's generating units also increase the need for supplemental purchases.

17 Q. Please summarize how supplemental purchases were used to meet PSNH's energy
18 requirements.

19 A. Attachment FBW-3 summarizes the purchases made to supplement PSNH's generating
20 resources. Approximately 865 GWh of on-peak energy were purchased bilaterally at an
21 average cost of \$83.98 per MWh (a total expense of \$72.7 million). 79% of the on-peak
22 bilateral energy was procured via fixed-price monthly contracts to address forecasted
23 supplemental requirements and planned unit outages. 16% was procured via fixed-price,
24 unit-contingent contracts with the Bethlehem and Tamworth generating plants. The
25 remaining on-peak bilateral energy (5%) was procured via fixed-price short-term
26 arrangements (e.g. daily, weekly) to address unplanned outages and higher load periods.
27 In addition, approximately 146 GWh of on-peak energy were procured via the ISO-NE
28 hourly spot market at an average cost of \$59.82 per MWh (a total expense of \$8.7
29 million).

30 Approximately 271 GWh of off-peak energy were purchased bilaterally at an average
31 cost of ~~\$48.36~~ 47.76 per MWh (a total expense of ~~\$13.1~~ 12.9 million). 28% of the off-
32 peak bilateral energy was procured via fixed-price monthly contracts. 57% was procured
33 via fixed-price, unit-contingent contracts with the Bethlehem and Tamworth generating
34 plants. The remaining off-peak bilateral energy (15%) was procured via fixed-price

1 short-term arrangements (e.g. daily, weekly). In addition, approximately 294 GWh of
2 off-peak energy were procured via the ISO-NE hourly spot market at an average cost of
3 \$47.77 per MWh (a total expense of \$14.0 million). The combined expense for all
4 supplemental energy purchases was ~~\$108.5~~ 108.4 million.

5 Q. Were there any hours in which PSNH's supply resources exceeded PSNH's energy
6 needs?

7 A. Yes. Attachment FBW-3 also summarizes the hours in which supply resources, including
8 supplemental bilateral purchases, exceeded energy requirements resulting in sales to the
9 ISO-NE spot market. Approximately 278 GWh of on-peak energy were sold at an
10 average price of \$59.32 (total revenues of \$16.5 million). In addition, approximately 252
11 GWh of off-peak energy were sold at an average price of ~~\$40.43~~ \$40.44 (total revenues
12 of \$10.2 million). The combined revenue for all surplus energy sales was \$26.7 million.

13 Q. Please summarize how commodity prices (oil, natural gas, and energy) varied during
14 2010.

15 A. Attachment FBW-4 is a chart of the 2010 daily prices for residual oil (1% sulfur at New
16 York Harbor), natural gas (delivered to Algonquin Gate), and bilateral energy (peak
17 hours at the Mass. HUB). The chart shows the range of commodity and energy market
18 prices in 2010. The chart also shows the continuing correlation between natural gas
19 prices and bilateral energy purchase prices in New England.

20 Q. Please summarize the impact of commodity market volatility on the cost of serving
21 PSNH's energy requirement.

22 A. During 2010, approximately 64% of PSNH's energy requirements were met with coal,
23 wood, hydro, and nuclear resources. Newington is capable of operating on either residual
24 fuel oil or natural gas. Because of the diversity of its supply portfolio, PSNH is largely
25 insulated from volatility in the natural gas market. Even during periods of high and
26 volatile natural gas prices, PSNH's resource mix provides price stability.

1 **IV. CAPACITY REQUIREMENTS**

- 2 Q. Please describe the cost impact to PSNH’s customers associated with the Installed
3 Capacity Transition Period and Forward Capacity Market during 2010.
- 4 A. Attachment FBW-5 summarizes PSNH’s monthly capacity activity. Approximately 86%
5 of PSNH’s capacity need was met with generation resources (including PSNH-owned
6 assets, non-utility IPPs, the Vermont Yankee PPA, and the Hydro-Quebec
7 Interconnection Capacity Credits). The remaining 14% was procured via ISO-NE at a
8 total net cost of ~~\$12.9~~ 12.6 million.
- 9 Q. Please summarize the ISO-NE capacity market rules that were in effect during 2010.
- 10 A. The Forward Capacity Market (FCM) Settlement Agreement, which was approved by the
11 Federal Energy Regulatory Commission (FERC) on June 16, 2006, included an “Installed
12 Capacity Transition Period” during which all qualified capacity resources are paid a
13 negotiated fixed rate (the “Installed Capacity Transition Rate”) according to the schedule
14 below.

December 1, 2006 to May 31, 2007	\$3.05/kW-month
June 1, 2007 to May 31, 2008	\$3.05/kW-month
June 1, 2008 to May 31, 2009	\$3.75/kW-month
June 1, 2009 to May 31, 2010	\$4.10/kW-month

15 The Installed Capacity Transition Period ended on May 31, 2010. The FCM Settlement
16 Agreement also implemented for subsequent periods Forward Capacity Auctions (FCA)
17 during which capacity resources offer MWs into ISO-NE administered auctions to
18 “procure” the lowest cost resources necessary to meet the ISO-NE Installed Capacity
19 Requirement and to establish the market value of capacity. The first such auction was
20 conducted in February, 2008 for the Capacity Commitment Period June 1, 2010 to May
21 31, 2011. The capacity price established during this auction was \$4.50/kw-month.
22 Additional components of the FCM which occur after the FCA, including

1 Reconfiguration Auctions and monthly Peak Energy Rent adjustments, result in
2 adjustments to Capacity Supply Obligations, the overall rate paid to capacity, and the rate
3 paid by load for capacity. In both the transition period and the “FCM” period, resources
4 are paid for providing capacity, and the total payments for capacity resources in each
5 month are charged to ISO-NE load serving entities based on their relative share of the
6 prior year’s peak demand.

7 Q. Please summarize the supply resources that were used to meet PSNH’s capacity
8 requirements.

9 A. During 2010, a total of 428,814 MW-months of capacity qualified for credits in the ISO-
10 NE capacity market (this equates to a monthly average of 35,735 MWs). PSNH was
11 allocated 4.48% (19,198 MW-months) of this capacity obligation. PSNH’s supply
12 resources qualified for 16,437 MW-months of capacity; comprised of owned generation
13 (13,681 MW-months), non-utility IPPs (1,219 MW-months including Bethlehem,
14 Tamworth, & Lempster), the Vermont Yankee purchase agreement (248 MW-months),
15 and Hydro-Quebec Interconnection Capacity Credits (1,289 MW-months). For 2010,
16 PSNH had a net capacity obligation of 2,761 MW-months. Attachment FBW-5 provides
17 additional details

18 Q. Can you estimate the ES customers’ capacity credit associated with PSNH’s owned
19 generation resources during 2010?

20 A. Yes. As noted above, for 2010, PSNH’s owned resources provided 13,681 MW-months
21 of capacity to ISO-NE. This created over ~~\$53.4~~ 53.7 million in revenue credited to the
22 Energy Service rate.

23 Q. Are there any capacity market changes expected and how might the cost to PSNH’s
24 customers be affected?

25 A. At this time, there are no fundamental structural changes to the capacity market planned
26 or expected. ISO-NE has and will continue to conduct periodic competitive auctions to
27 solicit a quantity of capacity resources that is sufficient to satisfy reliability standards.
28 PSNH’s generation resources will continue to provide significant customer value as an
29 important hedge against the uncertainty related to future auction clearing prices and
30 changes to FCM rules.