STATE OF NEW HAMPSHIRE

BEFORE THE

PUBLIC UTILITIES COMMISSION

Re: Concord Steam Corporation
Cost of Energy

DG 11 -_____

# DIRECT PRE-FILED TESTIMONY
# OF
# PETER G. BLOOMFIELD

September 15, 2011

**Q. Please state your name and address.**

A. My name is Peter G. Bloomfield. My business address is P.O. Box 2520, Concord, NH 03302.

**Q. How are you associated with Concord Steam Corporation?**

A. I am President of Concord Steam Corporation (the "Company").

**Q. Please describe your education and professional background.**

A. I graduated from Union College in 1976 with a BS in Mechanical Engineering. I am a registered Professional Engineer in New Hampshire, New York, and Colorado. I have been employed as an engineer in the steam and power industry since college. I became President of the Company in the fall of 1986.

**Q. What is the purpose of your testimony?**

A. The purpose of my testimony is to provide support for the Company's cost of energy request for the upcoming heating season. I will present documents and other information in support of the Company's request, and explain the development of the cost of energy charges and a calculation of the proposed charge. The exhibits that I am presenting consist of Schedules-1 to 8 as further described below.

**Q. Please describe the Company and its customers.**

A. Concord Steam provides district steam service from its facility at Pleasant Street in Concord, NH, and is the only steam utility in New Hampshire. It has approximately 105 customers, all of which are located in the City of Concord and all of which are commercial or institutional customers, with the exception of one residential customer.

**Q. Are you familiar with the books and records of the Company?**

A. Yes.

**Q. Has this filing been prepared by you or under your supervision?**

A. Yes.

**Q. Will the proposed change to the Company's cost of energy charge have any effect on the Company's profit, net income or rate of return?**

A. No. This is a revenue neutral change.

**Q. What is the current cost of energy charge?**

A. The current cost of energy charge is $16.64 per Mlb, as approved in Order No. 25,163.

**Q. Why is the Company filing this cost of energy case?**

A. The Company's projected cost of energy for the coming 12 months is less than the actual cost of the past 12 months, such that the currently approved rate is no longer reflective of its energy costs.

**Q. Was there an over or under collection during the past year for which an adjustment needs to be made to the Cost of Energy for the upcoming year?**

A. Yes, we are estimating that there will be an over collection of $107,535 over the previous Cost of Energy period. This is a change from the 2010-2011 over collection of $12,335. Due to this over collection and anticipated continued decreased fuel costs, the Company is requesting a decrease in its energy charge to $15.63/Mlb, as set forth in Schedule-1 to my testimony.

**Q. Please explain Schedule -1.**

A. Schedule-1 is a table that lists the amount of steam that the Company expects to sell for the period of November 2011 through October 2012, as proformed. Also listed is the amount of fuel and the cost of the fuel that the Company expects to consume for the same period. Schedule-2 is the backup detail for Schedule-1.

**Q. Please explain Schedules-3 and -4.**

A. Schedule-3 is the worksheet showing how the steam sales figures were proformed based on the 30-year degree day average. Schedule-4 is the reconciliation of actual energy cost versus revenue for the 2010-2011 season. This shows an expected $107,535 over collection for the year.

**Q. How will this change to the Company's cost of energy charge affect its customers?**

A. As set forth in Schedule-6 to my testimony, I estimate that the Company's customers will experience an approximate 3% overall decrease in their total bill. This is based upon an expected decrease in the Company's fuel costs for the upcoming year as set forth on Schedule-1.

**Q. Why is the cost of energy changing this heating season?**

A. The decrease in cost is due to decreases in the cost of all fuels: wood, oil and gas.

**Q. Can oil and gasoline prices affect the price of wood for the Company?**

A. A change in the cost of diesel fuel will cause a corresponding increase or decrease in the cost of wood. The loggers use diesel fuel to operate the logging equipment as well as the delivery tractor trailer trucks. For every $1.00/gal increase in diesel, the cost of wood increases $2.00/ton. Wet weather can also cause an increase in the cost of wood fuel, due to production problems with working in wet forest lots.

**Q. What different factors can affect the collection of the correct amount of energy charges over the year?**

A. Fluctuations in the amount of steam sold and in the cost of fuel.

**Q. Are there any changes in types of fuel being used at Concord Steam?**

A. There have been no significant changes from the prior year. The Company has been

burning wood since January 1, 2004. Wood has replaced oil and gas as the primary fuel, although the Company still uses some oil and gas. The Company has been burning more natural gas this past year and has reduced the amount of oil burned due to the lower price of natural gas. The Company plans to continue this through the coming year. The Company procures natural gas through a competitive bid process. This year the Company has contracted with Hess. Approximately 70% of the steam is generated by burning wood in two of the four boilers used by the Company. The Company's other two boilers are used as peaking units, and can burn natural gas, waste oil and oil.

**Q. What are the expected savings due to burning wood instead of oil and gas?**

A. The Company has entered into contracts for its wood supply that will result in an average delivered cost of approximately $26/ton. Of this cost, approximately $1.00 is for the actual cost of the wood, $13.00 is for labor and chipping and $12.00 for transport. A ton of wood is approximately equivalent to a barrel of oil in net steam energy out of the boiler. At the present cost of oil at $858/bbl and gas at $6.73/MMBtu, wood at total combined cost of $33/ton is attractive and economical. The annual estimated savings to the Company's customers, including the allowance for additional direct costs associated with burning wood, is over $600,000.

**Q. Are there any changes in the Company's wood storage and handling systems?**

A. No. The Company has been successfully operating the wood storage yard, and it has gone very well. The yard gives the Company better control over its wood supply and has allowed for some creative uses that have enabled the Company to keep the cost of wood fuel low. The yard also allows for better timing of deliveries of wood to the plant. In addition, by directly operating the wood yard, the Company has been able to use its

employees more efficiently. Personnel work at the yard in the winter and are able to work at the plant in the summer for maintenance.

**Q. Are any of the costs associated with operation of the wood yard included in this filing?**

A. Yes. The lease of the yard and the direct cost of running the yard are included in the cost of wood fuel. The monthly lease payment for the wood yard is $11,816. The direct costs are the maintenance of the equipment, diesel fuel for the front end loader and the delivery truck, and utilities for the yard. These estimated costs are itemized on Schedule-8. The cost of labor has not been included in the cost of wood fuel which is consistent with how the costs of operating the wood yard have been treated in prior cost of energy proceedings.

**Q. How will you accurately estimate the cost of fuel 12 months ahead?**

A. The Company presently pre-purchases 25% of its wood fuel requirements and 90% of its fossil fuel requirements for the upcoming heating season. The remainder of the fuel is priced according to the estimated cost of fuel as of the time of this filing. As the great majority of the Company's consumption occurs during the heating season, any fuel cost changes later in the COE year will have a small effect on the annual charge. The Company is pre-buying market wood now for use later in the heating season. The wood the Company is buying now is being stored off site for reclamation during the heating season. The Company is expecting wood to be over 70% of total fuel consumed.

**Q. How will a change of annual steam sales affect the recovery of the actual energy costs?**

A. If the Company sells less steam in a year than forecasted, the amount of energy consumed

is reduced as well. The reverse is also true, in that if sales increase, energy use would increase. This means that variations in steam sales will have a limited effect on energy recovery charges. Line losses do remain constant and are not significantly affected by steam sales or weather. A change in steam sales will result in a different mix of oil vs wood fuel, which can change our cost forecasts.

**Q. How much do steam sales vary from year to year?**

A. Steam sales generally are within a plus or minus 5% range of the Company's projections, depending on variations in the weather and other less significant factors such as the economy. Last heating season was average. The heating degree days were 100.3% of the 30 year average.

**Q. How did you calculate your steam sales projections?**

A. I weather normalized the Company's actual steam sales from Aug/09 through July/10 to a 30-year degree-day average. See Schedule-3.

**Q. How will you account for over or under collection of annual energy costs?**

A. The Company tracks costs all year, and if the cost of energy changes significantly from the forecast, the Company will apply a cost of energy adjustment part way through the year as authorized by the Commission. At the end of the energy cost adjustment year, the Company reconciles revenues collected versus cost of fuel and will adjust the energy cost calculation for the next year accordingly.

**Q. How did the collection of energy cost work out this past year? What was the amount of over or under collection?**

A. As I noted earlier, the Company projects it will over collect $107,535 for the period from 11/10 to 10/11, which was about 5% of its total energy charges for the year. This is

itemized on Schedule-4, with the detail shown on Schedule-5. This over collection is due to normal fluctuations in fuel consumption, steam sales and fuel costs.

**Q. Has the number of customers changed over the past year?**

A. Not significantly. We have lost Riverbend and three other small customers. The increase from the addition of Rundlett last year more than makes up for these losses.

**Q. What does the Company project for the upcoming heating season?**

A. The Company will try to minimize the amount of over or under collection by adjusting its energy rates during the year as allowed by the Commission. In past years, the Commission has authorized the Company to adjust its energy rates by +/- 20%.

**Q. When does the Company seek to implement this new rate?**

A. The Company is requesting to implement this rate on a service rendered basis as of November 1, 2011.

**Q. Has the Company taken any steps to reduce losses of steam in its system?**

A. Yes. The Company has been continuing to repair and upgrade underground steam lines. We have just begun using a thermal camera to document the conditions of the lines and have found a number of leaks that showed up as hot spots. We have repaired the worst four and are planning to do more next summer. The system survey is still underway, and will be a continuous process as part of maintaining the system.

**Q. In its Order 24,147, the Commission required the Company to submit a cost benefit analysis of its steam turbine cogeneration operations. Has the Company performed such an analysis?**

A. Yes. As of January of 2005, the "Cogen" division of the Company was made part of the utility, and all of the costs and revenues from that operation became part of the regulated

company. Order 24,147 requires the Company to justify that this combination makes economic sense. Schedules CB-1 through CB-5 provide the cost/benefit analysis with back up data.

**Q. Has the electric power generation operation been cost effective?**

A. Yes, from August 2010 to July 2011 the cogeneration system has saved the Company (and ultimately its ratepayers) over $120,000, from sales of excess electricity to ISO-NE and from avoiding buying power from Unitil. This savings is after all costs, including fuel, are taken into account.

**Q. Has any progress been made on development of the new steam plant project?**

A. Yes. The project has all of its city permits and the State and federal permits. As the Commission is aware, Concord Power and Steam, LLC now has contracts with parties who in the aggregate have committed to take 100% of the output of the facility. The project is in the process of arranging financing, with the intent to start construction this year. The new plant will be in service by Fall of 2013.

**Q. What is the BCAP program and how does it affect wood supply?**

A. Biomass Crop Assistance Program was a subsidy paid by USDA through FSA to wood fuel suppliers. This was a new program last year which ran from February through April of 2010 and resulted in our receiving this grant in the form of a savings in our cost of fuel for 2010 that was not applied to the COE, but instead to energy saving measures designed to reduce line loss.

**Q. Please provide a detailed description of the grant funds received by the Company.**

A. The United States Department of Agriculture, through the Farm Service Agency, has a program that is intended to support and encourage the use of biomass as an energy

source. The program was funded for three months during the spring of 2010. The Biomass Crop Assistance Program (BCAP) provides financial assistance to producers or entities that deliver eligible biomass material to designated biomass conversion facilities for use as heat, power, biobased products or biofuels. Initial assistance was provided for the Collection, Harvest, Storage and Transportation (CHST) costs associated with the delivery of eligible materials.

BCAP provides payment to those that collect, harvest, store and transport eligible biomass material. The payments were made at a rate of $1 for every $1 dollar (per ton dry ton equivalent) received from a qualified biomass conversion facility up to a maximum matching payment of $20/dry ton. The owner may be a landowner, logger, trucker or chipping facility.

In 2010, the USDA classified Concord Steam as a qualified biomass conversion facility. Concord Steam participated in the BCAP program in the first few months of 2010. Specifically, the Company shared in a 50/50 split of BCAP funds with the loggers that supplied wood to Concord Steam in the spring of 2010. During this period, the Company paid loggers $20/ton for fuel for which it otherwise would have paid $30/ton. The loggers in turn were paid an additional $20/ton by the Farm Service Agency, thereby netting $40/ton.

**Q. How much in grant funds did Concord Steam receive through this program?**

A. In total, Concord Steam received a total of $94,699 from the Farm Service Agency in the form of a subsidy from January 19, 2010 to April 30, 2010. This subsidy took the form of reduced payments to the Company's wood suppliers.

**Q. Has there been any BCAP funding for the previous years heating season?**

A. The program was not funded for 2011, and is not likely to be funded for this coming year.

**Q. How has the Company applied those funds and how much has been spent?**

A. In docket 10-242, Order 25,163, the Commission approved the use of the funds from the subsidy to improve the efficiency of its steam distribution system. The Company purchased a thermal imaging camera to help find hot spots in the system in order to spot steam leaks and areas where the steam pipe insulations systems are failing. We have started using the camera to map and analyze every foot of steam line in the distribution system.

By mapping and analyzing its system, the Company will be able to identify immediate problem areas of the system and also establish a baseline. Once the baseline database is set, annual inspections with the thermal camera will enable Company personnel to locate and repair problems and leaks before they are large enough to spot by visible means. The total cost expended to date are on equipment, labor, and materials for the repairs is approximately $119,000. The summary breakdown of the costs of the project is attached as Schedule 9.

**Q. What repairs/upgrades have been made so far to the system?**

A. The thermal imaging showed four significant leaks in the steam system. These were on Park Street, Fruit Street, Green Street, and at the Merrimack County Courthouse. These leaks were all repaired this summer. The costs of these repairs are shown on Schedule 9.

**Q. What plans are there for future system work?**

A. There are other portions of the system that are scheduled for future repair. These were not serious enough to do this summer, but are scheduled for summer of 2012. The thermal imaging study has not been completed yet, so these plans could change.

**Q. What improvements in line losses have been achieved?**

A. We began making repairs in June and have not had enough time to be able to quantify the improvements. We also installed new steam flow meters on the lines leaving the steam plant in order to better track line losses by comparing steam sold to the amount steam delivered to the distribution system.

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

A. Yes, it does.