STATE OF NEWHAMPSHIRE

PUBLIC UTILITIES COMMISSION

DE 10-195

In the Matter of:
Public Service Company of New Hampshire
Petition for Approval of Proposed
Power Purchase Agreement with Laidlaw
Berlin Biopower, LLC.

Direct Testimony

of

Thomas C. Frantz
Director, Electric Division

December 17, 2010

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

2 A.   My name is Thomas C. Frantz. I am employed by the New Hampshire Public Utilities

3   Commission as Director of the Electric Division. My business address is 21 S. Fruit St.,

4   Suite 10, Concord, New Hampshire 03301.

5 **Q.   Please summarize your education and professional experience**.

6 A.   Please see Attachment TCF-1.

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

8 A.   The purpose of this testimony is to provide Staff's position on the economic benefits for

9   New Hampshire of the proposed Purchased Power Agreement (PPA) between Public

10   Service Company of New Hampshire (PSNH) and Laidlaw Berlin Biopower , LLC

11   (Laidlaw). The Commission must consider under RSA 362-F:9 as part of its

12   determination as to whether the proposed purchased power agreement is in the public

13   interest.

14 **Q.   What is the specific section of RSA 362-F:9 your testimony will address?**

15 A.   My testimony addresses RSA 362-F:9, II(e) which lists one of the factors that the

16   Commission must consider in its review of a purchased power agreement pursuant to this

17   statute. That factor addresses the economic development and environmental benefits for

18   New Hampshire.

19

| 1 | Q. | **Will your testimony address both the economic development and environmental** |
| 2 | | **benefits?** |

3	A.	No, it will not. I will address only the economic impacts of the proposed project. I
4		recommend that the Commission take administrative notice of the Laidlaw proceeding
5		that went before the New Hampshire Site Evaluation Committee as to the environmental
6		impact of the project.

| 7 | Q. | **Who will be addressing the four other factors under RSA 362-F:9?** |

| 8 | A. | Those factors are addressed in the testimony of staff witness, George McCluskey. |

9	Q.	**The economic benefits attributed to the Laidlaw project are estimated by Dr.**
10		**Shapiro using an input-output model, the RIMS II model. Would you provide a**
11		**general overview of an input-output model?**

12	A.	Input-output models are commonly used analytical tools to estimate the effects of a
13		change in one sector of the economy on other economic sectors of the economy. At their
14		core, input-output models or I/O models as they are often referred to, aim to describe the
15		economic relationships and interdependencies that bind and define an economy. Input-
16		output analysis is based on the simple economic fact that a large proportion of economic
17		activity, whether at the national, state or local level, is devoted to the production of
18		intermediate goods and services that are ultimately required to meet the demand for final
19		goods and services.

| 20 | | Such inter-industry relationships are described through the use of a matrix, the input- |
| 21 | | output table that indicates the transactions that occur throughout the defined economic |

1	region during a specified time period. The I/O table, which can vary greatly in its level
2	of disaggregation, indicates which industries purchase products, measured in dollars,
3	from other industries in the economy for use as inputs in their processing of final goods
4	and services. The typical transactions of an I/O table are indicated by the flow of dollars
5	from one industry or sector to another. The sub-areas within the table are made up of the
6	processing sector, which indicates the industries that purchase and sell from each other
7	(the producing industries are rows and the purchasing industries are the columns), as well
8	as a section of rows that indicates payments made, either to households or government,
9	for services rendered. The remaining part of an I/O table is referred to as Final Demand.
10	It is this section of columns that "drives" the economy. Final Demand includes Exports
11	from the industries listed in the rows, Purchases by Government from those industries
12	and a Households section that indicates household purchases of finished goods and
13	services from the producing industries and the payments sector listed on the left-hand
14	side of the I/O table. Total gross output from each industry is the sum of the purchases
15	from each sector listed in the column and from the corresponding cell from each
16	component of Final Demand. A simple I/O table is shown in Attachment TCF-2. This
17	hypothetical transaction table indicates that Industry A purchased 11 billion dollars worth
18	of products and services from Industry D during the period of the study. The total output
19	from Industry D sold to the industries listed in the Processing Sector and to the groups
20	listed under Final Demand was 39 billion dollars, assuming the table's units are in
21	billions of dollars.
22	After the I/O table is created, a technical coefficients table can be created that indicates
23	how much one industry purchases from another industry per dollar of output. It

1   represents the direct purchases required to produce a dollar's worth of output, but does

2   not show the total value. The increased output requires additional rounds of purchases

3   and production from throughout the economy. It is that additional economic activity that

4   leads to the well known "multiplier effect" used in analyzing changes in economic

5   activity. The development of the input-output model won the Russian-born economist,

6   Wassily Leontief, the Nobel Prize in economic science in 1973.

7   **Q.   Is the RIMS II model widely used for assessing economic impacts?**

8   A.   Yes, it is perhaps the most commonly used I/O model for assessing the effects of small

9   changes on a regional economy. It was developed by the Bureau of Economic Analysis

10   in the 1970s and has been widely used since that time. One of the advantages of using

11   the RIMS II model is the availability of multipliers for many regions throughout the

12   country. The RIMS II model also entails a large amount of detailed data by industry and

13   the multipliers are updated frequently to incorporate changes in local area personal

14   income and wage and salary data.

15   **Q.   What economic effects did Dr. Shapiro estimate the Laidlaw project would have on**

16   **New Hampshire?**

17   A.   Dr. Shapiro used information Laidlaw provided to the Site Evaluation Committee as the

18   basis for her economic analysis. The affected region for her study was the whole state of

19   New Hampshire. Dr. Shapiro estimates that during the construction phase of the project,

20   the total direct, indirect and induced jobs created throughout New Hampshire will be 470

21   based on Type II RIMS Employment multipliers. Her estimate is based on Laidlaw

22   expending $70 million into the local economy during the 32 months it expects to build

1   the project. The $70 million of construction expenditure will add approximately $57

2   million annually to output and increase earnings annually by $17.3 million over the 32-

3   month construction period. A data response from PSNH to Concord Steam, Q-CSC-008,

4   estimates the economic effects of the project, including Dr. Shapiro's estimate of the

5   annual economic impact attributed to various expenditures on biomass fuel. The

6   response is attached to my testimony as Attachment TCF-3.

7 **Q.** **Are there any concerns about using RIMS II or another similar model to estimate**

8   **the economic effects of a project such as the Laidlaw project?**

9 A.   Yes. While I/O models can be quite useful tools for assessing changes in economic

10   activity in a region, they do rely on a number of key assumptions. Violation of any one

11   of these key assumptions could adversely affect the results of the model. The smaller the

12   economic region, generally, the more likely the assumptions may be violated.

13 **Q.** **What are those key I/O modeling assumptions?**

14 A.   An important assumption is that the relationship between inputs and outputs is

15   proportional; for example, a doubling of an input by a sector means that the producing

16   sector's output must also double. Traditional I/O analysis does not allow for economies

17   of scale. Another key assumption, especially for local or regional models, is no

18   substitution of production inputs. An example of this problem can occur when a price

19   change results in input substitution, which could result in different inter-relationships

20   after the price change than were in effect before the price change. Of course, new

21   products are invented all the time and technological change can occur over fairly short

22   periods of time. All of these conditions can affect I/O model results.

| 1 | **Q.** | **Do you believe the economic benefits described in Dr. Shapiro's testimony will occur** |

Q. **Do you believe the economic benefits described in Dr. Shapiro's testimony will occur if the PPA is approved as filed?**

A. No, I do not. The reason is not that Dr.Shapiro's analysis is seriously flawed or that the model is fundamentally flawed, though tests have shown the RIMS II model can overstate results as compared to other models, but rather that Dr. Shapiro makes no provision for the fact that this contract's prices are above market. These above market costs will result in higher energy service costs, which will be passed on to PSNH's Energy Service customers, if approved by the Commission.

Based on Mr. McCluskey's testimony, the above market estimates of energy and Renewable Energy Certificates (RECs) over the life of the project will total approximately $550 million. On a levelized basis, Mr. McCluskey estimates the levelized cost of the Laidlaw project to be $162 per MWh. Every $10 per MWh of over-market costs associated with this project increases electric rates by approximately $4.8 million per year. If the over-market costs attributable to the proposed PPA are on the order of $55 per MWh as claimed by Mr. McCluskey, resulting in an annual above-market cost of about $26 million, then the perceived economic benefits of the project are not benefits at all, but costs borne by PSNH ratepayers taking Energy Service from PSNH as well as indirectly by New Hampshire's businesses and households based on the inter-dependencies of the economy.

Stated another way, creating a subsidy for this project or any other, for that matter, doesn't create wealth for the economy as a whole. It simply transfers wealth. Above market payments for electricity leave the total electricity-using group with less income

1		for businesses to invest in other projects or for households to save or spend on products
2		and services.
3	**Q.**	**Are there other issues that were not addressed in the testimony of Dr. Shapiro that**
4		**could mitigate economic effects she estimates?**
5	A.	An important issue left unanswered is what effect this project could have on the other
6		biomass generators currently operating in New Hampshire, especially those located near
7		Berlin. I have not analyzed whether approval of this PPA and the construction and
8		operation of Laidlaw would result in the closing of one or more of those facilities, but if
9		that were to occur, the overall economic benefits of this project would be further reduced.
10	**Q.**	**Do you have an estimate of what the economic effect on New Hampshire would be if**
11		**the PPA between PSNH and Laidlaw results in over-market costs of $50 - $60 per**
12		**MWh per year?**
13	A.	Yes, based on a data response from Staff to PSNH. Staff Set-06, Q-Staff-009, Dr. Shapiro
14		was asked to estimate a hypothetical increase in electric rates. The question was a
15		follow-up to Staff Set 4, Q-Staff-012. Dr. Shapiro responded by using the results from a
16		recent economic study done in 2008 by Dr. Ross Gittell, titled the "Economic Impact in
17		New Hampshire of the Regional Greenhouse Gas Initiative (RGGI); An Independent
18		Assessment." Dr. Gittell used a different model, the REMI model, to estimate a scenario
19		in which it was assumed that New Hampshire did not join RGGI. REMI was used to
20		estimate the economic effect based on increased electric rate increases only. He reported
21		those effects as changes to Gross State Product and employment. Dr. Gittell's estimate of
22		a $10 million increase in electric rates decreased Gross State Product by $4.95 million

1   and reduced employment by 65.5 jobs. Obviously, the greater the above-market cost of

2   the PPA, the more deleterious the economic impact on the State as a whole.

3   **Q.   Please provide your recommendation.**

4   A.   Based on my review of the economic effects contained in Dr. Shapiro's testimony and the

5   testimony provided by Mr. McCluskey that demonstrates the substantial over-market

6   costs of the PPA, essentially a wealth transfer from ratepayers to Laidlaw and its affiliate,

7   PJPD Holdings, LLC, I cannot recommend that the Commission approve this PPA as

8   filed.

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

10   A.   Yes it does.