EXHIBIT
GES-3
10-195

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Witness City of Berlin G. Sansoucy
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STATE OF NEW HAMPSHIRE

BEFORE THE

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

DOCKET NO. DE 10-195

REBUTTAL TESTIMONY OF

GEORGE E. SANSOUCY, P.E.

ON BEHALF OF

THE CITY OF BERLIN

Request for Approval of Power Purchase Agreement

Between

Public Service Company of New Hampshire

And

Laidlaw Berlin BioPower, LLC

INTRODUCTION AND PURPOSE

Q. Please state your name, position and business address.

A. My name is George E. Sansoucy. My business address is 32 Nimble Hill Road, Newington, New Hampshire 03801. I am the owner/member of George E. Sansoucy, P.E., LLC.

Q. Have you testified before the NH PUC before?

A. Yes, on several occasions.

Q. What is the purpose of your testimony?

A. Purpose of my testimony is to support the City of Berlin's position that the PPA between Laidlaw and Public Service Company of New Hampshire is in the public interest, should be approved, and represents a good deal.

Also, the purpose of my testimony is to rebut Staff, OCA, Concord Steam, and the Wood Fired IPP's testimony in this case that the project is not in the public interest, should not be approved, and is not a good deal.

Q. Are you sponsoring any exhibits?

A. Yes, I am sponsoring the following exhibits:

~~Exhibit 1 – Found at www.puc.nh.gov/TransmissionCommission.htm Figure 1 in the KEMA, Inc. Report on Transmission Cost Allocations.~~

~~Exhibit 2 – PSNH Franchise Map, www.puc.nh.gov~~

Exhibit 3 – Potential Power Plant Retirements in the New England ISO

Exhibit 4 – Unit Capacity by Age

Exhibit 4A – Cumulative Capacity by Age

Exhibit 5 – Total ISO NE Capacity Load Growth (CAGR)

Exhibit 6 – Ten Year Summary of Total System Loads and Use (Source: NE ISO)

Exhibit 7 – 2010 Summary of Total System Loads and Use (Source: NE ISO)

Exhibit 8 – Natural Gas Price and Volatility

Exhibit 9 – Laidlaw Berlin Biopower PPA and Market Price Forecast

Exhibit 10 – Gross Operating Revenue by Energy Pricing Scenario and Long Term Savings.

~~Q. Do you believe the siting of the plant in Berlin is appropriate, in the public interest, and good for the ratepayers?~~

~~A. Yes.~~

~~Q. Have you provided information regarding siting already in this case?~~

~~A. Yes, as a data response to the IPP's.~~

~~Q. Could you please provide the same testimony herein in order to bind the information into the record?~~

~~A. Yes, my original testimony, plus proofing is as follows:~~

~~The following factual items are, in general, the basis for my opinion that the Laidlaw plant is correctly sited in the proper location and provides cost effective benefits to the ratepayers:~~

~~1. The plant is sited at the location of and utilizes an existing boiler, boiler stack, and other appurtenances. The existing boiler was constructed in the 1990's as a black liquor boiler for chemical recovery. As such, the boiler is substantially built. It includes its own stack, is foundationed on ledge, and has less than ten (10) years burn time on the boiler. The existing boiler infrastructure located in Berlin is anticipated to save the project at least $500 per kilowatt of gross kilowatt capacity ($35,000,000). This makes sense because the boiler cost approximately $100,000,000 to build originally in the 1990's. The reuse of this infrastructure provides at least $35,000,000 of benefits to the project and may in fact be the deciding factor for the construction of this project. A new greenfield wood fired electric generation plant generally costs $3,500 per kilowatt installed, in this case, $250,000,000 total. The Laidlaw project has a current total project cost of between $160,000,000 and $170,000,000, thereby indicating that the siting in Berlin utilizing the existing infrastructure is saving approximately~~

~~$80,000,000 to $90,000,000. This savings is directly translated into reduced energy, capacity, and REC costs incurred by Public Service for the ratepayers of Public Service.~~

~~2. The Berlin site, approximately 60 acres, is about half of a much larger site, is properly zoned and supported administratively for the development of the facility without zoning variances. The size of the lot provides for a large wood yard, the existing scales can be reused, warehouses are already in place for the construction and operation of the facilities, and there is adequate land for round wood storage, bark handling, debarking, on-site chipping, trash storage, and a variety of other activities related to a biomass electric generation plant in Berlin. There are very few sites, if any, in the State of New Hampshire available to construct a biomass generation plant of this size that are ready for construction and offer the attributes this site provides. This reduces the cost to the ratepayers of PSNH.~~

~~3. The Berlin site has water. Water is one of the single most important and most difficult elements to overcome in the siting of a new fossil fired or biomass fired generation plant. This site has two (2) existing water sources. The first is the City of Berlin's municipal water. The site is fully developed with water mains, backflow preventers, gate valves, and system piping which was utilized by the mill and are still in existence. The City of Berlin's water department has adequate water resources to provide water to the Laidlaw plant. The average estimated water consumption of approximately 1.4 million gallons per day is not easily secured in the State of New Hampshire in any other community. Secondly, this site has its own water treatment plant from the mill which is part of PJPD's assets that it purchased. The site owns and has easements for a penstock and water intake structure which is currently~~

operational with a withdrawal permit on the Androscoggin River on the land north and adjacent to this site. To this extent, the site has two (2) sources of adequate water for the construction of this generation plant. This is highly unusual and contributes to the proper siting of this plant.

4. This site has sewer. Equally as important, but to a lesser degree in volume, approximately 250,000 gallons per day of sewer water will be discharged to the City of Berlin's sewer system. The City of Berlin has adequate capacity to handle this sewer discharge and is in the process of upgrading its sewer plant to make sure that it can continuously handle this and the balance of the City's wastewater discharge. The ability to provide this sewer capacity by the City contributes to the site being correctly located in the City of Berlin.

5. The site is located adjacent to the 115,000 KV Coos Loop. Through a very short system upgrade to the Gobal Street substation in the City of Berlin, the Laidlaw plant can connect to the 115,000 KV system, not the local 34,000 KV system. This provides a direct connection to the Coos Loop and contributes to the proper location of the site.

6. The Coos Loop, which the plant is being connected to, is in continuous upgrade at Whitefield and Littleton. To this extent, the electricity can be moved down state through both the Public Service system, and cross over into the National Grid system at Littleton and the Moore substation. This provides a direct link to the Massachusetts grid system, if desired.

~~7. A review of the detailed Public Service system map (Exhibit 1, found at www.puc.nh.gov/TransmissionCommission.htm figure 1 in the KEMA, Inc. report on transmission cost allocations) of all transmission lines from 34,000 volt up clearly indicates that there are no major fossil fuel generating plants in the North Country. This plant provides a significant increase in the baseload generating capability of the region and provides capacity at the northern end of the Public Service system. This plant will be able to provide voltage control, frequency control, kilovar input, and other desirable electric generation products to the Public Service system providing greater reliability in the entire region and reducing the overall risk of outage north of the Beebe River substation when and if the Moore and Comerford stations are offline. This adds to the desirability of the site in Berlin and provides additional benefits to the ratepayers of Public Service Company of New Hampshire. Furthermore, PSNH operates the northern franchise of some 37 communities and unincorporated places which this plant will generate into (see Exhibit 2, Franchise Map, www.puc.nh.gov.)~~

~~8. With the Berlin site on the east side of the 230,000 volt National Grid connection at Moore, the Laidlaw plant is capable of connecting directly to the New England regional grid through National Grid. There is no other place in the State of New Hampshire where this connection can be logically made, enhanced, or upgraded than off of the Coos Loop, which includes Berlin, or building a new substation at the Dunbarton/Merrimack tie at the town line border of the Town of Bow and Dunbarton. Any other connection would require a cut tap and a new 230,000 volt substation or switchyard to be built on the existing National Grid 230,000. This enhances the siting of the Laidlaw plant in the City of Berlin.~~

9. ~~Power from the Laidlaw plant can be routed and backfed into the Littleton Water and Light electric distribution system, the 115 KV to North Woodstock and Beebe River, thus over to Tamworth and Conway, throughout the Coos Loop region, and west into Vermont through the VELCO tap at Littleton and the VELCO tap at Commerford. These VELCO taps based at the Littleton substation and at the Commerford substation tie directly to the Coos Loop and Berlin. Should there be a need or desire to either expand or move power into the State of Vermont from the Berlin site, this power can be easily transferred. This enhances the correct siting of the Laidlaw plant in the City of Berlin.~~

10. ~~The City of Berlin is located at the intersection of the Rt. 2 and Rt. 16 corridor in the State of New Hampshire. The Rt. 2 and Rt. 16 corridor enables the Berlin plant to access the wood basket in western Maine, northwestern Maine, northern New Hampshire, eastern Maine through Rumford and on toward Augusta, the entire western New Hampshire wood basket, north and south on Interstate 91 and easy access to the Northeast Kingdom of Vermont. A developer would be hard pressed in the State of New Hampshire to find a better site with multi-directional access to a wide variety of wood baskets. Further, this Laidlaw plant is properly sited in that it is on the north side of the White Mountains, above the three plants located in Alexandria, Springfield, and Bridgewater, respectively, which are primarily accessed from Interstates 89 and 93 south of the White Mountains.~~

11. ~~The fact that the plant owns a water treatment plant with an operating capacity of close to 50,000,000 gallons per day if necessary, a penstock, and a water intake structure on the~~

~~Androscoggin River substantially enhances the appropriateness of siting in the City of Berlin and enables the plant to consider long term plans for expansion, co-location, or subsequent relief of the City of Berlin's water treatment facility, if necessary.~~

~~12. The site is adjacent to the Mt. Carberry landfill. The Mt. Carberry landfill, originally developed by James River Paper and subsequent ownership by Crown Vantage and American Tissue, has been transferred to the Androscoggin Valley Regional Refuse Disposal District and is operated as a super regional landfill in northern New Hampshire. It has become the second largest operating landfill in the state and as such provides an excellent opportunity for the plant to cost effectively dispose of its ash, should it choose to do so, with a minimal amount of trucking. This enhances the proper location of the site being in the City of Berlin.~~

~~13. In the same vein, the North Country is one of the remaining agricultural areas of the state, especially the Connecticut River Valley, from Colebrook south. This enables the company to work with and consider utilizing the ash for agricultural fertilizer with a ready need in the immediate area. This too enhances the proper location of the site being in the City of Berlin.~~

~~14. The City of Berlin and the surrounding area has a highly skilled yet reasonably priced labor force. The labor force has been trained in heavy machinery operation, maintenance, building maintenance, and a number of local residents were boiler operators in the mill. The Laidlaw plant is correctly sited in the City of Berlin to take advantage of and provide employment opportunities to an already skilled labor force in the immediate area.~~

15. This plant is correctly sited in the City of Berlin in part because it is generally well received in a region receptive to a continuation of the forest products industry and forest management. This plant generally has a high acceptance level among municipal and regional public officials, business leaders, and the local population.

16. The plant is properly sited in part because of its potential opportunity to utilize rail which goes right through the City of Berlin adjacent to the Laidlaw plant. This mill property at one time was served with a rail spur. The rail easements still exist through the property, the rail bridges still exist, and should rail service for both the input of biomass fuels and the export of either product, ash, or byproducts for additional uses become cost effective or desirable, the plant is correctly sited to take advantage of rail. Few, if any, wood plants in the State of New Hampshire have the opportunity to use rail, enhancing the correctness of siting this plant in the City of Berlin.

17. This plant is correctly sited due in part to a community receptive to the development of a PILOT agreement (Payment In Lieu of Taxes). A PILOT agreement is beneficial to the ratepayers in that it helps stabilize the price of the electricity from this plant. The City of Berlin is receptive to the development, negotiation, and consummation of a long term PILOT agreement to coincide with the term of the PPA. The benefit of a PILOT is directly related to this plant being correctly sited in the City of Berlin and the City's desire to obtain certainty and stability in its tax payments as well as offering stability in the tax cost for the plant.

~~18. The siting of this plant in the City of Berlin may directly impact the ratepayers of Public Service by helping to reduce or eliminate the need for the Lost Nation combustion turbine peaking jets located in Groveton, New Hampshire on the same 115,000 KV line as the Laidlaw plant develops a history providing high and substantial capacity factors and availability factors for the generation of electricity in this region.~~

~~19. This plant will provide enhanced industrial activity which benefits Public Service's ratepayers by the direct use of more electricity in the region as a result of an uptick in industrial activity. The Berlin / Gorham region has very little industrial land, being valley communities along river corridors. The industrial land it does have, namely the Laidlaw site and the site above Laidlaw, the Rt. 110 corridor, and the Berlin Industrial Park is adequately served and ready for substantial additional industrial activity which will use more electricity, thereby reducing cost to all ratepayers in the state, all else being equal. These areas, including Gorham, are served by four (4) sewer plants and three (3) water plants. The development of the Laidlaw plant will be able to provide additional steam and heat for enhanced industrial development and activity in the area. Any additional activity which produces greater use and sales of electricity by Public Service, the franchisee in this region, directly benefits all ratepayers of Public Service.~~

~~20. The ratepayers of Public Service are benefited by the contracting and consummation of Class 1 RECs which Public Service is required to purchase under New Hampshire law and the ratepayers are required to pay for under New Hampshire law. To the extent that there is a substantial capital savings related to the existing infrastructure, the ability to tap into water~~

~~and sewer infrastructure, electric infrastructure, labor, landfill, road systems, agricultural reuse of ash, moderate tax payments, and potentially enhancing additional industrial activity, the Class 1 RECs required to be purchased are likely to be less expensive than otherwise would be required of the ratepayers of Public Service, thereby enhancing the proper siting of this plant in the City of Berlin.~~

Q. The Staff's testimony is silent on capacity. Do you believe that is appropriate?

A. No. Capacity is a key component of this contract and a benefit to the ratepayers.

Q. Why?

A. Wood fired power plants have a good track record for providing reliable capacity at very high capacity factors. Even though wood plants are solid fueled, compared to coal, they have far less erosion in the ash, less boiler wear and tube wear and longer run times between boiler shutdowns and repairs. Wood easily can provide 80% - 90% capacity factors year-in and year-out, and do not have substantial de-rates in the summer as compared to gas combined cycle plants. The capacity factors of wood fired power plants compete directly with coal fired power plants in the New England market place.

As a direct result of this unusual recession, the market price of capacity in the New England ISO is suppressed at this point in time. There is an over abundance of generation capability in the region. The New England region has summer capability of 30,142 MW of generation capacity and an approximate import tie benefit of 1,860 MW for a total of approximately 32,000 MW. The peak generation required for the New England ISO system for the 2010 peak of 27,100 MW in July of 2010 is 26,083 MW and a net import making up the difference of 1,017 MW. Utilizing a 15% reserve capacity, the total amount of net generation and reserves necessary to meet the New England needs are 31,165 MW. On the surface, with gross import capabilities of 3,000 MW from all forms of import including Quebec, New Brunswick, Connecticut, New York, and Long Island, it would appear that there are adequate resources at this time. There is an 18% reserve margin based on the 2010 peak if one includes the export capabilities. It should be noted that not all export is firm. Hydro Quebec 2 imports approximately 1,400 MW. During the July peak, the maximum imports were only 1,889 MW.

In order to maintain a 15% reserve margin for the entire region, the 33,042 MW (ISO NE, 1/1/11 SCC Report) of regional summer capacity and import capacity will be consumed when the peak hits 28,732 MW of demand. Assuming a 1% compound annual growth rate (CAGR) coming out of the current recession (it should be noted that a 28,130 MW peak capacity was experienced in 2006 and supplemented only with 1,879 MW of imports) and at a 15% reserve margin, New England will hit its reserve limits in 2014 (See Exhibit 5), at which point new capacity is going to have to be added. It should be noted that the ISO is considering a peak of 31,885 MW of demand by 2016. Any new capacity that must be built and added to the system in 2016 will cost approximately $150 per megawatt year or $12.50 per kilowatt month. This will be the replacement cost in current dollars, not in future dollars, of a combustion turbine. The addition of this capacity adds to a long, lingering list of peaking facilities representing the least expensive capacity additions and does not add any new base loaded capacity to the system. New base loaded capacity in the form of a combined cycle gas plant will cost at least $225 per kilowatt year, or at least $18.75 per kilowatt month. This compares to the Laidlaw PPA of $4.25/KW month or $78/KW year in capacity cost, a significant savings to the ratepayers of PSNH.

The more troubling implication for capacity pricing is that more likely than not excess capacity and the subsequent depression of the market price of capacity will end and end abruptly. More specifically, there are 7,729 MW of existing total ISO capability of 33,976 MW that is vulnerable to being taken off line and permanently closed in the next ten (10) to twenty (20) years. These are generally older oil fired plants which do not compete with gas fired combined cycle units.

Exhibit 3 is a listing of the existing plants which are included in the capacity reserves for New England at this time which are likely vulnerable to closure. Exhibits 4 and 4-A show a graph of the age of these plants also, which will also dictate a point of closure. Exhibit 5 shows the capacity demand in New England at a 1% growth rate, the shortfall of capacity without closures, and the capacity needed at a 2.5% closure rate, or as plants age to 70 years old. Very few plants in the U.S. have operated beyond seventy (70) years. The primary technology cycles for electric generation have been 5 years.

We know at this time that a number of plants are considering closure or are being put into cold storage. These announcements include Canal at 1,226 MW, Mystic 7 at 578 MW, Salem

Harbor at 745 MW coal and oil closure, Vermont Yankee Nuclear at 620 MW, and the relicensing of Pilgrim Nuclear at 677 MW. This immediately takes 3,846 MW out of the capacity mix in a very short period of time in addition to plants like South Boston and Montaup which have already been closed. For the remaining capacity in place, it is undetermined how much longer the owners of a number of the oil fired plants will go before it becomes essential to close the oil plants. Cheap capacity prices will close these plants along with environmental constraints. Current announcements of closure create a capacity deficit at this time. Any other single plant closing will exacerbate the capacity problem, reserves will drop, and the construction of new capacity will have to be induced through market prices or regulatory requirements.

It is further important to note the overwhelming majority of the capacity that is vulnerable are the existing oil plants, some of the last remaining oil plants in the United States. If any of these oil plants are called upon to operate longer than very short peaking periods, the cost implications for the ratepayers will be felt in the price of electricity and the fuel cost recovery. At $100 per barrel for oil, the bulk of these oil plants will have to generate at between $.18 and $.20 per kilowatt hour above and beyond capacity payments. At Wyman 4 for example in Yarmouth, ME, operating at a 10% capacity factor on oil at its rated capacity of 600 MW, the plant will generate approximately the same kilowatts as the Berlin Laidlaw wood fired generation plant, approximately 525,000,000 kilowatt hours per year. At a cost of $.18 a kilowatt, it will cost approximately $95,000,000 to generate replacement electricity, $20,000,000 more than Berlin. Berlin Laidlaw's all-in, all-done price including REC's in the PPA of approximately $.14 per kilowatt is highly competitive against likely intermediate generation capacity requirements of the oil fleet in New England. The future price of oil would have to drop to $60 per barrel to compete with Laidlaw.

While it is not likely that all 7,729 MW of capacity will be taken off line in the next twenty-three (23) years, it is likely that consistent and continuous closures will occur as permit expirations and re-permitting requirements make it impossible to financially continue to operate these existing facilities. Very few fossil plants in the U.S. have operated beyond 70 years. Such examples as the oil and gas fired South Boston Station, the Montaup Station in Somerset, MA, and the announced closure of Salem Harbor are examples of a trend that has been long in coming, but nevertheless appears to have arrived in the closure of the less efficient, more expensive and polluting power plants in New England. Closures will be driven in part by new pollution control requirements, permit requirements, cooling tower and cooling water requirements, and operating costs. Plant closures pose a real potential risk of leaving the New England ISO in a capacity shortfall. It is the City of Berlin's belief that the current price suppression in the capacity market is short lived and anticipated to reverse. The Laidlaw contract locks in capacity values and costs starting at $4.25 per kilowatt month, rising to $6.50 per kilowatt month in the year 2033. These values are below likely market values, are cost effective, and highly beneficial to Public Service and the ratepayers of the State of New Hampshire. Utilizing the Ventyx nominal dollar Fall 2010 capacity projections (Exhibit 9, Col. G) relied upon in this testimony, especially when considering upcoming plant closures, the 2033 capacity prices in New England are anticipated to be $154 per kilowatt year. The actual capacity payments in the PPA for 2033 are $78 per kilowatt year, or 50% of the Ventyx projection, offering the ratepayers of Public Service a good deal at half price. The anticipated annual capacity price savings is $5,130,000 per year by 2033.

Q. Do you believe the Staff and OCA have overlooked this very important component of the benefits of the PPA and have prematurely passed judgment on the PPA's public interest?

A. Yes, I believe that Staff and OCA have significantly underestimated the upcoming capacity shortage. The inconclusive testimony of Staff found on Page 29, Line 4 has avoided any discussion of capacity and the benefit this PPA provides, including the fact that the PPA fixes the price of capacity. This PPA absorbs all inflationary, construction, and operating costs risks of creating and maintaining this capacity addition over the next twenty (20) years. This capacity portion of the PPA is a direct benefit to the PSNH ratepayers.

Q. Do you believe that the Staff and OCA have adequately considered and addressed the energy component of the Laidlaw contract?

A. No.

Q. What areas in the energy pricing do you think the Commission should consider that Staff and OCA have not?

A. Staff and OCA have only considered the short-term energy market as it exists today in what is called "The Great Recession". This is shortsighted and serves no useful purpose in the analysis and review of Laidlaw Berlin Biopower's PPA, the creation of new Class I RECs and the permanent establishment of additional fuel diversity for the State of New Hampshire. There are a number of areas of concern with Staff and OCA's testimony that are not adequately considered. There is no question that the economy is in a recession, that demand has been down for electricity, that there is a glut of natural gas, and prices are suppressed. The Commission should not make its decision related to the Berlin PPA and the creation of new Class I RECs on short-term technical analysis and metrics. The Commission, while being mindful of the short-term situation, should recognize that the Laidlaw plant will not be constructed and fully commissioned until 2013/2014, some three years from now. Furthermore, compliance with State law 362-F by PSNH is not going to occur if every analysis and every proposal brought to the Commission is scrutinized on short-term immediate technical considerations and price signals. The Commission needs to consider the fundamental underlying prospects for the development of RECs, the diversity of fuel necessary to create those RECs, the benefit to the ratepayers of the State of New Hampshire, the underlying structural requirements of developers to finance the projects which are creating the Class I RECs for PSNH as well as other load serving entities in the State of New Hampshire. In the absence of solid fundamental analysis and long-term thinking, one of two things will happen: either PSNH will pay the default price for not having enough Class I RECs, which will cost the ratepayers, or PSNH will be forced to propose the construction of rate based plants that it will own to provide the Class I RECs necessary to meet the law. If it is Staff's and OCA's position that PSNH should construct the facilities necessary to produce

Class I RECs as rate based facilities, or should pay the default price, Staff and OCA should send a clear signal to the Commission and to the private sector not to spend its time, energy, and money searching for prime opportunities to provide new Class I RECs.

Furthermore, relying on the suppression of short-term REC prices, in the infancy of this program, from other developments in other states is short-sighted and risky. As the ramp up occurs in the need for Class I RECs, the amount available will quickly hit the wall and the prices will substantially advance. The underlying fundamentals of building and creating new Class I facilities does not change whether or not it's in New Hampshire, Massachusetts, Maine, Vermont, Connecticut, or Rhode Island. It is far less likely that any new biomass wood-fired facility can be constructed anywhere in New England to produce 67.5 MW of Class I capacity and RECs as cost effectively as the redevelopment of the chemical recovery boiler in the City of Berlin, New Hampshire. There are already near permitted 50 MW wood plants in New England at sites located in good wood baskets, good transportation corridors on good sites. They are greenfield developments and have not yet been able to secure any type of long-term PPA. The reason is not the ability of the developers, the site or the concept. The reason is the high cost of developing a greenfield site at this time.

Based on a number of fundamental analyses, it is more likely than not that the energy prices proposed in the Laidlaw Berlin Biopower PPA and contract will be a good deal for the ratepayers. It is less likely that short-term views will prevail, and it is more likely that the long-term energy price certainty in the PPA will be competitive with the market in the future.

It is far less likely that relying on the short-term market for 20 years, as proposed by OCA and Staff, will be beneficial and energy prices are going to reverse and become volatile.

Q. Please describe a number of the fundamental analyses you refer to that make it more likely than not that OCA's and Staff's position will be wrong and the PSNH's negotiated energy prices will be a good opportunity for the State and for the ratepayers.

A. There are a number of reasons why it is more likely that energy prices will escalate. By way of a framework and base case, it can be seen from the graph in Exhibit 6, ISO Summary, that system peak capacity peaked in 2006 at 28,130 MW. It fell back 11% in 2009 to a 25,100 MW system-wide peak load. The load has recovered in 2010 to a system peak of 27,100 MW, or a recovery of 8 percentage points. The 2010 system peak is only 3.7 percentage points off the all time 2006 peak. The net energy used peaked in the last decade in 2005 at 136,355 GWh. Its low in 2009 only dropped to 126,838 GWh. The energy consumption dropped 7% while the capacity dropped 11%. Part of this difference is directly related to the confluence of the Great Recession, but also the real and significant incremental gains in energy efficiency, demand side management and load reduction initiated by the various programs throughout New England. To a large degree, New England made better use of the capacity it has to produce more energy per MW of system peak load. 2010 is shaping up (see Exhibit 7) to consume 130,000 GWh in the region, or a recovery back to approximately within 5.0% of the peak energy usage in 2005.

In 2010, for eleven months, saw the continued utilization of imports and exports over the regional and international electric ties. While substantial electrical capacity exists in New England, approximately 7.4% of the total energy consumed came in over external ties. As the market tightens and as the recession begins to recede, and with the lack of new power plants having been constructed around New England, it is more likely than not that the availability of power from the external ties will also tighten, placing more pressure on the existing capacity and fuel infrastructure in New England to produce its own electricity. As demonstrated in Exhibit 5, capacity may likely constrain by 7,569 MW by 2034 at a 1% growth rate from existing recession lows. The only likely way to inhibit this growth rate and impending capacity constraint is to substantially ramp up conservation, efficiency, and load management to hold the current capacity and energy consumption flat, an unlikely scenario inhibiting the growth of the region, or prepare for the construction of new power plants and the expansion of external ties with our neighbors.

At this time there are some 7,750 MW of internal New England capacity in jeopardy of being closed, mothballed, decommissioned and/or torn down. We are headed for a capacity constraint utilizing the entire existing fleet. Renewable energy projects cannot be permitted, designed, constructed and commissioned fast enough to begin to make a substantial dent in the loss of greater than 7,000 MW and the mitigation of the pending capacity constraint crossover. The State Commissions and the utilities can and likely will refine dispatch, load flow and contingency parameters through Smart Grid technology to reduce the reserve requirements from 15% downward to help alleviate the coming constraints. While these activities will be positive efficiencies to the transmission and distribution system, their percentages are limited and may only move the problem one to three years ahead. None of these conditions will assist in averting some level of browning in the event of a major spike in summer temperatures coupled with the loss of one or two significant contingencies. These conditions set the stage for escalating and spiking energy prices, volatility and excess reliance upon combustion turbines, oil-fired generation plants, and other high-cost energy measures. It is more prudent than not to reject Staff's and OCA's reliance on current recessionary price structures and their unwillingness to offer forecasts for the Commission's consideration of fundamental and structural changes which could or are likely to occur in the energy market in New England. The City of Berlin offers that the energy price forecast in the Laidlaw PPA is a good bet and a good deal for the ratepayers under a number of scenarios which could or are likely to occur over the next 20 years in the energy pricing structure of electricity in New England. Fixed known prices will help reduce the volatility of PSNH's default power pricing structure for its ratepayers and help in predicting its cost structure.

Q. Do you believe there will be considerable volatility in the price of electricity in the future?

A. Yes. The price of electricity is being driven by the price of natural gas in New England at this time. While oil used to drive the price of electricity, gas has taken over as the marginal fuel. In 2009, of the total generation of 119,437 GWh, 12% was generated with coal, less than 1% generated with oil only, 32% was generated from gas, and another 10% with gas oil units (Exhibit 7). In 2002 in New England, gas had eclipsed nuclear as the single largest component of electric generation in New England and has remained so. It is interesting to note that renewables remain flat for the entire decade at approximately 7,500 GWh of electricity generated. The Laidlaw plant is likely to add at least 5% to 6% total renewable energy to the New England grid when operating at full capacity.

There is no question that, at this time, the electricity price is severely suppressed due to the collapse of natural gas prices. Natural gas prices have collapsed in New England due to three factors: the first is a collapse of demand, the second is a transportation stabilization and equalization around the United States with the commissioning of the Rockies Express Pipeline bringing western gas into the central part of the United States, pushing more available gas into New England, and third the Marcellus Shale finds in Appalachia, Pennsylvania, and New York. As a result of the shale gas (unconventional gas) finds in the region, natural gas prices have disconnected from the price of oil and reflect their own market fundamentals. The OCA, Staff, the IPPs, and Concord Steam make no attempt to study or offer to the Commission a review and forecast of the fundamentals which will affect the price of gas, and therefore the price of electricity, in New England. Gas has been and continues to be a volatile fuel source and its volatility rivals that of the volatility of oil over the decades. Exhibit 8 shows the price of gas and oil over the last 20 years, with a volatility of over 500%. Wood, on the other hand, exhibits very low volatility in comparison to the volatility of fossil fuels. Wood has experienced a volatility of approximately 50% over the last 15 years ($18 to $28 per ton overage) and is even less volatile than the price of coal and nuclear fuel. The Commission should consider the premium that has to be paid for the construction of a new wood-fired power plant as an investment in lower volatility on the electric price in PSNH's default service for the ratepayers of the State of New Hampshire. This is a demonstrated fundamental of the fossil fuel pricing structure which has been ignored by OCA, Staff, and the other intervenors.

There is no question that the United States is entering a new paradigm where indigenous natural gas will create greater energy independence, revenue, and efficiency throughout the United States through the exploration and discovery of deep, imbedded shale gas in a number of locations. With the advent of deep drilling, it was learned that substantial gas reserves exist in tight formations in shale at extremely deep levels. Vertical drilling is incapable of producing enough gas from these locations, as the migration of gas under intense heat and pressure could only migrate to the surface walls of the well and then out of the well in limited quantities which were not cost effective to warrant the technology and expense of deep rock drilling. With the advent of directional and horizontal drilling, which essentially turns the drill bit gradually into a 90° arc and drills along the shale seem, significantly more gas producing shale is exposed to the drill well. This too is still not sufficient to produce enough gas through the very slow porosity of the high density shale to enable enough gas to pass to make it worthwhile. With the additional development of high technology hydraulic fracturing (hydrofracing), where water and chemicals are pumped into the horizontal well at extremely high pressures, the liquid pressure literally crushes the earth around the well, releasing far more trapped gas. The entire process is expensive but effective. Substantial quantities of gas are released from the hydrofraced well and brought to the surface for treatment, refining and shipment for sale. Through the last five years a full blown land and gold rush has occurred in the Marcellus Shale areas with substantial drilling that has created a glut of gas. While effective, the hydrofracing procedures raise significant environmental concerns for contamination and pollution as a result of the chemicals and the disruption of the earth. The State of New York instituted a moratorium on any horizontal drilling and hydrofracing in its shale territories until such time that environmental considerations can be fully studied and, if possible, regulations be developed. Other states are looking at regulations and environmental considerations related to hydrofracing. It is likely that tougher regulations, especially in light of the oil spill in the Gulf, will be enacted towards hydrofracing, but hydrofracing altogether will not be banned and substantial quantities of gas will be available to the continental United States for use by others as well as New England. What is still unclear are the true depletion rates of these wells. It is anticipated, due to the levels of gas received from the fraced well, that depletion rates are going to be high and quick.

Another significant area of concern that is currently occurring which will raise gas prices is the lack of drilling activity at this time in the Marcellus Shale region due to both price of gas and potential lease restrictions. The existing low price is in part a bubble. It is a bubble created by leases which required performance or the lease was lost. Wells were drilled and extracted in order to maintain lease conditions or lose the leases. More and more wells are shut in and less and less wells are being drilled as lease conditions are being renegotiated throughout the United States. Discussions with a lawyer for gas exploration companies has indicated that they are quietly renegotiating leases to extend terms, change terms, or walk away so as not to be forced to drill in such a low priced environment. It is more likely than not that a floor has been found in natural gas pricing. As of January 7, 2011, working rotary oil and gas drill rigs were up six rigs for the week, and more importantly up 480 rigs for the year, or a 40% increase in drilling rigs for 2010, but the number of rigs drilling for natural gas nation-wide was down five from the previous week. The largest counts were in the Rockies, Oklahoma, Texas, Wyoming, and North Dakota. Pennsylvania, the area of Marcellus Shale shipped into New England, was unchanged for the week, and conventional gas regions, such as Louisiana which ship into New England, are down significantly in rig numbers. Storage of natural gas is off slightly by the end of 2010, but a surplus of approximately 6% higher than the previous year. A more important figure is the 914 gas rigs drilling for natural gas in the continental United States and Alaska as of January 7, 2011. That number is down 43% from 1,606 drill rigs for natural gas only as of its peak on 9/12/2008. Substantial reduction in gas drilling rigs in the United States has to be taken into account in any fundamental analysis of the direction of gas and therefore electric prices in New England and is fully ignored by Staff and OCA. It takes time, money, permits, leases, approvals, and mobilization to restart substantial drilling programs in any region. New drilling programs will inevitably occur if price signals to the natural gas industry are sufficient to cover the drilling costs, all expenses, and a profit. Horizontal drilling with hydrofracing is not cheap. It is more likely than not that substantial depletion rates will occur over the next three to five years for natural gas coming into New England from the Marcellus Shale deposits and wells. Capped wells will be fraced and opened, but substantial drilling activity must begin with a time delay before considerable volumes of gas become available and prices stabilize. The stage is set for price escalation of natural gas into New England. It is important to note that prices may be somewhat moderated by the more complex and changing dynamics of the revenue stream from gas drilling. Where wet gas is encountered, non-condensable gas liquids, namely butane, propane, and ethane, become part of the mix. They are substantial in the pricing of gas in certain parts of the south and Texas, but increase the volatility of the well costs and ultimately the natural gas pricing in the northeast because of the lack of infrastructure to move these products to market. Therefore price quotations at Henry Hub in Louisiana may be substantially affected by gas liquids and the market for gas liquids, but those savings will not be translated into reduced gas prices in the northeast. The gas industry may find it necessary to enact a new hub in the northeast for the pricing of natural gas under different circumstances than gases priced in the southern parts of the United States.

To summarize, macro issues occurring with gas that will affect the price in an upward trend, thereby increasing the price of electricity in New England, are as follows:

- "Production levels will begin to decline: In 2011, producers will become more sensitive to lower price levels because of fewer hedge positions, the expiration of land leases, reduced capital infusion from foreign investors, and growing concerns over an oversupply of NGLs."[1]
- "Demand levels will begin to rise: If the second round of quantitative easing proposed by the Federal Reserve stimulates economic recovery, natural gas prices will begin to respond to the anticipation of renewed demand, particularly from the electric generation and industrial sectors."[2]
- "Speculators will begin to shift their market position: The speculative sector has continued to retain a very large net-short position, which is indicative of their belief that more price downside exists. By mid-2011, if production levels are declining and

[1] Valerie Wood, "Natural Gas Price Outlook, Improve Your Pricing Strategy and Profitability," Energy Solutions December 2010: 5.
[2] Ibid.

demand levels are rising, this sector may shift from being a more aggressive seller to a more aggressive buyer in the marketplace, and buying will push natural gas prices higher."[3]

There are additional long-term fundamental issues at play in the cost of natural gas in the New England region which affect the long-term supply and demand and ultimately price of natural gas used to generate electricity. Any increase in natural gas pricing is a direct increase in electric pricing. Some of these fundamental directions and/or changes are as follows:

- "Increased reliance on unconventional shale gas exposes the nation to longer-term risk because of less natural gas supply source diversification."[4]
- "Increased onshore production could kill plans for an Alaskan or Canadian pipeline and increase the potential for forced majeure situations caused by well freeze offs."[5]
- "The natural gas drilling rig is projected to decline by 50-100 rigs by the end of 2011, and this decline will impact production levels because the most inefficient drilling rigs have already been idled."[6]
- "NGLs improve natural gas economics, but the NGL market will eventually deal with concerns over the potential for excess supplies due to a lack of infrastructure and processing facilities."[7]

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[3] Ibid.
[4] Valerie Wood, "Natural Gas Price Outlook, Improve Your Pricing Strategy and Profitability," Energy Solutions December 2010: 6.
[5] Ibid.
[6] Ibid.
[7] Ibid.

- "Investigations into the environmental impacts of horizontal drilling and hydraulic fracturing, which are technologies used for shale production, are ongoing and the potential for increased regulations remains real."[8]
- "Natural gas storage inventories are likely to be at record levels on April 1, 2011 and this could set the stage for another new record high at the start of the 2011-2012 winter heating season on November 1, 2011."[9]
- "Numerous Canadian and U.S. liquefied natural gas (LNG) import facilities are underutilized. In 2011, more LNG owners are expected to propose plans to convert these facilities into export facilities. If the U.S. and Canada become natural gas exporters, it would mark a new era in the natural gas industry."[10]
- "The second round of quantitative easing by the federal reserve (QE2) is designed to jumpstart the economy. However, these actions could have the opposite impact as it could devalue the U.S. Dollar and push crude oil commodity prices over $100 per barrel, which in turn could hinder consumer spending."[11]
- "Prolific growth in natural gas supplies is expected to result in new demand surfacing from the electric power sector. An increased reliance on natural gas-fired electric generation will likely lead to increased electric price volatility."[12]
- "Expansion of pipeline infrastructure has caused pipeline transportation or basis to change dramatically from historical price levels and delivery costs throughout the nation have been somewhat equalized from coast-to-coast."[13]

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[8] Ibid.
[9] Ibid.
[10] Ibid.
[11] Ibid.
[12] Ibid.
[13] Ibid.

- Technical indicators point to an early winter or mid-winter price rally to be followed by another price decline, which will take natural gas prices toward a seasonal first quarter low. Also, history indicates that major price rallies occur 2-1/2 to 3 years apart, with the most recent rallies occurring in 2005 and 2008."[14]

The natural gas prices are expected to resume to $5 to $6 per MMBTU price range by 2012. It is more likely than not that as the nation pulls out of the Great Recession, there will be a continued upward trend for natural gas pricing throughout the nation for both technical and fundamental reasons that will escalate the short-term, day-to-day price of electricity in New England.

In order to estimate the price of electricity, we used the Ventyx forecasted real market clearing prices (which include the gas price forecast) for the northeast region in real dollars per MW, inflated at 2.5% (Exhibit 9). Exhibit 9 also shows the energy payment from the proposed contract and the 2010 price projection with carbon taxes (Col. E). A side by side comparison of the energy price forecast developed by Ventyx for the northeast-east region (the region the State of New Hampshire is in), the Fall 2010 energy prices are compared in Column G in Exhibit 9 to the contract energy prices (Exhibit 9, Col. F) escalated at 2.5%, WPA. These include the average on peak and off peak prices. These price projections include no carbon, or greenhouse gas legislation. The Spring Ventyx Electricity and Fuel Price Outlook is prepared and included in Exhibit 9, Col. H. The Spring Outlook anticipated the cost of carbon legislation which has been shelved in Congress at this time. The Spring

[14] Ibid.

2010 prices are shown in Column H of Exhibit 9 for comparison as to the affect that carbon will likely have on the price of electricity. It is important to note that these forecasts assume an annual inflation index of 2.5%. Any change in inflation, such as a greater escalation of market prices for natural gas, carbon, or the elements of electricity generation, will raise these prices faster than the surrounding inflation and price forecasts. As can be seen from Exhibit 9, under a variety of scenarios there is a crossover point where the energy in the contract proposed for Laidlaw is less than the likely cost of electricity when considering the fundamental drivers of price in New England and inflation. It is more likely than not that during the course of this PPA, carbon legislation will resurface and be enacted by Congress and have a substantial effect on the price of electricity in the region. A known contract with Laidlaw Berlin Biopower could, under a carbon constrained environment, prove to be extremely valuable and prescient by PSNH even though it is being negotiated at this time during a period of unprecedented de-escalation in electricity pricing. When capacity pricing is combined with energy pricing from Exhibit 9, the difference in the contract cost versus the forecast, capacity, and energy cost with and without carbon constraint is shown. This assumes an 80% capacity factor of the power plant. This analysis, when compared with the REC pricing added to the energy and capacity pricing of the Laidlaw contract, washes out the REC cost at 2025 without any consideration for carbon, but in a carbon constrained environment, the REC cost is exceeded by the market by 2015. The Laidlaw contract is an excellent hedge for PSNH against a carbon constrained electric pricing environment. It is certainly true that all forecasts are forecasts, but fundamental occurrences in the industry, the fuel cycle, and the condition of the existing fleet, coupled with the supply and demand requirements of New England, make it more likely than not that the low existing market prices will not hold and that there will be price escalation in electric energy products. It is also more likely coming out of this recession that this escalation may well exceed inflation. The Commission should view Staff's and OCA's testimonies as incomplete in their analysis and consider it short-term in nature only. The Commission should review the contract in light of long-term fundamentals in its determination as to whether or not it is in the public interest. The City of Berlin believes that the long-term fundamentals driving the price of electricity give this contract a more likely than not probability that it will be a good deal for the ratepayers of the State of New Hampshire.

Q. What is your opinion of the REC prices in the contract proposed in the PPA?

A. The renewable energy credits are, for all practical purposes, the premium that is being paid by the ratepayers to comply with the requirements of RSA 362-F. Staff and OCA are utilizing a short-term market approach to the analysis of a fundamentally different REC. Market RECs currently being bought and sold in the market are mostly from existing and modified existing power facilities in the region and represent, to a large degree, low hanging fruit in the New England electric generation system. The real test of cost comes with a Laidlaw proposal and the construction of permanent REC creating facilities. A Class I REC is essentially a new REC and must be created from new construction in order to meet the percentages of RECs required in the region. With Vermont's objective being 20% by 2025, New Hampshire's law being 23.8% by 2025, Massachusetts at 15% by 2020, Rhode Island at 16% by 2020, Connecticut at 23% by 2020, Maine already at 30% and the potential to ship RECs out of New England and into other parts of the PJM and New York ISOs, a significant amount of new electric generation is going to be required to create Class I RECs. If the average arithmetic is 20% of the New England-wide load under RPS standards, this is going to require in general numbers approximately 30,000 GWh per year, or 30,000,000 MWh and 30,000,000 RECs on a regional basis. This is not going to be accomplished with wood alone. This would require approximately 4,300 MW of wood-fired capacity, which cannot be built in New England. Even more startling is that this would require approximately 14,000 to 15,000 MW of wind-fired capacity to satisfy the region-wide REC requirements. It is highly improbable that 7,500 wind turbines can be permitted, approved, sited, built, and commissioned by 2025 to meet just the existing REC requirements. All forms of renewable resources and all forms of generation will participate in developing and satisfying the REC market in New England. If PSNH chose to do nothing, which to a large degree is the proposal from Staff and OCA, under the current market conditions PSNH could end up paying approximately $90 per REC in default payments if it takes no action and the PUC approves no new PPAs for Class I RECs. If PSNH requires 16% Class I RECs by 2025 and had to pay the default price on 1,280,000 RECs (16% x 800,000 GWh) of $115,000,000, the consequences to PSNH for not aggressively contracting for and proposing financeable contracts to REC suppliers could easily add 1.5 cents per KW onto the default service price of electricity in the State of New Hampshire. The Commission should look beyond the testimonies of Staff and OCA as being shortsighted and incomplete in its analysis, and consider the actual facts of the contract proposed.

PSNH and Laidlaw have proposed to de-escalate the price of RECs from the current price of RECs, and fix these prices at 50% of the future known price of RECs at a 2.5% inflation rate, thereby splitting the market risk with the ratepayer and the developer. This is a good deal and a good bet for the ratepayers of PSNH. If any carbon legislation should be enacted, which is likely over the next 20 years, the Laidlaw contract is an even better deal for ratepayers, easily saving in the order of $300 million or more (see Exhibit 10) over the life of this contract.

Q. There is a buyout provision in the Laidlaw contract which allows for a reduction from fair market value of the purchase of this plant by PSNH, should they choose to, if the market price of the electric products in this contract are below the contract payments. What is your opinion of this provision?

A. This provision is a good provision which addresses the concerns that PSNH has had in the past regarding the first round of IPP contracts and the residual value of those contracts if forecasts do not advance in the general direction as anticipated. This allows PSNH to recoup value for its ratepayers and offer to the company the opportunity to purchase this plant and put it into its portfolio for the ratepayers in the future at a steep discount. The Commission should view this provision and opportunity as unique at this time in contracting by PSNH and a positive attribute of the Laidlaw project which may not be available or for which the company may not want from other wood suppliers.

Q. Do you think PSNH should be allowed to purchase the full capacity of this facility at 67.5 MW as the current design proposal reflects?

A. Yes.

~~**Q. Why?**~~

~~A. Laidlaw should be allowed to sell the full capacity and PSNH should be allowed to buy the full capacity of the plant as designed. This allows Laidlaw to focus on the operation of the plant, the cost effective purchase of wood, and the efficient generation of electricity and RECs while not focusing excessive effort and energy on marketing some other portion of the output of this plant. It also helps to assure the financing of the plant so that there are RECs to be generated. Also, this provides PSNH with a known block of RECs from a very high capacity factor facility with a high likelihood and probability of success. This allows PSNH to move on to additional activities related to the compliance with RSA 362-F and the contracting of additional REC generating facilities.~~

~~**Q. Do you believe that PSNH should be allowed to purchase all of the RECs generated from the facility also?**~~

~~A. Yes.~~

~~**Q. Why?**~~

~~PSNH should be allowed to purchase all the RECs purchased from this facility and Laidlaw should be allowed to sell all the RECs to PSNH under this contract up to the contract capacity of 67.5 MW. In the short-term between now and 2015, RSA 362-F requirements are being~~

~~phased in while Laidlaw is constructing, commissioning and phasing in the operation of its power plant. While some excess RECs may be generated in the early years, with appropriate banking for at least two years it is likely PSNH will not find itself too far out of sync with its needed RECs and the RECs being generated from this facility. Excess RECs can be marketed, banked for some period of time, or put into an internal pool with Laidlaw to offset future RECs generated at capacity factors above a target capacity factor which provides for financing. It would be shortsighted for the Commission to place conditions on PSNH and this contract in the early years that would otherwise jeopardize the financing and construction of this plant over whether or not a certain number of RECs would be utilized in the early years of the project. It is more beneficial for the parties to work together to determine a banking/credit mechanism that assures the financing and provides flexibility in the future to PSNH.~~

~~Secondly, PSNH is paying 80% of the ACP in the first years to acquire the new RECs. This provides some flexibility to PSNH to remarket RECs if it feels necessary and provide some headspace in the pricing of those RECs in the future for PSNH.~~

Q. On page 10 of McCluskey's testimony, lines 10-15, Mr. McCluskey talks about an efficient market where the REC price would always approach the uneconomical variable cost of renewable generation. Do you agree with Mr. McCluskey's analysis on page 10?

A. No, I do not. This analysis is unsupported and does not recognize the different conditions for each of the different types of renewable fuels and the construction of renewable generation plants to satisfy the RPS requirements of the various states. Wood is a very efficient fuel to generate electricity with. It has a low erosion potential, it provides for high capacity factors due to low impact on the boiler facilities, and is relatively easy to handle as a fuel. What makes wood uneconomic is the high capital cost of construction combined with the moderately high price of fuel. The current price of RECs and the current price of wood fuel will not over stimulate biomass investment and is necessary for only the very best plants to get constructed in New England. REC prices and energy prices are going to have to rise further than they are in the Laidlaw contract in order for new biomass electric generation plants to be built. There are near permitted 50 MW plants waiting to be constructed which cannot be financed at prices similar to the Laidlaw prices. Modern market principles indicate that wood-fired generation needs to be constructed in large platform plants for maximum efficiency and a minimum of cost per MW. Large wood plants will be constructed only in certain locations around existing wood baskets in order to be economical. The REC prices for the construction of wood plants will not be market driven, but will be driven by location, the capital cost of the plants themselves, and the desire for both fuel diversity, fossil fuel independence, and pollution control.

Q. While RECs are inexpensive today, do you believe that they will continue to be inexpensive?

A. No. As the LSEs ramp up in their REC requirements, they will quickly outstrip the ability to site, permit, build, commission and operate new Class I facilities such as wind and wood. At such time that demand outstrips supply, likely to occur between 2015 and 2020 as the ramp up occurs, REC pricing could immediately go to the default penalty ceiling in at least the New Hampshire program and provide PSNH with additional revenue/profit in the sale of RECs it has purchased at a price less than the sale price. Profit made from RECs will be used to directly offset default energy prices and costs to the ratepayers of the State of New Hampshire. Staff's and OCA's testimonies and calculations only view the REC market in one direction, which is down, and do not provide the Commission with any fundamental analysis of the potential price repercussions of not constructing Laidlaw's plant and not having enough RECs to satisfy PSNH's need.

Q. On page 23 of Mr. McCluskey's testimony, lines 15-17, he raises doubts about the efficacy of the project because PSNH did not bring other potential suppliers into the negotiations to compete with Laidlaw. What is your opinion on Mr. McCluskey's statement herein?

A. I believe the Commission should ignore Mr. McCluskey's statement on page 23. This is not what this docket is about. The Berlin facilities represent a unique opportunity for both Laidlaw and PSNH and its ratepayers. As described earlier in my testimony about the appropriate siting of the plant, this facility is existing, standing, has very little use on it, is well suited for reconstruction, and is cost effective. There is nothing another supplier could add in the negotiations to compete with Laidlaw to negotiate a contract with PSNH. There is nothing another supplier could bring into the system that equals or matches in the northern wood basket in New Hampshire the location in the City of Berlin with the resources available to that site and can be shovel-ready upon completion of this PUC docket. PSNH has, I would expect, the opportunity to view existing permitted proposals elsewhere in New England for wood-fired generation plants that are currently permitted and approved. Knowing the economics of those plants proposed that are permitted, they cannot compete with the Laidlaw proposal. I assume PSNH knows this and has taken the opportunity to reuse an asset in the State of New Hampshire that is more cost effective than any other available shovel-ready asset in New England. This is similar to the advantage PSNH has taken for the repowering of one of the Schiller units, eliminating coal-fired generation in favor of wood at its existing facility both cost effectively and in the best interest of the ratepayers. The City of Berlin strongly urges the Commission to recognize the uniqueness of this proposal and disregard concerns of anti-competitiveness in the negotiations.

Q. On page 24, lines 13-21, Mr. McCluskey tries to compare the Laidlaw and Lempster PPAs. What is your opinion of that comparison?

A. The Commission should ignore the testimony of McCluskey on page 24 and should not compare wind Class I RECs with wood Class I RECs. They are two completely different things. Wood is a base loaded, solid fuel, sure technological method of generating electricity. It has a known capital cost, a known operating cost, known staffing levels, and, above all, a known capacity factor that provides for solid, high reliability capacity into the PSNH system, and it produces Class I RECs. Wind has no fuel cost, is a virgin technology that has not proven itself over time, it is completely and totally unpredictable on a short-term basis as compared to, say, hydroelectric facilities, and has a very low capacity factor and low capacity availability for the company. Wind does not produce the electric products but consumes electric products, such as frequency control and kilovars that are produced by a wood-fired generation plant. These are critical distinctions that cannot be compared. Whatever price is paid for Lempster, the Laidlaw proposal should be more expensive than Lempster as it produces a higher quality product than wind power generation in the State of New Hampshire.

Q. On page 25 of Mr. McCluskey's testimony he talks about unsolicited offers for capacity and RECs from other biomass projects, including Clean Power and Concord Steam. What is your opinion of this?

A. The Commission should not try to compare the unsolicited offers of Clean Power Development, Concord Steam, and the four existing biomass facilities. First and foremost, the existing biomass facilities are not providing Class I RECs with the exception of a very small, incremental piece offered by the capacity uprate of Alexandria. The existing four facilities are not offering Class I RECs, and unless they make substantial investments in their facilities or significantly increase the size and capacity of their existing facilities, they cannot offer Class I RECs required by PSNH. The Commission should not try to compare the existing Class III REC generating facilities with this proposal for Class I RECs. Each of the existing biomass facilities are capable of making their own decisions if they wish to rebuild their facilities to qualify for Class I RECs. Any rebuilding at this time is not permitted and is not shovel-ready for PSNH.

As for Concord Steam, it is curious that the discussion for Concord Steam never involves Concord Electric and Unitil but only PSNH. Sitting in the center of Concord's electric service territory, it would seem logical that Concord Steam would be working directly with Concord Electric to assist in satisfying Concord Electric's Class I REC requirements as an LDC and LSE. There is no need for PSNH to be required to compare a Concord Steam proposal to a Laidlaw proposal. Furthermore, these two proposals are completely different. It is inconceivable to imagine that Concord Steam's proposal should and does compete with Laidlaw's proposal, especially the idea of moving 750,000 tons of wood into the City of Concord for generation to PSNH on the Concord Electric electric distribution system. The Concord Steam proposal is not shovel-ready, is not of the same capacity, is entirely hemmed in on its site, and potentially subject to severe water restrictions and curtailments.

For Clean Power Development (CPD), the CPD proposal is a different platform. It is a cogeneration qualifying facility platform that, if constructed, would produce Class I RECs but its financial platform and its cost is related to the ability to join with a credit worthy steam host in Berlin or Gorham, New Hampshire in order to proceed with its construction. The Commission should ignore any discussion of CPD as a competitor of Laidlaw's in that it is not shovel-ready, it did not have a contract, and its platform to create electricity required a steam host that filed bankruptcy. There is no steam host for CPD and therefore there is no CPD.

Q. On page 26, lines 9-14, Mr. McCluskey indicates that PSNH would pay Laidlaw approximately $285 million in above market energy costs over the 20-year term due to the current rate recession pricing of natural gas. While you have testified on the likelihood that the existing low prices for gas will not continue to prevail, there are high scenarios of gas pricing that could severely impact the ratepayers of PSNH in the future whereby the Laidlaw contract would produce a significant savings. What is an example of the high scenario that Mr. McCluskey has not considered or advised the Commission?

A. High gas prices, high capacity prices, and a carbon tax will substantially increase the price of electricity. This contract could easily save the ratepayers at least $300,000,000 (Exhibit 10) or more over its life.

Q. On page 29 and 30 of the McCluskey testimony, Mr. McCluskey fails to study and address the under market capacity prices and the benefit of this contract for PSNH and the ratepayers regarding capacity. In addition to capacity, what other benefits has Mr. McCluskey failed to consider from this plant for the ratepayers of PSNH?

A. In addition to capacity, RECs, and energy, this plant will provide a host of other electric products and services which are important to PSNH. First and foremost, in addition to offering what is likely to be significant below market capacity pricing, the property will be able to offer frequency control, voltage control, the generation of kilovars, and greater stability of the North Country transmission system. While not discussed, there are adequate resources proposed to potentially be able to create black start capability of the northern grid with Laidlaw and the Lost Nation turbine. These additional capacity oriented products are not anywhere discussed in the McCluskey testimony, but the City of Berlin believes the Commission should give them consideration in their deliberations.

Q. On page 33 of Mr. McCluskey's testimony, he talks about regulatory risks as well as other plant risks. Do you agree with his testimony?

A. No.

Q. Do you believe the Commission should consider other additional areas of risk that Laidlaw has assumed in considering its PPA which Mr. McCluskey has not advised the Commission?

A. Yes.

Q. What are these?

A. First and foremost, the high debt to equity ratio does not automatically assume that there is no risk. To the contrary, it assumes a limited equity availability due to a higher risk profile and a higher rate of return on equity required to finance this project. Secondly, the interest rate on the debt side will reflect a higher interest rate necessary to carry the debt under the risk profile due to the lower amount of equity. The absolute opposite of Mr. McCluskey's concept that institutional investors will view this as low risk, actually occurs in the development of these alternate power energy facilities. At these types of debt to equity ratios, there is significant risk on both sides. Laidlaw has not shifted to PSNH construction risk, has taken a 20-year fixed operation and maintenance cost risk, which is a significant benefit to the ratepayers, has locked in REC prices, and under this contract may be subject to additional pollution control devices which it has to construct on its own, creating additional long-term construction risk. Regulatory risk for environmental controls and other types of operational requirements are not shed by Laidlaw to PSNH. So Laidlaw has taken in risk in that it is not passing its fuel costs through dollar for dollar but is pegged to the fuel cost at Schiller. The wood baskets between the northern and southern parts of the state are different, and costs may be higher in the northern wood basket due to competition from the pulp and paper industry. This fuel risk is not shed by Laidlaw and is substantial.

Q. Do you believe the discount rates proposed by McCluskey on page 34 are reasonable?

A. No. The discount rates considered by McCluskey on page 34 are not correct for this type of plant and the risk profile, and will ultimately kill the financing of this plant. Laidlaw will literally need a 15% after tax rate of return on its equity for all costs of equity if this plant is going to be constructed. The Commission should consider that Laidlaw has worked diligently to secure 70% debt for this plant. At a 7.5% debt rate and 70% debt, the debt component of the WACC will be 5.25% units. The after tax equity component of 15% times 30% is 4.5% units, yielding a return on total capital of approximately 9.75%. This total cost of capital structured by Laidlaw is well within the range of reasonableness for a private development which relieves PSNH of having to construct its own wood plant to create its own Class I RECs.

Q. On page 32, Mr. McCluskey discusses risk held by merchant plants versus utility plants. Do you agree with his analysis and should the Commission consider an alternative view to his testimony?

A. I disagree with Mr. McCluskey's testimony on page 32, lines 9-21. There is no secret that a PPA is necessary in today's environment to finance this project and is necessary to create the RECs. Laidlaw is not equivalent to a utility though. Laidlaw is taking a substantial amount of more risk that public utilities would not take and do not have. The risks Laidlaw is taking include construction risks, operating risks by holding the operating cost fixed, decoupling of fuel prices to a separate price location and index, thereby taking fuel risks and revenue reduction risks by reducing the price of the REC. Therefore, the comparison, as provided on pages 32, 33, and 34 of McCluskey's testimony, should not be given any weight. As the contract is written, Laidlaw is potentially giving up all of its reversionary ownership rights to assure a contract that is financeable for all parties concerned. There is no question that with no reversionary value in the contract for Laidlaw, its return on equity is skewed. The Commission should not be swayed by inflammatory returns on equity without considering the detailed attributes of the contract and financing and the lack of equity reversion. Fund balances, debt coverage ratios, reserve accounts and other things required by the banks for financing this project absorb cash flow that the equity investors will never see and which may be absorbed in the cumulative reduction account. PSNH and Laidlaw are proposing a contract which is financeable, and that should be of significant importance to the Commission which has not been properly addressed by the Staff.

Q. On page 44 of Mr. McCluskey's testimony, he discusses, starting on line 10, the harmful effect of this PPA to the development of competitive markets because of unfair protection of Laidlaw. Do you agree?

A. No. Contracted renewable energy resources, such as Laidlaw, have to be base loaded and designated as must run facilities in order to generate the RECs required. Once the contract is signed, they have no further impact on the competitive marketplace. They will displace other forms of high cost generation that does bid into the market that is not subject to the protections of contract operation. Laidlaw's plant will be operating at less than the cost of existing oil-fired plants and will likely reduce oil-fired generation in the New England ISO. This is not negative, it is very positive. It will reduce pollution and ultimately be part of the reason for substantial closure of idled oil-fired plants in the region, reducing capacity payments and costs for everyone in ISO New England. Furthermore, it is incorrect to say that Laidlaw has less incentive to cut its operating costs to maximize its profits. Laidlaw has full incentive to cut its operating costs because Laidlaw has fixed its operating costs, it has fixed its REC payments, it has fixed its wood pricing index, and it has fixed its capacity costs. It has no choice but to operate in an extremely efficient, reliable, and effective manner. In total, the testimony on page 44 is simply not relevant to the contract at hand. To a large degree it assumes facts that do not and will not exist.

Q. On page 45, Mr. McCluskey starting at line 9 talks about the conflict with least cost integrated resource planning. What is your opinion?

A. Least cost planning and the development of new Class I RECs are mutually exclusive. Class I RECs, which provide capacity, energy, reliability, fuel diversity, and the maximum level of certainty of delivery will be above the market price of base electric energy generated from plants whose current basis is already imbedded in the system. To compare this to least cost integrated resource planning and then condemn the PPA with Laidlaw is misleading and should be ignored by the Commission.

~~**Q. Concord Steam has filed to intervene in this case and expresses concern regarding the impact on the cost of wood that Laidlaw might create in southern New Hampshire. Do you agree with Concord Steam's concerns?**~~

~~A. No.~~

~~**Q. Why?**~~

~~A. Concord Steam's concerns do not make sense to me. In order for Laidlaw to reach into the southern New Hampshire wood basket which Concord Steam purchases in, it is going to have to pay a trucking differential of probably $18 per ton. This is in part due to the weight limitations on Interstate 93 which are lower than weight limitations on Rt. 2 in northern New Hampshire. If wood is passed through the Laidlaw contract at the Schiller price of $34 per~~

ton, Laidlaw would have to buy wood in southern New Hampshire at $16 per ton. This is likely to have no negative impact on Concord Steam. Conversely, if Laidlaw wanted to match the regional price around Concord of $28 per ton, it would be loading in wood at $46 per ton in Berlin. At $46 per ton in Berlin, a wide variety of new wood baskets in the local region would open up reducing the price of wood and eliminating the need to reach into the Concord area.

Q. Does this conclude your testimony?

A. Yes.

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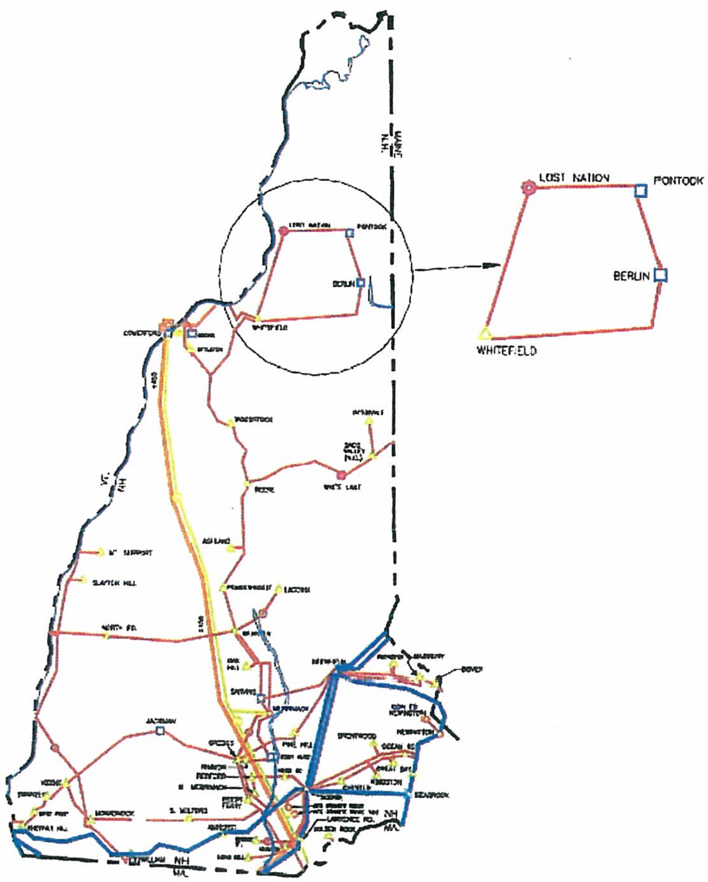
Exhibit 1 to Sansoucy Rebuttal Testimony

Figure 1. Coos Loop Transmission Line, Coos County, New Hampshire



Source: PSNH 2008.

2.2 Problem Description

Having the ability of a generator to produce power when economically viable s the key to delivering power and is a primary factor in providing the certainty developers need to advance their projects. Other factors critical to financing include adequate market revenue to support the investment costs and ongoing fixed and variable costs. Developing transmission to interconnect potential renewable resources in the North Country could cost millions of dollars, and involve local, state, regional and national authorities.

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Exhibit 2 to Sansoucy Rebuttal Testimony

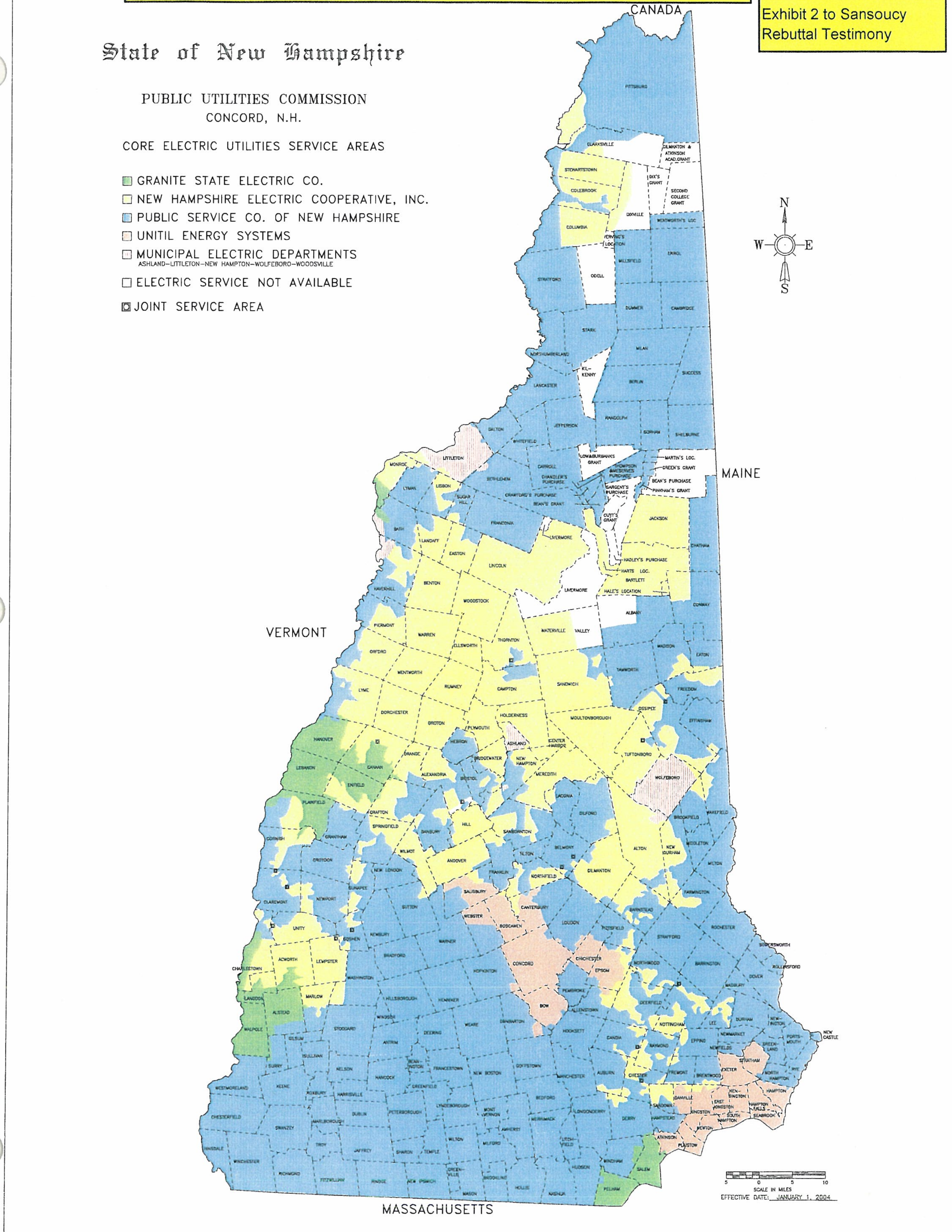


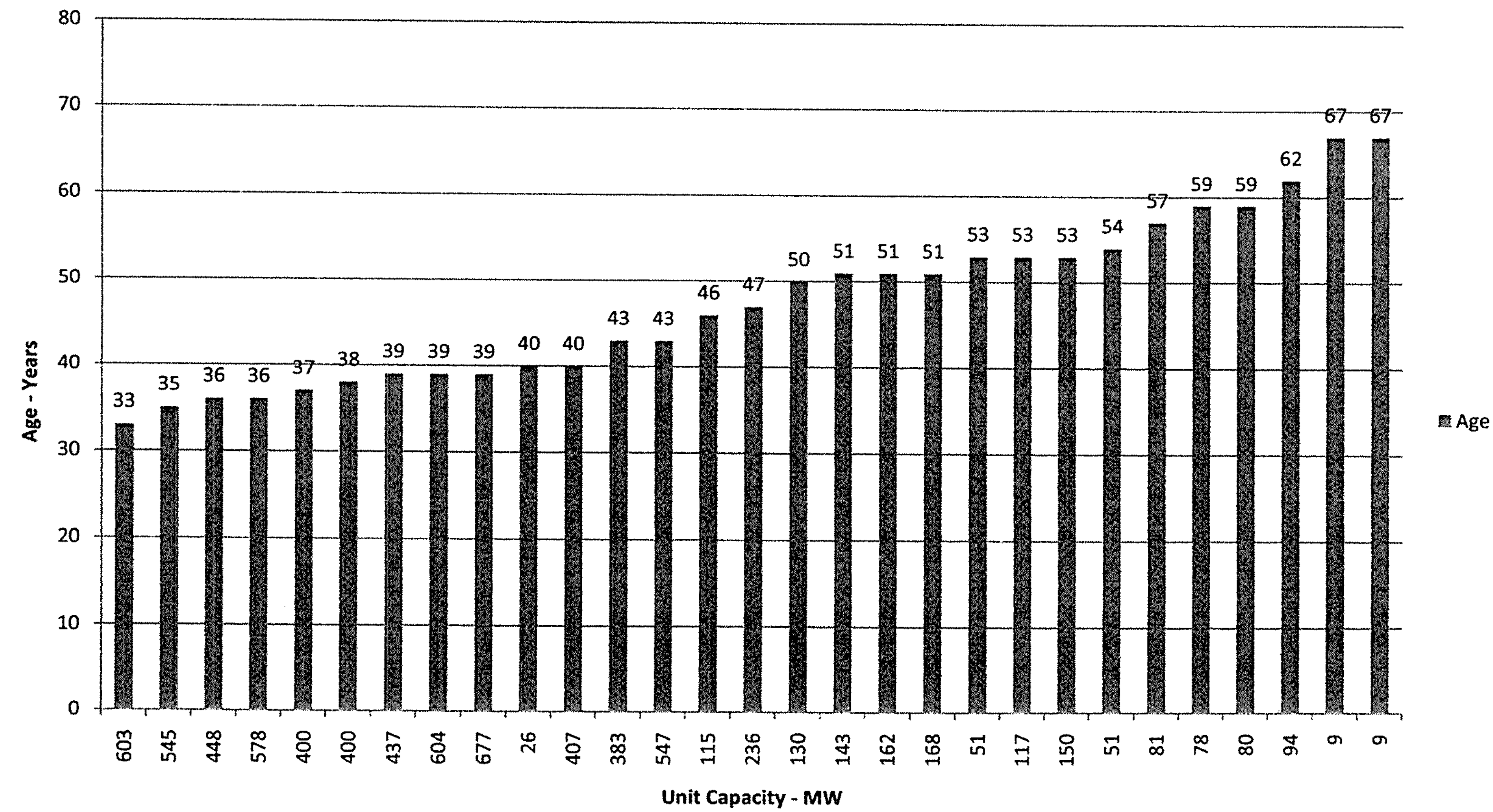
Exhibit __3__

Potential Power Plant Retirements in the New England ISO

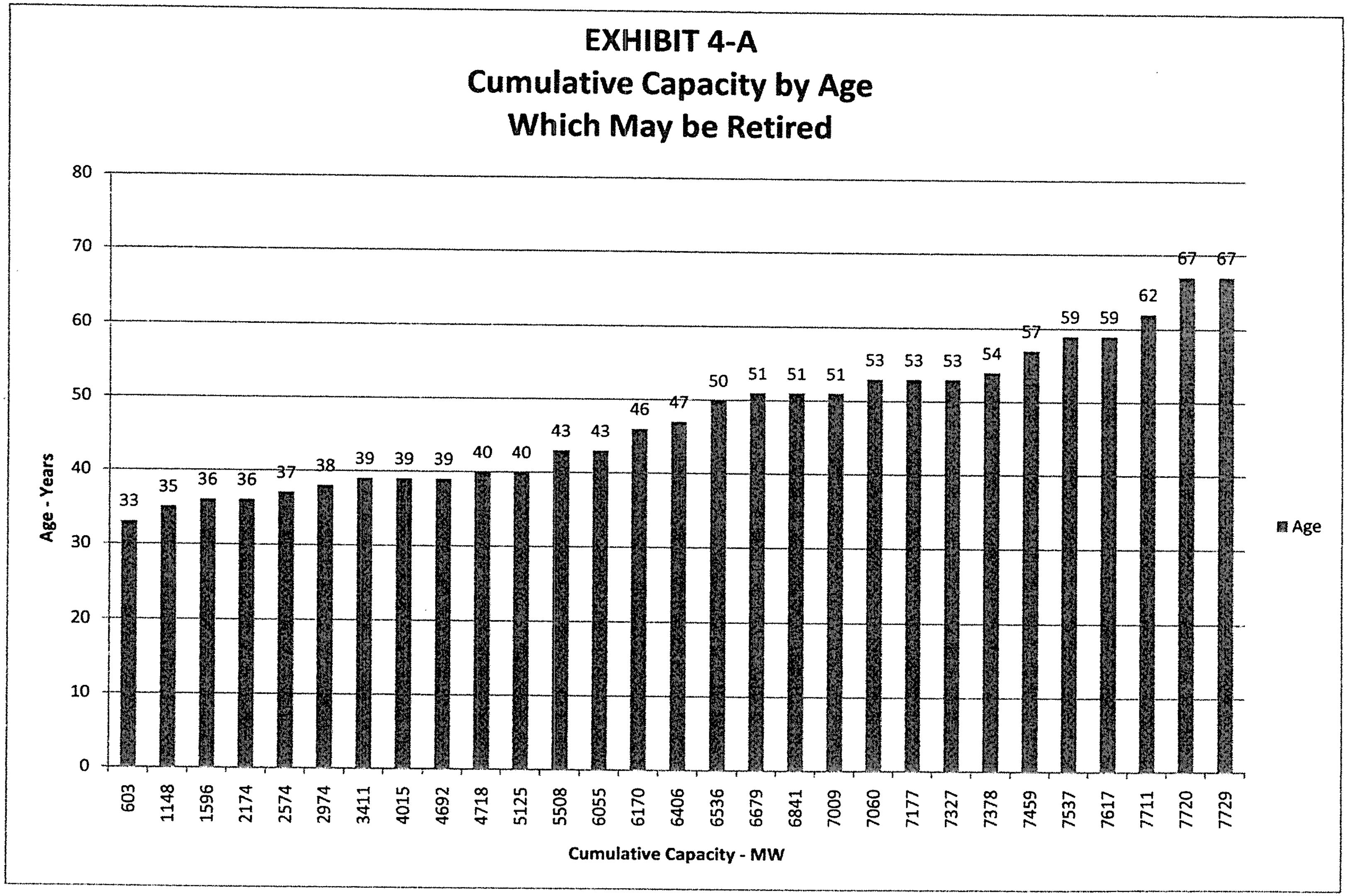
Generator Name	Unit Type	Fuel Type	Capacity	Date of Original Construction	Unit Age as of 12/31/10
Yarmouth 4	F	Oil	603	1978	33
Canal 2	F	Oil/Gas	545	1976	35
Mystic 7	F	Oil/Gas	578	1975	36
New Haven Harbor	F	Oil/Gas	448	1975	36
Newington 1	F	Oil/Gas	400	1974	37
Middletown 4	F	Oil	400	1973	38
Salem Harbor 4	F	Oil	437	1972	39
Pilgrim Nuclear Power Station	N	Nuclear	677	1972	39
VT Yankee Nuclear Power Station	N	Nuclear	604	1972	39
Cleary 8	F	Oil	26	1971	40
Montville 6	F	Oil	407	1971	40
Bridgeport Harbor 3	F	Coal/Oil	383	1968	43
Canal 1	F	Oil	547	1968	43
Yarmouth 3	F	Oil	115	1965	46
Middletown 3	F	Oil/Gas	236	1964	47
Bridgeport Harbor 2	F	Oil	130	1961	50
Mt. Tom	F	Coal	143	1960	51
Norwalk Harbor 1	F	Oil	162	1960	51
Norwalk Harbor 2	F	Oil	168	1960	51
Middletown 2	F	Oil/Gas	117	1958	53
Salem Harbor 3	F	Coal	150	1958	53
Yarmouth 2	F	Oil	51	1958	53
Yarmouth 1	F	Oil	51	1957	54
Montville 5	F	Oil/Gas	81	1954	57
Salem Harbor 1	F	Coal	80	1952	59
Salem Harbor 2	F	Coal	78	1952	59
West Springfield 3	F	Oil/Gas	94	1949	62
Holyoke 6/Cabot 6	F	Oil/Gas	9	1944	67
Holyoke 8/Cabot 8	F	Oil/Gas	9	1944	67
TOTAL:			**7,729**		
TOTAL FOSSIL FUEL:			**7,480**		
TOTAL NUCLEAR:			**249**		

Source Material: New England ISO Seasonal Claimed Capacity Values as of 12/31/2010

EXHIBIT 4
Unit Capacity by Age
Which May be Retired



Docket: DE 10-195
George E. Sansoucy, P.E., LLC
January 2011



Docket: DE 10-195
George E. Sansoucy, P.E., LLC
January 2011

EXHIBIT 5

TOTAL ISO NEW ENGLAND CAPACITY LOAD GROWTH (1% CAGR) 2010 TO 2034

		A	B	C	D	E	F	G
ROW	YEAR	ANNUAL PEAK LOAD	ANNUAL PEAK LOAD GROWTH	ANNUAL INCREASE	CUMULATIVE INCREASE	REQUIRED CAPACITY WITH RESERVE OF 15%	SUMMER CAPACITY SHORTFALL WITH 32,000 MW AVAILABLE	SUMMER CAPACITY SHORTFALL WITH 32,000 MW AVAILABLE AND 2.5% ANNUAL CLOSURE RATE (193MW) PER YEAR
1	2010	27,100	27,371	271	271	31,165	0	0
2	2011	27,371	27,645	274	545	31,477	0	0
3	2012	27,645	27,921	276	821	31,792	0	0
4	2013	27,921	28,200	279	1,100	32,109	109	302
5	2014	28,200	28,482	282	1,382	32,430	430	816
6	2015	28,482	28,767	285	1,667	32,754	754	1,333
7	2016	28,767	29,055	288	1,955	33,082	1,082	1,854
8	2017	29,055	29,346	291	2,245	33,413	1,413	2,378
9	2018	29,346	29,639	293	2,539	33,748	1,748	2,906
10	2019	29,639	29,935	296	2,835	34,085	2,085	3,436
11	2020	29,935	30,234	299	3,135	34,425	2,425	3,969
12	2021	30,234	30,536	302	3,437	34,769	2,769	4,506
13	2022	30,536	30,841	305	3,742	35,116	3,116	5,046
14	2023	30,841	31,149	308	4,051	35,467	3,467	5,590
15	2024	31,149	31,460	311	4,362	35,821	3,821	6,137
16	2025	31,460	31,775	315	4,677	36,179	4,179	6,688
17	2026	31,775	32,093	318	4,995	36,541	4,541	7,243
18	2027	32,093	32,414	321	5,315	36,907	4,907	7,802
19	2028	32,414	32,738	324	5,640	37,276	5,276	8,364
20	2029	32,738	33,065	327	5,967	37,649	5,649	8,930
21	2030	33,065	33,396	331	6,298	38,025	6,025	9,499
22	2031	33,396	33,730	334	6,632	38,405	6,405	10,072
23	2032	33,730	34,067	337	6,969	38,790	6,790	10,650
24	2033	34,067	34,408	341	7,310	39,177	7,177	11,230
25	2034	34,408	34,752	344	7,654	39,569	7,569	11,815

Docket: DE 10-195
George E. Sansoucy, P.E., LLC
January 2011

EXHIBIT 6

Energy/Peak = Generation - Net Flow Over the External Ties - Pumping Load
External Ties: Imports are Negative, Exports are Positive

Energy/Peak = Generation - Net Flow Over the External Ties - Pumping Load
External Ties: Imports are Negative, Exports are Positive

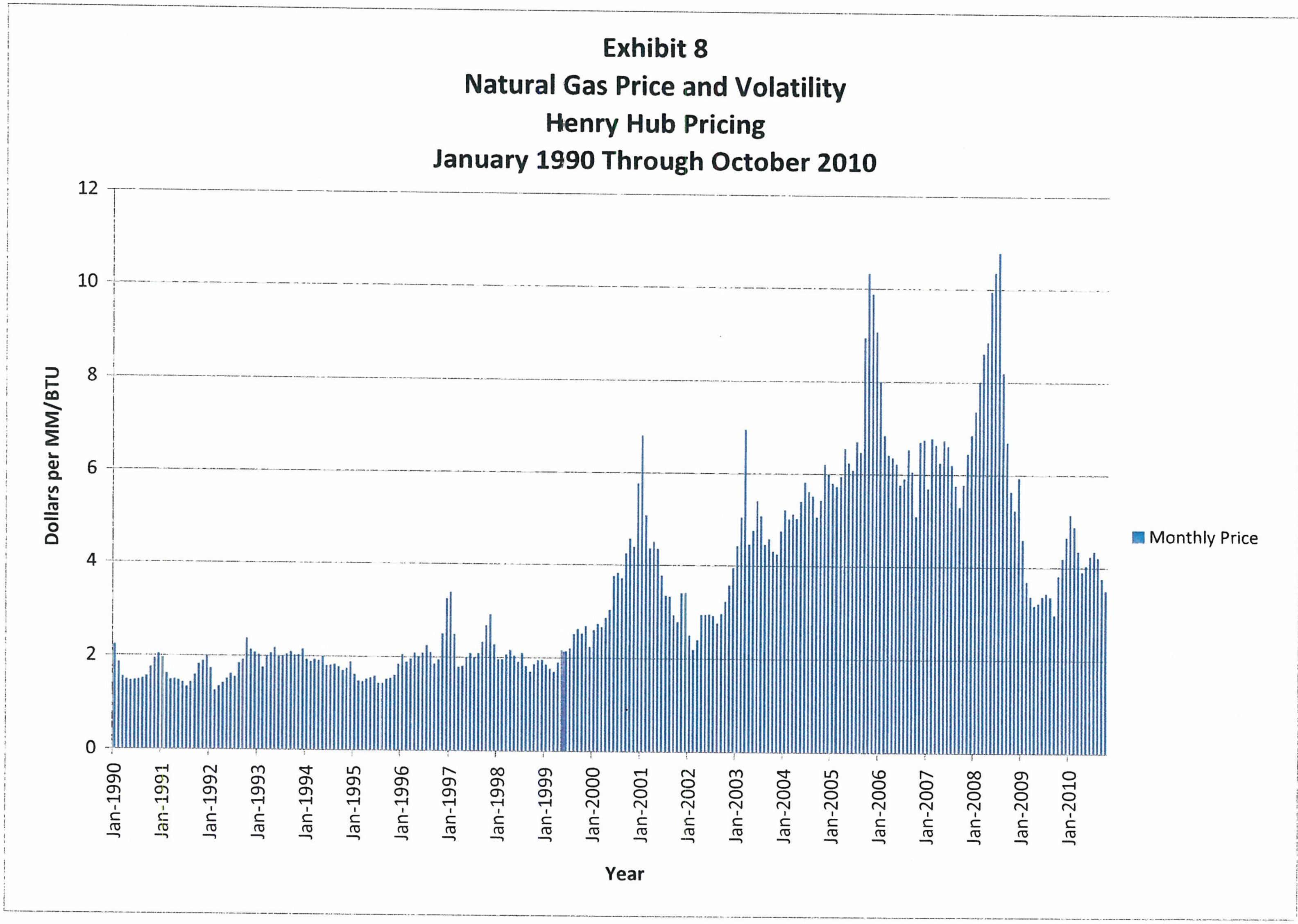
	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	
System Peak Load (MW)	25100	26111	26145	28130	26885	24116	24685	25422	25072	22005	System Peak Load (MW)
Pumping Load	0	0	0	0	0	0	0	0	0	0	Pumping Load
Generation	22785	25019	24351	26251	25071	22406	23062	22416	22761	19030	Generation
Net Flow Over External Ties	-2315	-1092	-1794	-1879	-1815	-1710	-1623	-3006	-2312	-2975	Net Flow Over External Ties
Imports	-2774	-1852	-2279	-2386	-2144	-2218	-2182	-3006	-2519	-2975	Imports
Exports	459	761	485	507	329	508	559	0	207	0	Exports
Month	August	June	August	August	July	August	August	August	August	June	
Net Energy for Load (GWh)	126838	131753	134466	132087	136355	132517	130776	128027	126484	125394	Net Energy for Load (GWh)
Pumping Load	1963	2247	2403	2156	1819	1849	1861	2327	2589	2636	Pumping Load
Total Generation (GWh)	119437	124749	130723	128050	131877	129459	127195	120539	114627	110198	Total Generation (GWh)
Coal	14558	18596	19770	19375	20789	18922	17251	19097	19464	19769	Coal
Oil	895	1918	2877	2030	5652	5405	7414	4701	6901	9086	Oil
Gas	38163	38338	39367	39425	38583	38313	39894	36806	26262	16159	Gas
Oil/Gas	12487	12721	15791	13542	16567	15811	13248	12261	14831	15104	Oil/Gas
Hydro:Pump Storage	1419	1623	1744	1582	1339	1351	1348	1685	1870	1902	Hydro:Pump Storage
Hydro:RunRiver&Pondage	8354	8466	6385	7498	6739	5826	6223	4650	3833	5565	Hydro:RunRiver&Pondage
Nuclear	36231	35547	36972	36923	34609	36514	34779	33945	33436	34345	Nuclear
Renewables	7331	7539	7818	7675	7599	7317	7038	7392	8030	8268	Renewables
Net Flow Over External Ties											Net Flow Over External Ties
Total	-9363	-9251	-6146	-6193	-6297	-4907	-5441	-9815	-14446	-17832	Total
New Brunswick	-1569	-1285	-896	-1047	-1620	-1330	-1645	-2883	-3523	-3957	New Brunswick
Hydro-Quebec	-10826	-9495	-7727	-6023	-4792	-3689	-4235	-7339	-7539	-11433	Hydro-Quebec
New York	3031	1529	2477	877	115	112	438	407	-3383	-2443	New York
Imports											Imports
Total	-15226	-14256	-12269	-10762	-10152	-8174	-9051	-12421	-15371	-19383	Total
New Brunswick	-1798	-1615	-1173	-1252	-1663	-1487	-1784	-2889	-3525	-3958	New Brunswick
Hydro-Quebec	-10833	-9621	-8337	-6486	-5445	-4394	-5022	-7558	-7596	-11436	Hydro-Quebec
New York	-2595	-3020	-2760	-3024	-3045	-2293	-2245	-1973	-4251	-3989	New York
Exports											Exports
Total	5863	5005	6122	4569	3855	3267	3610	2606	925	1550	Total
New Brunswick	229	330	277	205	42	157	139	6	1	1	New Brunswick
Hydro-Quebec	7	126	609	464	654	705	787	219	57	3	Hydro-Quebec
New York	5627	4548	5236	3901	3159	2405	2683	2380	867	1546	New York

EXHIBIT 7

2010	Year to Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
System Peak Load (MW)		19902	19289	18202	16356	22823	24237	27100	25681	25894	18274	18235	
Generation		19350	18424	16663	16038	21416	23359	26083	23164	23482	17545	17313	
Pumping Load		0	0	0	0	0	0	0	0	0	0	0	
Net Flow Over External Ties		-552	-865	-1539	-318	-1407	-878	-1017	-2517	-2412	-730	-922	
Imports		-1910	-1697	-2154	-1908	-2062	-1913	-1889	-3000	-2880	-1185	-1621	
Exports		1358	832	615	1590	655	1035	872	482	468	455	699	
System Minimum Load (MW)		10682	10626	9354	9155	9350	9787	10229	10298	9478	9324	9946	
Net Energy for Load (GWh)	119169	11569	10143	10351	9373	10173	11230	13386	12258	10675	9949	10063	
Generation	115294	10813	9397	9589	8658	9294	11147	13123	12175	10754	10216	10128	
Pumping Load	1053	195	162	168	123	85	67	66	54	24	39	72	
Net Flow Over External Ties	-4928	-951	-908	-931	-838	-964	-150	-329	-136	56	229	-7	
Imports	-11640	-1485	-1358	-1505	-1347	-1321	-934	-1086	-878	-573	-485	-667	
Exports	6712	534	451	574	509	358	785	757	742	629	714	660	

(Energy/Peak = Generation - Net Flow Over the External Ties - Pumping Load)

2010	Year to Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Total Generation (GWh)	115294	10813	9397	9589	8658	9294	11147	13123	12175	10754	10216	10128	
Coal	12819	1649	1406	1169	1086	992	1191	1634	1370	951	792	580	
Oil	538	10	23	20	3	38	43	181	96	67	25	35	
Gas	38630	3334	2668	2484	2474	3288	3976	4802	4576	3994	3437	3599	
Oil/Gas	14156	1049	874	822	863	1237	1452	2047	1829	1579	1134	1271	
Hydro:Pump Storage	759	135	120	120	89	62	47	49	41	18	26	51	
Hydro:RunRiver&Pondage	6460	700	593	870	906	633	447	322	288	221	715	766	
Nuclear	34939	3296	3087	3454	2650	2407	3345	3430	3314	3316	3454	3186	
Total Renewables	6993	641	627	650	587	638	647	659	661	609	633	641	
Wood/Refuse	3451	360	319	317	307	287	316	338	337	294	284	294	
Refuse	2601	201	230	239	197	266	258	241	254	238	234	243	
Under 5 MW	0	0	0	0	0	0	0	0	0	0	0	0	
Wind	419	34	39	45	36	38	26	29	21	29	66	56	
Solar	1	0	0	0	0	0	0	0	0	0	0	0	
Steam	151	16	14	14	13	13	12	15	15	13	13	13	
Landfill Gas	311	24	19	29	29	30	30	30	29	29	31	31	
Methane/Refuse	34	3	3	3	3	3	3	3	3	3	3	3	
Steam/Refuse	26	2	2	2	2	2	2	3	3	2	3	2	



Docket: DE 10-195
George E. Sansoucy, P.E., LLC
January 2011

Exhibit 9

Laidlaw Berlin Biopower PPA and Market Price Forecast

	A	B	C	D	E	F	G	H	I	J	K	L	M
Row			Total Laidlaw Payment ($/MWH)	Total Forcasted Market Price without Carbon ($/MWH)	Total Forcasted Market Price with Carbon ($/MWH)	Total Laidlaw Energy Price ($/MWH)	Total Market Energy Price without Carbon	Total Market Energy Price with Carbon	Total Laidlaw Capacity Price ($/kw-mo)	Total Market Capacity Price ($/kw-mo)	Laidlaw Capacity Price ($/MWH)	Market Capacity Price ($/MWH)	Laidlaw REC Price ($/MWH)
1	**Year 1**	2014	$ 144.08	$ 116.54	$ 121.37	$ 83.00	$ 57.88	$ 62.71	$ 4.25	$ 3.00	$ 7.28	$ 4.86	$ 53.80
2	**Year 2**	2015	$ 146.96	$ 129.36	$ 149.87	$ 84.53	$ 61.65	$ 82.16	$ 4.25	$ 7.75	$ 7.28	$ 12.56	$ 55.15
3	**Year 3**	2016	$ 149.90	$ 134.80	$ 156.20	$ 86.10	$ 65.31	$ 86.71	$ 4.25	$ 8.00	$ 7.28	$ 12.96	$ 56.53
4	**Year 4**	2017	$ 152.92	$ 142.17	$ 163.36	$ 87.71	$ 69.65	$ 90.84	$ 4.25	$ 9.00	$ 7.28	$ 14.58	$ 57.94
5	**Year 5**	2018	$ 156.02	$ 146.35	$ 171.57	$ 89.35	$ 71.70	$ 96.92	$ 4.25	$ 9.42	$ 7.28	$ 15.26	$ 59.39
6	**Year 6**	2019	$ 155.65	$ 148.98	$ 172.84	$ 91.04	$ 75.71	$ 99.57	$ 4.40	$ 10.00	$ 7.53	$ 16.20	$ 57.07
7	**Year 7**	2020	$ 159.06	$ 141.16	$ 181.78	$ 92.77	$ 66.59	$ 107.21	$ 4.55	$ 9.92	$ 7.79	$ 16.07	$ 58.50
8	**Year 8**	2021	$ 162.55	$ 158.49	$ 183.53	$ 94.55	$ 81.38	$ 106.42	$ 4.70	$ 10.58	$ 8.05	$ 17.15	$ 59.96
9	**Year 9**	2022	$ 166.13	$ 162.20	$ 190.51	$ 96.37	$ 83.19	$ 111.50	$ 4.85	$ 10.83	$ 8.30	$ 17.55	$ 61.46
10	**Year 10**	2023	$ 169.79	$ 167.16	$ 203.43	$ 98.23	$ 86.89	$ 123.16	$ 5.00	$ 10.67	$ 8.56	$ 17.28	$ 62.99
11	**Year 11**	2024	$ 169.22	$ 166.93	$ 204.81	$ 100.14	$ 88.17	$ 126.05	$ 5.15	$ 11.42	$ 8.82	$ 18.50	$ 60.26
12	**Year 12**	2025	$ 172.95	$ 172.60	$ 218.14	$ 102.10	$ 92.06	$ 137.60	$ 5.30	$ 11.58	$ 9.08	$ 18.77	$ 61.77
13	**Year 13**	2026	$ 176.76	$ 178.23	$ 224.93	$ 104.11	$ 96.01	$ 142.71	$ 5.45	$ 11.67	$ 9.33	$ 18.90	$ 63.32
14	**Year 14**	2027	$ 180.65	$ 184.51	$ 234.74	$ 106.15	$ 100.03	$ 150.26	$ 5.60	$ 12.08	$ 9.59	$ 19.58	$ 64.90
15	**Year 15**	2028	$ 184.64	$ 190.27	$ 243.95	$ 108.27	$ 103.77	$ 157.45	$ 5.75	$ 12.33	$ 9.85	$ 19.98	$ 66.52
16	**Year 16**	2029	$ 169.24	$ 178.35	$ 238.63	$ 110.44	$ 109.40	$ 169.68	$ 5.90	$ 12.50	$ 10.10	$ 20.25	$ 48.70
17	**Year 17**	2030	$ 172.93	$ 185.07	$ 249.25	$ 112.65	$ 114.09	$ 178.27	$ 6.05	$ 13.00	$ 10.36	$ 21.06	$ 49.92
18	**Year 18**	2031	$ 176.71	$ 190.74	$ 259.13	$ 114.92	$ 117.83	$ 186.22	$ 6.20	$ 13.42	$ 10.62	$ 21.74	$ 51.17
19	**Year 19**	2032	$ 180.57	$ 197.78	$ 277.68	$ 117.25	$ 124.40	$ 204.30	$ 6.35	$ 12.92	$ 10.87	$ 20.93	$ 52.45
20	**Year 20**	2033	$ 184.53	$ 205.46	$ 292.99	$ 119.64	$ 130.91	$ 218.44	$ 6.50	$ 12.83	$ 11.13	$ 20.79	$ 53.76
21													
22	**Notes:**	1) Assumes biomass fuel price of $34/ton in 2014, escalating at 2.5% annually											
23		2) Capacity payment ($/MWH) assumes a facility capacity factor of 80%											
24		3) REC prices assume the 2010 ACP price escalates at 2.5% annually											
25		4) Energy price is exclusive of the PPA "Cumulative Reduction" provision											

Exhibit 10

Gross Operating Revenue by Energy Pricing Scenario and Long Term Savings

A	B	C	D	E	F
Year	Base Case	Energy @ Ventyx Fall 2009	Capacity @ Ventyx Fall 2010	Combined Ventyx Energy & Capacity	Variance Between Base Case & Combined Ventyx Energy & Capacity (B minus E)
2014	$62,038	$55,331	$61,168	$54,461	$7,577
2015	$63,281	$57,140	$65,717	$59,576	$3,705
2016	$64,555	$59,744	$67,165	$62,354	$2,201
2017	$65,860	$62,694	$69,166	$66,000	($140)
2018	$67,194	$65,695	$70,790	$69,291	($2,097)
2019	$67,026	$66,910	$70,924	$70,807	($3,781)
2020	$68,495	$69,834	$72,231	$73,569	($5,074)
2021	$69,999	$72,513	$74,094	$76,607	($6,608)
2022	$71,537	$75,472	$75,702	$79,636	($8,099)
2023	$73,106	$79,890	$77,050	$83,834	($10,729)
2024	$72,856	$83,493	$77,218	$87,855	($14,999)
2025	$74,459	$88,253	$78,832	$92,626	($18,167)
2026	$76,101	$92,425	$80,428	$96,752	($20,651)
2027	$77,773	$95,799	$82,285	$100,312	($22,539)
2028	$79,488	$99,341	$84,070	$103,923	($24,435)
2029	$72,834	$97,023	$77,427	$101,616	($28,783)
2030	$74,420	$102,063	$79,257	$106,901	($32,481)
2031	$76,044	$104,137	$81,067	$109,160	($33,116)
2032	$77,708	$108,720	$82,278	$113,290	($35,583)
2033	$79,410	$112,940	$83,818	$117,348	($37,938)
Totals	**1,434,184**	**1,649,418**	**1,510,686**	**1,725,920**	**($291,736)**

Laidlaw Berlin Biopower PPA and Market Price Forecast

	A	B	C	D	E	F	G	H
Row			Total Laidlaw Payment ($/MWH)	Total Forcasted Market Price without Carbon ($/MWH)	Total Forcasted Market Price with Carbon ($/MWH)	(C x 500,000)	(D x 500,000)	(E x 500,000)
1	**Year 1**	2014	$ 144.08	$ 116.54	$ 121.37	$72,040,000	$58,270,000	$60,685,000
2	**Year 2**	2015	$ 146.96	$ 129.36	$ 149.87	$73,480,000	$64,677,500	$74,932,500
3	**Year 3**	2016	$ 149.90	$ 134.80	$ 156.20	$74,950,000	$67,400,000	$78,100,000
4	**Year 4**	2017	$ 152.92	$ 142.17	$ 163.36	$76,460,000	$71,085,000	$81,680,000
5	**Year 5**	2018	$ 156.02	$ 146.35	$ 171.57	$78,010,000	$73,172,500	$85,782,500
6	**Year 6**	2019	$ 155.65	$ 148.98	$ 172.84	$77,825,000	$74,490,000	$86,420,000
7	**Year 7**	2020	$ 159.06	$ 141.16	$ 181.78	$79,530,000	$70,577,500	$90,887,500
8	**Year 8**	2021	$ 162.55	$ 158.49	$ 183.53	$81,275,000	$79,242,500	$91,762,500
9	**Year 9**	2022	$ 166.13	$ 162.20	$ 190.51	$83,065,000	$81,100,000	$95,255,000
10	**Year 10**	2023	$ 169.79	$ 167.16	$ 203.43	$84,895,000	$83,580,000	$101,715,000
11	**Year 11**	2024	$ 169.22	$ 166.93	$ 204.81	$84,610,000	$83,462,500	$102,402,500
12	**Year 12**	2025	$ 172.95	$ 172.60	$ 218.14	$86,475,000	$86,297,500	$109,067,500
13	**Year 13**	2026	$ 176.76	$ 178.23	$ 224.93	$88,380,000	$89,115,000	$112,465,000
14	**Year 14**	2027	$ 180.65	$ 184.51	$ 234.74	$90,325,000	$92,252,500	$117,367,500
15	**Year 15**	2028	$ 184.64	$ 190.27	$ 243.95	$92,320,000	$95,135,000	$121,975,000
16	**Year 16**	2029	$ 169.24	$ 178.35	$ 238.63	$84,620,000	$89,175,000	$119,315,000
17	**Year 17**	2030	$ 172.93	$ 185.07	$ 249.25	$86,465,000	$92,535,000	$124,625,000
18	**Year 18**	2031	$ 176.71	$ 190.74	$ 259.13	$88,355,000	$95,367,500	$129,562,500
19	**Year 19**	2032	$ 180.57	$ 197.78	$ 277.68	$90,285,000	$98,887,500	$138,837,500
20	**Year 20**	2033	$ 184.53	$ 205.46	$ 292.99	$92,265,000	$102,730,000	$146,495,000
21	**Total**					**$1,665,630,000**	**$1,648,552,500**	**$2,069,332,500**
22	**Notes:**	1) Assumes biomass fuel price of $34/ton in 2014, escalating at 2.5% annually						
23		2) Capacity payment ($/MWH) assumes a facility capacity factor of 80%						
24		3) REC prices assume the 2010 ACP price escalates at 2.5% annually						
25		4) Energy price is exclusive of the PPA "Cumulative Reduction" provision						