

STATE OF NEW HAMPSHIRE
BEFORE THE SITE EVALUATION COMMITTEE

Docket No. SEC _____

**Joint Motion of Laidlaw Berlin BioPower, LLC and Berlin Station, LLC for Transfer and
Amendment of the Certificate of Site and Facility, and Notice of Change in Major
Contractor**

**TESTIMONY OF RAYMOND S. KUSCHE ON BEHALF OF LAIDLAW BERLIN
BIOPOWER, LLC AND BERLIN STATION, LLC**

1 **Q. Please state your name, title and business address for the record.**

2 **A.** My name is Raymond S. Kusche. I am currently a Vice-President of Laidlaw
3 Berlin BioPower, LLC and Director of Energy Services for Cate Street Capital, LLC. My
4 business address is One Cate Street, Portsmouth, NH 03801.

5 **Q. Would you briefly summarize your educational background and**
6 **employment experience?**

7 **A.** I received a Master of Science Degree from the Forestry School at SUNY
8 Syracuse in 1982 and a Bachelor of Science degree from Cornell University in 1976. From 1983
9 through 2005 I was employed by Hafslund USA as President, where I was responsible for the
10 development and operations of a portfolio of hydroelectric and biomass projects, which included
11 Errol Hydro and Pontook Hydro in Coos County, New Hampshire. From 2005 through October
12 2009 I managed the operations of Greenville Steam Company, a 16 MW biomass facility in
13 Greenville, Maine, while also working with Laidlaw BioPower, LLC to develop biomass
14 projects.

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

16 **A.** My testimony is in support of the Joint Motion to Transfer and Amend the
17 Certificate of Site and Facility, and Notice of Change in Major Contractor. I am testifying on
18 behalf of Laidlaw Berlin BioPower, LLC (“LBB”) and Berlin Station, LLC (“Berlin Station”)
19 and will testify generally about three of the matters raised in the Motion. First, I will testify on
20 the change in major contractors. Laidlaw/Berlin Station intends to replace Homeland Renewable
21 Energy and Fibrowatt Operations, LLC (collectively “Homeland”) with large, well recognized
22 engineering firms who have very significant experience constructing and operating energy
23 projects, including projects in New Hampshire.

1 I will also testify about Laidlaw's request that the Subcommittee amend the Certificate to
2 reflect an increase in the facility's gross power generating rating from 70 MW to 75 MW.

3 Finally, I will briefly testify about Laidlaw's request that the Certificate be amended to
4 permit it to contract with an entity other than Cousineau Forest Products to serve as its fuel
5 supplier. While I will explain the amendment sought by Laidlaw and the reasons the amendment
6 is necessary, Ross D'Elia will be providing testimony on the proposed new fuel supplier's
7 qualifications and experience.

8 Change in Major Contractors

9 **Q. Please describe why Laidlaw has decided to replace Homeland.**

10 A. Laidlaw intends to replace Homeland with a team of highly qualified entities who
11 will provide top-notch, proven construction and operational experience. This replacement is
12 occurring at the prompting of the lenders to add even greater technical and operational strength
13 to the Project team.

14 **Q. What entity is replacing Homeland Renewable Energy in terms of managing**
15 **construction of the Facility?**

16 A. Waldron Engineering and Construction, Inc. will serve as construction engineer
17 for the owner and will replace Homeland Renewable Energy in terms of overseeing construction
18 of the Facility. The Shaw Group will also assist with construction oversight of the Project for
19 Laidlaw.

20 **Q. What entity is replacing Fibrowatt Operations, LLC in operating and**
21 **maintaining the Facility?**

22 A. Delta Power Services, LLC is replacing Fibrowatt Operations, LLC.

1 **Q. Please provide the name and role of each of the entities that will be members**
2 **of the construction and operation team.**

3 A. Delta Power Services, LLC (“Delta Power”) will serve as the operations and
4 maintenance contractor on behalf of Laidlaw. Delta Power will ensure compliance with the
5 terms and conditions of the Certificate during the construction phase of the Project. Delta Power
6 will also provide operating and maintenance services to Laidlaw. Delta Power will be
7 responsible for plant staffing, plant operations and maintenance and all accounting and financial
8 reporting. Additional information about Delta Power is attached as Exhibit 11 to the Joint
9 Motion to Transfer and Amend.

10 Waldron Engineering and Construction, Inc. (“Waldron”) will serve as construction
11 engineer with primary responsibility for overseeing the EPC contractor, the Babcock & Wilcox
12 Construction Company. Waldron will manage construction on behalf of Laidlaw and will also
13 ensure compliance with the terms and conditions of the Certificate. Additional information
14 regarding Waldron is attached as Exhibit 6 to the Joint Motion to Transfer and Amend.

15 The Shaw Group (“Shaw”) will support Waldron as owner’s engineer with respect to
16 supervision of plant construction. Shaw has engineered many biomass processes with state-of-
17 the-art technologies using renewable fuel sources. Additional information regarding Shaw is
18 attached as Exhibit 9 to the Joint Motion to Transfer and Amend.

19 As presented to the Committee during the 2010 hearing on this matter, Babcock &
20 Wilcox Construction Company will serve as the EPC contractor. Babcock & Wilcox, as the EPC
21 contractor, is contractually bound to comply with all of the terms and conditions of the
22 Certificate.

1 Black & Veatch Corporation (Black & Veatch) will serve as the Independent Engineer
2 with primary responsibility for overseeing the construction on behalf of the lenders and ensuring
3 compliance with all regulatory requirements and technical specifications. Black & Veatch will
4 not be under Laidlaw's direction or control, but it will provide an additional layer of construction
5 oversight. Additional information regarding Black & Veatch is attached as Exhibit 9 to the Joint
6 Motion to Transfer and Amend.

7 **Q. What are Delta Services' qualifications with respect to operating and**
8 **maintaining the Facility?**

9 A. Delta Power is the fourth-largest power operation and maintenance services
10 provided in the United States. Delta Power is a wholly owned subsidiary of Babcock & Wilcox,
11 the EPC contractor for the Project. Delta Power has extensive experience providing operating
12 and maintenance services to power stations, including currently providing service to nine power
13 facilities in six states. Delta Power operates three solid fuel projects, including a 40 MW wood-
14 chip biomass plant. Delta Power currently employs approximately 320 people.

15 Laidlaw expects that because Babcock & Wilcox and Delta Power are both Babcock &
16 Wilcox companies, that relationship will help facilitate a smooth transition from the construction
17 phase to the operational phase.

18 **Q. Do you believe Delta Services has the technical and managerial capability to**
19 **operate the Facility?**

20 A. Yes. I believe Delta Services is a highly qualified and has the technical and
21 managerial capability to operate the Facility.

22 **Q. Do you believe Waldron and Shaw have the technical and managerial**
23 **capability to oversee construction of the Facility?**

1 **Q: What is ISO-NE’s process for evaluating Laidlaw’s application?**

2 A: ISO-NE began the Incremental System Impact Study (SIS) for the Laidlaw
3 Project on November 11, 2010. This study will evaluate the impacts (if any) of increasing the
4 net power output of the project from 58.7 MW to 67.5 MW (gross output from 65.9 MW to 75
5 MW). Laidlaw expected a preliminary report within 90 days, but ISO-NE has indicated that
6 additional time is required because prior queued studies are still in progress and prevent the
7 study effort from completing within the 90 day timeframe.

8 Interconnection facilities will be identified in the SIS. At this point the facilities that
9 have been identified in the original SIS include:

- 10 • the interconnecting 115 kV transmission line from the project to the PSNH East Side
11 Substation;
- 12 • expansion of the East Side Switching Station to accommodate the additional line; and
- 13 • facilities at the LBB Project such as the step-up transformer, protection for the line and
14 communications facilities.

15 ISO-NE uses third party engineering firms to conduct the detailed system studies. For
16 the Laidlaw Project, ISO-NE has employed Siemens Energy Inc. to conduct both steady state
17 analysis of the system and thermal and voltage (stability) evaluations on the transmission system.
18 Siemens conducted the original studies (Queue 251) and is conducting the incremental study
19 also.

20 When both the steady state and stability evaluations are completed, they will be
21 combined in a single technical report. The report will explain how the system was modeled, the
22 results of the various tests performed, and recommendations for changes and/or additions that are
23 required for the system to operate in the no adverse reliability impact mode. In some cases,

1 Special Protection Systems may be proposed to mitigate system issues, or limitations to
2 operation will be defined if there is more generation available in the area than can be transmitted.

3 Once the report is issued, the Project can then be brought to the NEPOOL Reliability
4 Committee for approval as having no significant adverse system impact. Once the Reliability
5 Committee has provided its opinion, ISO-NE will give formal approval allowing the Project to
6 move forward. While ISO-NE is not bound by the Reliability Committee's action, it generally
7 follows the Reliability Committee's recommendation.

8 Once the Project receives approval by the Reliability Committee and ISO-NE, the
9 Facility Study begins, leading to full and complete design to allow permitting and construction.
10 Depending up on the needs of the developer, the Facilities Study can be waived, and the parties
11 can proceed immediately toward finalizing an Interconnection Agreement.

12 The final step in the process is completing an Interconnection Agreement. An
13 Interconnection Agreement is a three-party agreement entered into by ISO-NE, the Transmission
14 Owner (a member of the Transmission Owner section of NEPOOL participants) and the
15 Interconnection Customer (Laidlaw). Laidlaw executed its original Interconnection Agreement
16 for the Facility on January 30, 2011 and ISO-NE has indicated that this Interconnection
17 Agreement will be amended to incorporate the additional increment when the MW output
18 increase is approved.

19 **Q: Please describe the refinement and optimization of the Project's design and**
20 **operating parameters that have occurred during the development process that will allow**
21 **for the increase in output without affecting the emissions or wood supply needs for the**
22 **Project.**

23 A. Increasing the power output of the plant involved the following factors:

- 1 • The boiler steam output temperature has been slightly increased, while reducing the total
2 steam output flow rate. The increased steam temperature at the turbine, even with the
3 reduced steam flow, gives a net increase in output due to the increased turbine efficiency.
4 Although the temperature is increased slightly, the decrease in total steam output flow
5 maintains the heat input rate as presented in the Application, and hence the same fuel
6 input rate and annual consumption.
- 7 • Laidlaw had planned to use a used steam turbine generator. Laidlaw has instead decided
8 to use a new steam turbine generator. Due to its age, a used steam turbine generator
9 would have had a significantly lower efficiency than a new machine.
- 10 • Laidlaw's engineers are also optimizing the steam turbine generator's exhaust pressure
11 by further refining the design of the water cooled condenser and mechanical draft cooling
12 tower. These refinements will cause the operating temperature of the water cooled
13 condenser to be reduced, thus lowering the turbine's exhaust pressure. At the same inlet
14 pressure, a lower exhaust pressure indicates that the useful work done by the steam (in
15 this case the power produced) will increase. These refinements further confirm that the
16 power output can be increased while maintaining other operating parameter assumptions
17 that correlate to the Project's impacts as discussed below.
- 18 • Laidlaw has selected a low-loss generator step-up transformer, further improving overall
19 project efficiency.

20 In sum, the evolution of the Project's design has allowed Laidlaw's engineers to achieve a higher
21 operating efficiency for the plant than originally planned, and to confirm that the plant can
22 generate a gross output of up to 75 MW. The resulting improvements bring overall benefits by

1 increasing the power generated per ton of fuel used, and reducing air emissions, water
2 consumption and other collateral impacts per unit of power produced.

3 **Q. How will the proposed increase in power output affect air emissions?**

4 A. The design and operating refinements that lead to the increased power output will
5 not change the boiler's heat input rate from the short term (i.e. hourly) and annual levels
6 presented in the Application. Assuming that all the fuel parameters remain as presented in the
7 Application and reviewed during the hearings (heating value, moisture content, etc.), the fuel
8 consumption of the Project is directly related to the heat input, and thus will not change. In turn,
9 the boiler's air emissions, expressed in terms of pounds emitted per million Btu of heat input, are
10 directly proportional to its heat input rate and will not be altered by the increased power output.

11 The Project's mechanical draft cooling tower is also a source of air emissions due to
12 particles contained in water droplets discharged from the unit's exhaust, commonly referred to as
13 "drift". The drift and water vapor contained in the exhaust can also result in ground level
14 fogging and icing if not properly designed. As discussed below with regard to the water
15 consumption and wastewater, the quantity of drift and water vapor discharged from the tower
16 will remain within the levels presented in the Application. Thus, the tower's particulate
17 emissions will remain unchanged and the tower will not cause ground level fogging or icing on
18 nearby roadways as determined by the modeling conducted for the Project.

19 **Q. Will the proposed increase in output require further filings with the Air
20 Resource Division?**

21 A. No. It is Laidlaw's understanding that unless the increased output would result in
22 an increase in emissions of any pollutant, which it will not, the Air Permit does not require
23 amendment.

1 **Q. How will the proposed increase in output affect truck traffic?**

2 A. The number of truck trips required to supply fuel to the Project is directly tied to
3 the quantity of fuel used. Since the heat input rate of the Project will not change, the fuel
4 consumption rate will remain unchanged. Accordingly, the number of trucks required to deliver
5 fuel to the Project will remain as presented in the Application.

6 **Q. How will the proposed increase in output affect water consumption and**
7 **wastewater discharge?**

8 A. The overwhelming majority of the Project's water consumption and wastewater
9 discharge is related to the mechanical draft cooling tower used to supply cooling water to the
10 steam condenser on the discharge of the steam turbine generator. The refined system's design
11 and heat balance calculations developed by Laidlaw's engineers confirm that the operating
12 parameters that affect water consumption and discharge from the cooling tower, including water
13 recirculation rate, heat rejection rate, and water blow down rate, are all less than or equal to the
14 values set forth in the Application. As these parameters will not increase, neither will the water
15 consumption or wastewater discharge.

16 **Q. How will the proposed increase in output affect the aesthetics of the Facility?**

17 A. The increased power output results from optimization of the Project's steam cycle
18 and the use of more efficient equipment. It will not materially change the size or appearance of
19 the Project's structures as presented in the Application, and will not alter the visual impacts of
20 the Project.

21 **Q. How will the proposed increase in output affect noise at the Facility?**

22 A. The proposed increase in power output from the Project only impacts the steam
23 turbine generator itself; there are no changes in other sources of sound such as the boiler, cooling

1 tower, on-site wood handling equipment, etc. The acoustic emissions of the steam turbine were
2 derived from an algorithm that relates the gross electrical generating rating of the steam turbine
3 generator to the sound power level as referenced in Table (h)(3)(ii)-6 contained in the
4 Application. Based on this algorithm, the increase in the megawatt rating of the steam turbine
5 has a negligible increase in the sound power level produced by the turbine (less than ½ decibel).
6 As a result, the ultimate effect on sound impacts in the community and at the property line, when
7 taken in combination with the relative contributions of other sources of sound associated with the
8 Project (e.g. the cooling tower, the front end loaders, etc.) and the sound insulating
9 characteristics of the building housing the turbine, will be negligible (less than a 0.1 decibel
10 increase).

11 **Q. Will the proposed increase in power output impact the environment, health**
12 **or safety?**

13 A. The proposed increase in power output will not result in alterations to the site
14 layout, location, waste generation, or chemicals used, and thus will not have any adverse impacts
15 to other environmental, health or safety considerations such as wetlands, habitat, or community
16 safety.

17 **Q. In sum, will the proposed increase in power output alter any of the findings**
18 **made by the Subcommittee in the Certificate?**

19 A. No. The proposed increase in power output will not alter any of the findings
20 made by the Subcommittee in the Certificate.

1 **Change in Fuel Supplier**

2 **Q. Briefly explain how Laidlaw seeks to amend the Certificate with respect to its**
3 **fuel supplier.**

4 A. Laidlaw requests that the Certificate be amended to permit it to contract with an
5 entity other than Cousineau Forest Products to serve as fuel supplier.

6 **Q. Briefly explain why this amendment is necessary.**

7 A. Unfortunately Cousineau and Laidlaw were unable to settle on terms of a Fuel
8 Supply Agreement materially the same as those presented to the Subcommittee, and therefore we
9 sought out a new fuel supplier.

10 **Q. Who does Laidlaw intend to engage as its fuel supplier?**

11 A. Laidlaw intends to retain Richard Carrier Trucking and its affiliated companies to
12 serve as the fuel supplier for the Facility.

13 **Q. Will Richard Carrier Trucking sign a Fuel Supply Agreement materially the**
14 **same as the one presented to the Subcommittee?**

15 A. Yes. Richard Carrier Trucking has signed a Fuel Supply Agreement materially
16 the same as the one presented to the Subcommittee [Laidlaw Exhs. 62, 63, and 76A].

17 **Q. Who will provide testimony regarding Richard Carrier Trucking's**
18 **experience and qualifications to serve as fuel supplier for the facility?**

19 A. Ross D'Elia will provide that testimony.

20 **Q. Does this conclude your pre-filed testimony?**

21 A. Yes, but I would be happy to answer any questions.