EX. 2

STATE OF NEW HAMPSHIRE

BEFORE THE

PUBLIC UTILITIES COMMISSION

Re: Concord Steam Corporation
Cost of Energy

DG 10-242

SUPPLEMENTAL PRE-FILED TESTIMONY
OF
PETER G. BLOOMFIELD

September 28, 2010

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. Have you previously filed testimony in this docket?

A. Yes. I filed direct testimony on September 10, 2010.

Q. What is the purpose of this supplemental testimony?

A. I am filing supplemental testimony to provide additional information to the Commission regarding grant funds received by the Company during the prior heating season and to request that the Commission allow those funds to be used to improve the Company's steam distribution system.

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 are 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. How has the Company treated those funds for purposes of determining its cost of energy for the 2009/2010 heating season?

A. The Company's September 10, 2010 filing in this docket contained schedules calculating its cost of energy for the upcoming heating season, which includes a reconciliation of prior year expense. See Schedules 4 and 5 to September 10 Pre-filed direct testimony of Peter Bloomfield. The calculation of the revenues from the 2009/2010 heating season are based on the price of wood at $30/ton for the prior heating season, and does not take into account the subsidy the Company received in the months during which it paid $20/ton for wood.

Q. Why didn't the Company included the actual cost of wood in its reconciliation of the prior year's cost of energy?

A. The Company proposes to use the funds from the subsidy to improve the efficiency of its steam distribution system rather than apply these dollars as a one time reduction in energy costs. Specifically, the Company seeks to improve the effectiveness of the pipe insulation in its distribution system, and to spot steam leaks while still small. This will allow the Company to reduce line losses. While this will not result in an immediate reduction to customers' bills, it will result in steam savings which will take the form of reduced energy costs once the improvements are completed.

Q. How does the Company propose to use the funds?

A. The Company proposes to use the funds to purchase state of the art thermal imaging cameras to map and analyze every foot of steam line in its distribution system. The breakdown on the costs of the proposed equipment and the labor required to implement this first phase of the project is attached as Schedule 9.

By mapping and analyzing its system, the Company will be able to identify immediate problem areas of the system and 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. Once problem sections of piping are identified, a quantitative analysis will be done to determine the extent of the problem and the actual amount of heat loss. This will be done by the installation of meters to accurately measure steam losses. This phase of the proposed study is to measure the actual condensate flow from suspect areas of the system to achieve an accurate quantitative measure of heat loss from the piping sections, before and after insulation repair. The Company will accomplish this with the temporary installation of a condensate meter on the condensate trap discharge lines in the manholes and with a new, very accurate steam flow meter measuring steam flow from the plant to the underground steam distribution system.

Q. How is this different than the Company's current approach to addressing system losses?

A. The Company is aware that there are areas of the steam system that are losing heat due to failed insulation systems, but currently has no way of rating these locations in terms of which ones are bad enough to require repair or which areas need to be repaired first. Presently the Company will excavate a section of line if a leak or line failure is suspected, usually by visual indications of steam coming up from the ground. When the section of line is opened, and the steam line is repaired, the insulation system for that section is repaired or upgraded at that time.

With the remaining funds plus what ever additional subsidy grants the Company might receive from the new BCAP program which may commence in October 2010, the Company would reinsulate and repair the worst of the pipe insulation systems identified in the study. The methods and techniques of reinsulation/repair/upgrade to the existing pipe insulation system would depend on the type of insulation system involved.

Q. Please describe the types of pipe insulation in the Company's distribution system.

A. There are four general types of steam lines insulation systems in service on our steam distribution system. These insulation systems have changed as technology and laws changed since the original steam system was installed in 1938.

1938 – 1960's (Asbestos insulation on the pipe, generally installed inside a terracotta or concrete pipe vault): This system is very stable and generally does a good job, although if other excavation is done near the terracotta, the tile tends to break and allow ground water into the duct. The method used to upgrade and repair of this type of system will depend on the condition of the tile/concrete pipe chase and the amount of space around the existing insulation. The best method would be to inject a high temperature expanding foam between the asbestos and the inside of the pipe chase. This encapsulates the Asbestos and significantly improves the thermal insulation.

1960's – 1980 (Protexulate and Wicolite): This is a loose bagged material that was poured over the steam line in the dirt trench. Over time, the material degrades and shifts, exposing the piping to soil. In some situations, the insulation causes the piping to bow and bend, causing operational problems of pooling of condensate. The only reasonable solution to upgrading this type of pipe insulation, depending on the size of the carrying pipe, is to either excavate the length of the line and reinsulate with Foamglas, or replace the carrying pipe entirely with a preinsulated, prefabricated system.

1980 – 1990 (Ricwil): Ricwil is a system that encases fiberglass pipe insulation inside a larger lightweight steel pipe. This comes factory assembled in 20 – 40 foot long pieces. The Company has had problems with this system when the outside protective steel pipe rusts and provides a hole for groundwater to enter the casing. The water causes the insulation to deteriorate and make it lose effectiveness. The best method for insulation repair would be to inject a high temperature expanding foam between the fiberglass insulation and the inside of the steel casing pipe. This encloses and seals the fiberglass and significantly improves the thermal insulation. However there may not be enough space between the existing fiberglass and the casing for this to work in all cases. If the conditions call for another approach, the entire pipe can be encased with an extra external casing and the expanding foam placed into that air space, or sections of the existing casing and insulation can be removed and reinsulated with Foamglas.

1990 – present (Foamglas with a Pittwrap cover, directly buried): This is a closed cell foam made from silica and glass. It is water proof and does not deteriorate over time. It can fail when sections of pipe have been stressed and caused to shift with very large amounts of ground water. However, the Company has found this to be very stable and long lasting, and is easy to patch in pieces to match with the other existing insulation systems. When installing new long piping runs such as the steam line to the Rundlett school, the Company is now using a pre-insulated piping system similar to the old Ricwil system. The new system has a Foamglas inner insulation layer, an air gap, a light gauge steel casing, a layer of high temperature polyurethane foam, and an outer PVC casing.

Depending on the type of piping system and its condition, the Company would repair sections of insulation using materials and techniques as conditions call for. The Company expects to improve the quality of the insulation and measurably reduce system line loss with these steps and with the help of the thermal imaging equipment and meters to identify the sections in most need of upgrade. Specifically, the Company projects that it will reduce system losses by 5% within the first year, and continue to improve the system from there.

Q. What is the benefit to customers of the allocation of funds in this manner in lieu of a one-time reduction to its cost of energy?

A. If this proposal results in a reduction of line loss of 5%, the customers will see a reduction in energy costs of almost $40,000/yr, with a simple payback of less than 2.5 years. If the study results in a reduction of 12% of line loss, the program will save over $95,000/yr, paying back the invested funds in less than a year. This is detailed in Schedule 10.

Q. What happens if the Company starts this program but does not receive further funding from the Farm Service Agency?

A. The equipment and baseline data will still be of critical use in maintaining the steam system. If no further funds are received, then major overhaul and repairs to the insulation systems will need to be postponed until cash flow allows for the system upgrades.

Q. Why doesn't the Company purchase the necessary equipment and fund the labor costs to begin these improvements?

A. The Company does not have excess capital (or access to no-cost capital) to otherwise fund this project. The receipt of the Farm Service Agency funds has provided a unique opportunity to the Company to make necessary upgrades to its steam system without incurring the costs of borrowing capital to do so.

Q. If the Company were to credit customers for the Farm Service Agency subsidy, how would that affect the rates being charged for the upcoming 2010/2011 heating season?

A. The Company has revised Schedule 1 from its September 10 filing to reflect the impact of the application of the subsidy to the reconciliation of the prior year's fuel costs. As reflected on this schedule, this would result in an approximate $0.67/Mlb or a 4% reduction in energy cost or a 1.9% reduction in total steam cost, including base rate. Given the significant benefit that would be achieved by reducing line losses on the Company's system, the Company believes that use of the funds for distribution system losses is reasonable and in the public interest.

Q. Does this conclude your supplemental direct testimony?

A. Yes, it does.

Concord Steam Corporation
Cost Of Energy (COE)

DG 10 -242
Schedule 1
rev 9/27

	Projected Steam Sales Mlbs	Projected Fuel Use MMBtu	$/Mlb		Steam Revenue Energy		Cost of Energy		Projected Over/Under Collection
Nov-10	15,221	50,776	$ 15.97	$	243,120	$	239,467	$	3,654
Dec-10	24,500	68,091	15.97	$	391,340	$	306,815	$	84,525
Jan-11	27,561	70,048	15.97	$	440,242	$	342,885	$	97,356
Feb-11	26,303	68,156	15.97	$	420,146	$	336,729	$	83,418
Mar-11	19,795	66,735	15.97	$	316,183	$	319,463	$	(3,281)
Apr-11	10,140	43,334	15.97	$	161,970	$	208,596	$	(46,626)
May-11	4,216	28,651	15.97	$	67,339	$	128,796	$	(61,457)
Jun-11	1,709	20,251	15.97	$	27,298	$	87,718	$	(60,420)
Jul-11	931	20,700	15.97	$	14,871	$	88,710	$	(73,839)
Aug-11	889	20,300	15.97	$	14,200	$	85,054	$	(70,854)
Sep-11	1,626	21,904	15.97	$	25,972	$	91,522	$	(65,550)
Oct-11	9,509	31,488	15.97	$	151,888	$	143,388	$	8,500
TOTAL	142,399	510,434			2,274,570	$	2,379,143		(104,573)

Subsidy from BCAP program	$	94,699
Over collection from previous year		9,874
Energy Charge with BCAP - $ per Mlb	$	15.97
Total of Cost of Energy Charge		2,274,570
Energy Charge without BCAP- $ per Mlb	$	16.64
Total of Cost of Energy Charge		2,369,269
Average COE charge for last year	$	17.83
Percent reduction from last year with BCAP		10.4%
Percent reduction from last year without BCAP		6.7%

Concord Steam Corporation | **DG 10 -242**
Cost Of Energy (COE) | **Schedule 9**

BCAP grant
Energy efficiency study

System thermal heat loss analysis and setting of baseline

Materials				
Thermal imager camera			$ 10,000	
Condensate meter			$ 3,500	
Instrumentation			$ 1,000	
Condensate reciever/pump			$ 3,500	
Pipe, fittings, misc.			$ 800	
Main line steam flow meter			$ 10,000	
	Subtotal			$ 28,800
Labor	hours	rate	total	
Engineering				
Modify and upgrade Autocad system map to integrate with thermal data base.	200	30	$ 6,000	
Establish procedures and schedule of sections to investigate	50	30	$ 1,500	
Field work	500	30	$ 15,000	
	Subtotal			$ 22,500
Mechanics/pipefitter				
(Assume installation and removal of condensate meter 5 times)				
Install temporary high temp condensate meter in manholes	40	45	$ 1,800	
Install condensate receiver/pump	40	45	$ 1,800	
Install main line steam flow meter	12	45	$ 540	
	Subtotal			$ 4,140
TOTAL				$ 55,440

Concord Steam Corporation
Cost Of Energy (COE)

DG 10 -242
Schedule 10

		Mlbs
2009		
Total Steam generated		277,857
Line loss (Unaccounted for)		90,992
Used in plant		50,865
Steam sold		136,001
Estimated line loss reduction	5%	4,550
Percent of total generation		1.6%
Projected COE for 2011		$ 2,264,696
Amount of BCAP subsidy		$ 94,699
Projected annual savings in COE		$ 37,082
# years payback		2.55
ROI		39%