

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DG 08-107

In the Matter of:
Concord Steam Corporation
Transfer of Utility Assets/Distribution Upgrades/Steam Purchase Agreement

Direct Testimony

of

Stephen P. Frink
Assistant Director – Gas & Water Division

December 31, 2008

1 **New Hampshire Public Utilities Commission**

2 **Concord Steam Corporation**

3
4 **Petition for Approval of Transfer of Utility Assets, Distribution Upgrades, and Steam Purchase**

5 **Agreement**

6 **DG 08-107**

7 **Testimony of**
8 **Stephen P. Frink**
9

10 **Q. Please state your name, occupation and business address.**

11 **A.** My name is Stephen P. Frink and I am employed by the New Hampshire Public Utilities
12 Commission (Commission) as Assistant Director of the Gas & Water Division. My business
13 address is 21 S. Fruit Street, Suite 10, Concord, New Hampshire 03301.

14 **Q. Please summarize your educational and professional experience.**

15 **A.** See *Attachment SPF-3*.

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

17 **A.** The purpose of my testimony is to provide Staff's recommendation regarding Concord
18 Steam's entry into the proposed Steam Purchase Agreement (Agreement) with Concord
19 Power, an unregulated affiliate company. Specifically, I will address the capacity charge
20 Concord Steam will be required to pay under the terms of the proposed Agreement. Staff
21 witness Robert Wyatt will address the operations and maintenance (O&M) and fuel charges
22 contained in the Agreement as well as the other issues raised by the petition.

23 **Q. Please summarize Staff's recommendation on the Steam Sales Agreement.**

24 **A.** Staff recommends that the Commission approve the Agreement subject to the conditions
25 described below, and including a condition requiring that the capacity charge be based on

1 actual costs and a condition ensuring Concord Steam is not at risk for increased O&M costs
2 due to fluctuations in electric generation.

3 **Q. What is the rate impact if the petition is approved as filed?**

4 **A.** Concord Steam expects the burner tip cost of steam to decrease by thirty percent compared to
5 current rates.

6 **Q. Given the expected rate decrease, can it be assumed that the terms of the Agreement are
7 reasonable?**

8 **A.** No. Although the expected savings indicate that customers will be better off under the terms
9 of the Agreement than if existing operations were continued, the Agreement in its current
10 form does not guarantee an equitable sharing of expected savings between rate payers and
11 shareholders.

12 **Q. What analysis did Staff perform to determine if the Agreement is equitable?**

13 **A.** The analysis compares the revenue requirement under the Agreement to what the revenue
14 requirement would be if Concord Steam were to own a share (percentage of plant necessary to
15 meet utility requirements) of the plant. Since O&M and fuel charges will be the same
16 whether or not Concord Steam owns a share of the plant, my analysis focuses on the capacity
17 charge.

18 **Q. Briefly describe the Steam Sales Agreement.**

19 **A.** Under the Agreement, Concord Steam will purchase its steam requirements from Concord
20 Power, owner of the new generating plant being built on South Main Street in Concord.
21 Concord Steam retains the contractual right to elect to self generate steam or purchase steam
22 from another source. Under the terms of the Agreement, Concord Steam will pay a share of
23 the O&M expenses, fuel charges and a capacity charge. The Agreement is for thirty years and

1 Concord Steam has the option to extend the Agreement an additional twenty years. The
2 Agreement contained in Concord Steam's filing has been revised and the most recent version
3 is attached. See *Attachment SPF-1*.

4 **Q. Briefly describe the O&M charge.**

5 **A.** The O&M charge will be based on all non-fuel related expenses for the ongoing operation and
6 maintenance of the steam plant. It does not include the operation and maintenance expenses
7 for the turbine generators or related equipment, or expenses related to the sale of electricity
8 and related products. Concord Steam's share of the on-going O&M costs will be determined
9 by multiplying qualifying annual O&M expenses by the applicable steam sales percentage.
10 The steam sale percentage is calculated by dividing Concord Steam's steam usage by Concord
11 Power's total steam production.

12 **Q. Briefly describe the fuel charge.**

13 **A.** The fuel charge will be based on the cost of wood and gas used to produce Concord Steam's
14 steam, or the cost of using natural gas to produce the steam, if lower. The fuel charge will be
15 reconciled annually.

16 **Q. Briefly explain the capacity charge.**

17 **A.** Concord Power is building a wood fired power plant that will produce enough steam to
18 generate approximately 17 megawatts of electricity per year and meet Concord Steam's steam
19 requirements. (Concord Steam can also generate steam using Back-Up Boilers installed on
20 the premises and owned by it.) The capacity charge is paid by Concord Steam to reserve the
21 plant capacity necessary to meet its steam requirements. The capacity charge reimburses
22 Concord Power for building and maintaining the capacity dedicated to Concord Steam.

23 **Q. Please summarize the formula used to determine the capacity charge.**

1 **A.** For the first fifteen years the formula is \$4,900,000 (the projected debt service payment),
2 multiplied by the steam sales percentage, and multiplied by 150% (coverage ratio required by
3 the lender on a 15 year loan). The projected debt service payment is defined in section 1.13,
4 although is unclear regarding what gives rise to the debt service (i.e. power plant, wood yard,
5 land, other). The capacity charge for the second fifteen years is the product of \$1,500,000
6 times the steam sales percentage. Starting with the third year, the capacity charge will be
7 adjusted annually to reflect changes in the steam sales percentage. Also, if new plant is
8 needed to meet Concord Steam requirements, the capacity charge would be adjusted to
9 include the cost of the investment.

10 **Q. What is the estimated annual capacity charge?**

11 **A.** Because of projected growth in utility steam sales over the first six years of the contract, the
12 annual capacity charge increases gradually from \$983,000 in year one to \$1,215,000 in year
13 seven and remains constant until year sixteen. In years sixteen through thirty the capacity
14 charge is expected to be \$248,000 annually.

15 **Q. Is the proposed capacity charge reasonable?**

16 **A.** Yes. Hypothetically, the alternative to paying the capacity charge would be for Concord
17 Steam to own a share of the new plant sufficient to meet the utility's steam requirements.
18 Under traditional ratemaking, if Concord Steam were to own the plant, the revenue
19 requirement related to plant investment would exceed the cost of the capacity charges over the
20 life of the plant, although on a net present value basis the cost of 'owning' is slightly cheaper,
21 as the capacity charges in the first 15 years are considerably higher than the capacity charges
22 during the second 15 years (the capacity charge in the first 15 years includes a 150%
23 multiplier on the plant investment to serve Concord Steam in order to satisfy the debt service

1 requirements of the lender).

2 **Q. What analysis did Staff use to reach that conclusion?**

3 **A.** Staff used a discounted cash flow analysis to compare the costs over the life of the project to
4 determine the net present value (NPV) of the revenue requirement if Concord Steam were to
5 own its share of the plant versus the NPV of the capacity charges.

6 **Q. What assumptions did Staff use in its analysis?**

7 **A.** The two most critical assumptions are the life of the plant and return on equity. Staff tested
8 the results under various scenarios, using plant lives of 30 and 50 years and returns on equity
9 of 10 and 13 percent. For plant lives beyond 30 years, Staff assumed a decrease in the
10 capacity charge proportional to that experienced between years 15 and 16, as it is Staff's
11 understanding that the decrease in year 16 is in part to reflect the lower plant value due to
12 depreciation and Staff's expectation is that Concord Steam will exercise its option to extend
13 the Agreement and the recalculated capacity charge will also take depreciation into account.

14 **Q. Why did Staff choose the returns on equity used in the analysis?**

15 **A.** Staff is unaware of any cost of capital studies regarding utility steam plants but given the
16 limited number and size of such facilities, Staff expects that it may take a return somewhat in
17 excess of returns offered by natural gas and electric utilities to entice outside investors to
18 invest. Over the last several years there have been a number of settlements approved by the
19 Commission for natural gas and electric utilities with returns on equity in the 9 to 10 percent
20 range, therefore a 10 percent return represents a conservative estimate of what Concord Steam
21 may require and the use of 13 percent demonstrates the impact that increasing the return will
22 have on the analysis. I wish to add that these rates of return are those assumed for purposes of
23 performing the analysis. They do not in any way represent the returns Staff would necessarily

support in a rate case and Staff reserves all rights to support whatever return it believes to be just and reasonable in a particular case. The utility has settled for Returns on Equity of around 8% or so in recent cases, before the discount for competitive purposes.

Q. Why did Staff choose the plant lives used in the analysis?

A. The Agreement is for 30 years with Concord Steam holding an option for an additional 20 years.

Q. What were the results of the analysis?

A. Under all scenarios tested, the results showed lower utility costs over the life of the project but a slightly higher NPV under the terms of the Agreement compared to owning the asset. As one would expect, the cost of ‘owning’ increased with the higher return on equity, while extending the life increases the difference in the NPV that favors ‘owning’ over the Agreement, as can be seen below:

30 Year Life & 10% ROE		
	Cost	NPV
Capacity Charge	\$20,535,000	\$10,837,382
Owning	\$20,923,629	\$10,401,273
Difference Agreement vs Own	(\$388,629)	\$436,109

50 Year Life & 10% ROE		
	Cost	NPV
Capacity Charge	\$21,535,000	\$10,908,664
Owning	\$27,488,083	\$10,278,010
Difference	(\$5,953,083)	\$630,653

30 Year Life & 13% ROE		
	Cost	NPV
Capacity Charge	\$20,535,000	\$10,837,382
Owning	\$21,110,941	\$10,576,441
Difference	(\$575,941)	\$260,941

50 Year Life & 13% ROE		
	Cost	NPV
Capacity Charge	\$21,535,000	\$10,908,664

Owning	<u>\$27,676,151</u>	<u>\$10,453,886</u>
Difference	(\$6,141,151)	\$454,778

1

2 See *Attachment SPF-2*.

3 **Q. Is Staff concerned about the difference in the net present value?**

4 A. Somewhat. Staff’s analysis indicates that the NPV of owning is 4 to 6 percent less than under
5 the terms of the Agreement. The analysis is designed to test the reasonableness of the
6 proposed capacity charge and the difference is small enough that it appears reasonable. One
7 concern is that the analysis assumes a reduction in the capacity charge for years 31 through
8 50. Staff would like to see the Agreement revised to ensure a decreased capacity charge if
9 Concord Steam elects to exercise the option to extend the Agreement. Another concern is the
10 high capacity charges over the first 15 years compared to the capacity charges in the later
11 years. Although relatively high compared to later years, the capacity charges in the first 15
12 years only exceed the ‘ownership’ scenario by approximately \$200,000 in any given year on a
13 NPV basis. While significant, the difference is much less than the expected annual savings
14 due to the restructuring and the difference is almost entirely reversed over the remainder of
15 the Agreement.

16 **Q. Does Staff have other concerns regarding the Steam Purchase Agreement, other than**
17 **the capacity charge?**

18 A. Yes. Staff has a number of concerns regarding the terms of the Agreement, such as: i) what
19 happens if Concord Power cannot sell its electricity; ii) how financially sound is the new
20 corporation; iii) who will own and manage the new plant and utility; iv) is the provision to
21 adjust the capacity clause for plant additions clear and reasonable; and v) will the capacity
22 charge be adjusted to reflect actual costs when the new plant is put into service?

1 **Q. What is the impact on Concord Steam if Concord Power cannot sell its electricity?**

2 **A.** First, Concord Steam may see an astronomical increase in O&M charges. Under the terms of
3 the Agreement, Concord Steam pays O&M costs based on steam it uses as a percentage of
4 total Concord Power steam production. The more steam used by Concord Power to produce
5 electricity, the lower Concord Steam's O&M charge (assuming Concord Steam usage remains
6 unchanged). Conversely, the less electricity Concord Steam produces, the greater Concord
7 Steam's share of the plant O&M charges. If Concord Power produced no electricity, Concord
8 Steam would pay the entire O&M costs of the new plant.

9 Second, if Concord Power cannot economically produce electricity, it is unlikely to
10 remain in business. Concord Steam's Back-up Boilers are to be located in the new plant and
11 there needs to be adequate protection to ensure Concord Steam's property rights and access to
12 facilities and equipment necessary to generate steam for resale to Concord Steam's retail
13 customers.

14 **Q. How can rate payers be protected from the risk of higher O&M costs due to fluctuations
15 in Concord Power's electric generation?**

16 **A.** The Concord Steam sales percentage used to determine the O&M charge should be revised to
17 use Concord Power's steam capacity rather than steam production. If that were done,
18 Concord Steam's share of the O&M costs would change with Concord Steam usage and
19 would be uninfluenced by fluctuations in Concord Power's steam production. Another way to
20 limit the risk would be to set a maximum Concord Steam sales percentage, whereby a
21 decrease in Concord Power steam's production below a certain level would not impact the
22 utility.

23 **Q. Is Concord Steam taking action to protect its property rights in the back-up boilers?**

1 A. Staff understands the utility is making the appropriate legal arrangements to do so.

2 **Q. What is Staff's concern regarding management?**

3 A. Concord Steam has demonstrated the financial and managerial expertise to safely and reliably
4 operate the existing steam utility and generate electricity. The corporate structure is expected
5 to change and Staff is concerned that there could be a change in management. Staff would
6 like assurances that there will not be a change in management, or if a change is anticipated,
7 the Commission would be notified and have the opportunity to evaluate and rule on the
8 proposed change.

9 **Q. Please explain the purpose of the clause requiring a revision to the capacity charge if
10 Concord Power adds plant to meet Concord Power's steam requirements.**

11 A. It is Staff's understanding that the intent is to allow shareholders to earn a 10% return on
12 equity and recover debt service costs from the utility when such additions are placed into
13 service.

14 **Q. As written, does the clause do as intended?**

15 A. No. A literal reading is that shareholders would only recover 10% of the investment and debt
16 service costs, multiplied by Concord Steam's steam usage as a percent of Concord Power
17 steam production.

18 **Q. Does Staff have any additional concerns with the provision for additional capital?**

19 A. Yes. The provision provides a recovery mechanism for additions but does not include a
20 provision for depreciation or retirements. Staff is also concerned that the method of financing
21 the project will greatly influence the charge related to such additions.

22 **Q. Should there be a provision to adjust the capacity charge in connection with additional
23 capital investment for depreciation and retirements?**

1 **A.** Not necessarily since the capacity charge does reflect a substantial reduction in plant for the
2 second fifteen years (capacity charge calculated on plant of \$1.5 million compared to \$4.9),
3 which somewhat alleviates Staff's concern. That said, Staff would like also like to see a
4 minimum threshold of plant investment required before the provision for increasing the
5 capacity charge for plant additions is triggered. The current provision appears to encompass
6 all additions, regardless of size, and establishing a minimum threshold would more closely
7 reflect cost recovery under traditional ratemaking, where additions, depreciation and
8 retirements are taken into account when rate changes are considered.

9 **Q. How does the funding of plant additions impact the capacity charge?**

10 **A.** If additions are funded entirely through operating revenues or equity, the provision would
11 provide a 10% return on the entire cost of the project. Conversely, if the project is funded
12 entirely through debt, the cost is dependent on the cost of debt at that point in time. A
13 capacity charge would be established based on the financing at that point in time, which could
14 then be refinanced through issuing debt or debt could be retired, with no subsequent
15 adjustment to the capacity charge. Also, the 10% return may not be reflective of a reasonable
16 return on equity.

17 **Q. How might Staff's concern regarding the funding of additions be addressed?**

18 **A.** The revised capacity charge should be based on a theoretical capital structure of 50% percent
19 equity and 50% debt, using the most recent return on equity approved by the Commission for
20 Concord Steam and the actual cost of debt at the time of the investment. If debt is not issued,
21 an index (such as the prime rate) should be used that represents what the Company would
22 expect to pay.

23 **Q. Will the capacity charge be adjusted to reflect the reasonable and prudent actual costs**

1 **when the new plant is put into service?**

2 **A.** The Agreement contains no provision to that effect but should be revised to do so. In
3 addition, the definition of the projected debt service payment that Concord Steam will be
4 responsible for needs to be clarified. Construction and financing cost estimates do not reflect
5 the recent market upheavals and final costs are likely to be much different from those
6 forecast. Updating the costs when the plant is placed in service will ensure that the utility
7 shares in any lower construction costs and protect the financial viability of the project by
8 providing the return required by the lender. Clarifying the projected debt service payment
9 that Concord Steam will be responsible for will ensure Concord Steam only pays for plant
10 used in meetings its steam requirements.

11 **Q.** **Does that conclude your testimony?**

12 **A.** Yes.