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BEFORE THE STATE OF WASHINGTON  
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 2002-01

**EXHIBIT 29.0 (JWL-T)**

BP WEST COAST PRODUCTS, LLC

BP CHERRY POINT COGENERATION  
PROJECT

**APPLICANT'S PREFILED DIRECT TESTIMONY**

**JAMES W. LITCHFIELD**

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

A. My name is James W. Litchfield. My address is 101 S.W. Main Street, Suite 900,  
Portland Oregon 97204.

1 **Q. What topics will you address in your testimony?**

2  
3 A. My testimony will discuss:

- 4 1. My background and experience;
- 5 2. The regional power market.
- 6 3. The regional demand for and supply of electricity.
- 7 4. The advantages of additional generating capacity.
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15 **Background & Experience**

16 **Q. What is your occupation?**

17 A. I am the president of Litchfield Consulting Group, which provides consulting

18 services concerning energy and salmon recovery issues. My clients include public

19 and private utilities, independent power producers, industrial customers, regulatory

20 agencies, and regional planning commissions. My professional focus is on assisting

21 the electric power industry with strategic planning, selection of power supply

22 resources and negotiating power contracts.

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33 **Q. Please describe your background and experience?**

34 A. Before forming the Litchfield Consulting Group, I was the Director of Power

35 Planning for the Northwest Power Planning Council (now called the Northwest

36 Power and Conservation Council) from 1981 until January 1992. Before joining the

37 Northwest Power Planning Council, from 1973 to 1981, I was involved in national

38 and regional energy planning and research at Battelle Northwest.

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1 I have a Masters degree in Management from the Massachusetts Institute of  
2 Technology (MIT), and a B.S. degree in Civil Engineering from the University of  
3 Washington. A copy of my curriculum vitae is provided as **Exhibit 29.1** (JWL-1).  
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9 **Q. Have you presented expert testimony before?**

10 A. Yes. I have presented expert testimony to EFSEC regarding power supply and  
11 power marketing issues on several occasions. I have also testified as an expert in a  
12 power plant siting proceeding in Great Britain, in Federal Energy Regulatory  
13 Commission's review of the Western energy crisis, and in proceedings before the  
14 National Energy Board in Canada and the Northwest Power Planning Council.  
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### 23 Regional Power Market

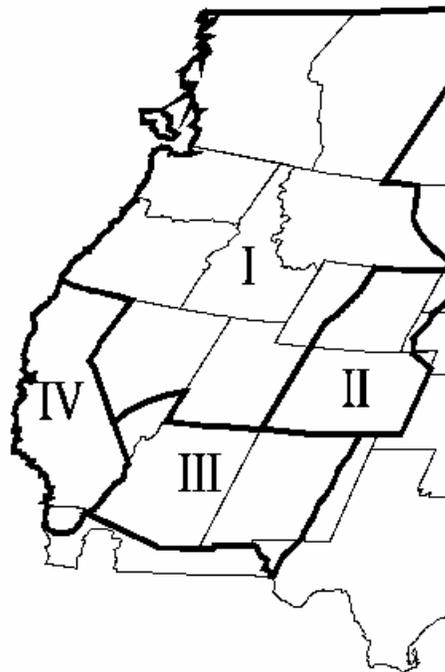
24 **Q. Can you generally describe the regional power market?**

25 A. The western part of the United States and portions of western Canada have a  
26 synchronous interconnected transmission grid that allows electricity generated in one  
27 area to be transmitted and delivered to other locations on the grid. The Western  
28 Electricity Coordinating Council (WECC) coordinates the power system throughout  
29 14 western states, 2 Canadian provinces and parts of Mexico.  
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38 Figure 1 below is a map of the area that is planned and overseen by the WECC.  
39 Within the area shown on this map, all major electric generation is interconnected  
40 with all of the electric loads through high voltage transmission lines. The WECC is  
41 called a synchronous electric power grid because all generators in the area are  
42 operating at the same frequency. The WECC is comprised of four power pools that  
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1 are shown on this map by the areas outlined in bold. The power pools provide more  
2 detailed coordination of power operations and transmission system reliability. There  
3 can be a series of wheeling fees charged to transmit power from one power pool to  
4 another within the WECC. The area labeled "I" in Figure 1 is the Northwest Power  
5 Pool. It includes the western Provinces of British Columbia and Alberta and the  
6 States of Washington, Oregon, Idaho, Utah and portions of Montana, Nevada and  
7 Wyoming.  
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**Figure 1 - WECC Interconnected Power System**



A shortage of electric power in any portion of the WECC region can affect the reliability of the entire interconnected system. There have been instances where

1 generation or transmission problems in the Pacific Northwest have caused system  
2 disturbances that precipitated blackouts extending as far as Texas and Mexico. This  
3 means that the reliability of the power system in the Pacific Northwest is directly  
4 related to the reliability of the entire WECC system.  
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10 **Q. Can you describe in a general way the types of generating resources that serve**  
11 **the region?**  
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14 A. The Pacific Northwest region is dominated by a large hydropower system. This  
15 system is owned and operated by both federal agencies and public and private  
16 utilities and represents 70.3 percent of the region's generation capability. Coal fired  
17 resources represent 14.7 percent of the region's generation with most of this located  
18 near coal fields in Montana and Wyoming. The region's coal fired resources are  
19 heavily dependent on long distance high voltage transmission to move their  
20 generation from the eastern power plants to loads that are primarily in western  
21 Washington and Oregon along the I-5 corridor. Natural gas-fired resources are the  
22 third largest component of the region's generation portfolio, and make up 9% of the  
23 region's generation. This segment has been growing due to improvements in  
24 combined cycle generation technology and the relative flexibility and economics of  
25 these power plants. Nuclear makes up 2.5% of the region's generation and consists  
26 of one operating power plant near Richland, Washington.  
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1 **Q. Within the regional competitive power market, how are decisions made about**  
2 **which generating resources will operate at any given time?**  
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5 A. The physical laws that govern electricity require the supply of electricity to precisely  
6 equal the demand (or “load”) for electricity at all times. This means that, at any  
7 given moment, if there is more demand for electricity than can be met by the  
8 available supply, either some electricity users would have to curtail their use of  
9 electricity, or the electric system would crash, as it did in the Northeast of the United  
10 States earlier this year. The converse is also true. If loads are lower than the  
11 available generation, some of the generating resources could not operate.  
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21 Economic efficiency determines which generating resources will operate at times  
22 when all of them are not needed. Resources compete in the market to supply power,  
23 and the resources that operate, or are "dispatched," are those that can provide the  
24 power at the lowest cost. For the most part, the question of which power plants will  
25 operate is driven by the economic operating characteristics of each power plant.  
26  
27 Variable operating costs do not include the fixed costs such as the plant’s capital  
28 costs. The reason variable costs are the major consideration is because the fixed  
29 costs do not change whether the plant operates or not. As long as a power plant's  
30 owner can sell power for more than the variable operating costs, it is in the owner's  
31 interest to do so. As a practical matter, if we are comparing the dispatch of several  
32 facilities that all use the same fuel, the more efficient the facility, the lower its  
33 variable cost of producing electricity and this will cause it to be dispatched more of  
34 the time.  
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1 Think of the dispatch order as a stack of cards. Each card represents a different  
2 power plant and the cards are stacked in order of the variable cost at which they  
3 produce power. The cheapest power is at the top, the most expensive at the bottom.  
4  
5 To meet demand at any particular time, cards – or power plants – are dealt – or  
6  
7 dispatched – off the top of the deck until demand is met. The cards – or power  
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9 plants – that aren't dealt, do not operate.  
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14 Now, I said that the efficiency of each power plant generally determines its dispatch.  
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16 I want to point out a couple of exceptions to that rule. First, in some instances,  
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18 transmission constraints might physically limit the amount of power that can be  
19  
20 transmitted from one area to another. Likewise, the cost of transmission may affect  
21  
22 the dispatch order of facilities. Second, regulatory requirements restricting the  
23  
24 operation of the power plant will affect dispatch. For example, if there are  
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26 environmental conditions that limit the operation of a particular type of resource in a  
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28 particular area, that would affect dispatch. As a general matter, however, the  
29  
30 Northwest power market, and all other regional power markets, operates on the  
31  
32 principle of economic dispatch.  
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37 **Q. I've heard "economic dispatch" described as merely a "theory," implying that**  
38  
39 **power plants do not really operate that way. How do you respond to such**  
40  
41 **claims?**

42  
43 A. The economic dispatch of power plants is far more than a “theory” brought to the  
44  
45 power industry from an economics classroom. There are substantial costs involved  
46  
47 in operating thermal power plants. These costs must be compensated by the prices

1 that the generators are paid for their power. If the power plant is selling its output  
2 into a competitive wholesale power market, the decision to operate or not has to be  
3 made by the owners of each plant. If the market price for power is greater than the  
4 variable costs of operating the power plant, then the owner would want to operate the  
5 plant to earn the margin above the variable cost. If the price for power is lower than  
6 the variable cost, the owner would not want to operate it at a loss. In this way, the  
7 economic dispatch decisions occur at the individual plant level and do not rely on  
8 any centralized decisions making authority.  
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19 **Q. Do long-term contracts affect how economic dispatch works?**

20 A. Not really. If two parties have a long-term contract to buy and sell power, it is in the  
21 generator's interest to operate its power plant when its variable costs are lower than  
22 the competitive market price. This is just as it is if the power plant did not have a  
23 long-term contract. However, if its variable costs are higher than the market price  
24 for power, it is in the generator's interest to shutdown the plant and purchase cheaper  
25 power at the prevailing market price to fulfill the requirements of the long-term  
26 contract. In this way, the generator continues to make its economic dispatch  
27 decisions based on the competitive market price without regard to the prices in the  
28 long-term power sales contract.  
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40 **Q. What does the dispatch order generally look like in this region?**

41 A. The region's power system is dominated by hydropower generation. Hydro is a very  
42 unique resource because of its technical and economic characteristics. The technical  
43 aspects of hydro generation that is most important is its tremendous short-term  
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1 flexibility to meet instantaneous changes in load by changing the amount of water  
2 drafted from behind the dams. This makes hydro perfectly suited to follow loads on  
3 a daily basis. However, this flexibility is not without limits because the “fuel” for  
4 hydropower is water and there is only the amount of water that nature provides and  
5 that can be stored behind the dams. The economic characteristics of hydropower are  
6 that the dams are very capital intensive with the operations and maintenance costs  
7 much lower than for thermal power plants and their fuel is free. The combination of  
8 technical and economic characteristics makes hydropower perfectly suited to meet  
9 daily load shapes so long as other resources can provide some of the energy needed  
10 to meet load. This means that hydropower is dispatched to meet load and that other  
11 resources must be used to make sure that the hydropower system does not run out of  
12 water.  
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26 Thermal resources are dispatched based primarily on their variable operating costs,  
27 as I have discussed previously. The lowest variable cost thermal resources are  
28 usually nuclear and coal-fired power plants. Nuclear has low variable costs because  
29 the power plants must be refueled on a set schedule and fuel not burned will need to  
30 be discharged to make room for new fuel elements. Coal-fired power plants can  
31 have a range of fuel costs, with mine mouth coal usually having the lowest variable  
32 operating costs. For these reasons, coal and nuclear power plants are usually  
33 dispatched to operate in what is called “base-load”. This means that they operate flat  
34 out for long periods. This provides much of the energy needed to meet the loads that  
35 hydropower could not meet without draining the storage reservoirs. Combined-cycle  
36 combustion turbines (CCCTs) are the most efficient power plants in the power  
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1 system. However, because they are fueled primarily with natural gas, they are  
2 subject to the fluctuations in the market price for gas and this makes their variable  
3 costs more uncertain. During periods of low gas prices, CCCTs can compete with  
4 the least efficient and most expensive coal plants. When gas prices are high the  
5 increased efficiency of CCCTs over single cycle combustion turbines makes them  
6 more economic to operate. During high demand periods, it is necessary to operate  
7 the least efficient power plants in the system, single cycle combustion turbines.  
8 These plants are among the cheapest to build but they are among the most inefficient  
9 plants with respect to their fuel consumption. This makes them have high variable  
10 costs of operation, which means that they are usually displaced and only operated  
11 during periods of extreme demands for power. During low demand periods, all of  
12 the demand may be met by the hydro and nuclear power. During very high demand  
13 periods, everything is operating and power is being imported from other regions.  
14 When loads are in between these extremes, the more expensive resources are not  
15 operated in favor of meeting loads with the lowest cost resources available.  
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33 **Q. How would you expect the BP Cogeneration Project to fit in this dispatch**  
34 **order?**

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37 A. The proposed Cogeneration Plant is a gas-fired facility that will use the best  
38 available combined-cycle combustion turbine technology. This technology is highly  
39 efficient, and is made even more efficient by the cogeneration aspects of the project.  
40 Based on its fuel efficiency, it is likely that the plant will be more competitive than  
41 other thermal power plants in the region. In the vernacular of the industry, I would  
42 expect this plant to be base-loaded. This means that it will operate at capacity  
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1 factors very close to its full availability (the maximum time it's capable of operating  
2 each year).  
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6 **Electricity Demand and Supply**  
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9 **Q. What are main sources of information you would consult to assess the demand  
10 and supply of electricity in the region?**

11  
12 A. In the Pacific Northwest, three entities – the Bonneville Power Administration  
13 (“BPA”), the Pacific Northwest Utilities Conference Committee (“PNUCC”) and the  
14 Northwest Power and Conservation Council (“NPCC”) - produce detailed studies  
15 that forecast future loads and provide resource data on available generation. These  
16 studies provide estimates of the need for new electric power generating resources in  
17 the Pacific Northwest to maintain adequate levels of system reliability.  
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27 **Q. What is the current and projected demand for electricity in the Northwest?**

28 A. The regional demand for electricity varies from year to year, season to season, month  
29 to month, day to day, and even minute to minute. For purposes of regional power  
30 planning, we sometimes talk about peak electricity demand because utilities have an  
31 “obligation to serve” and, therefore, must have the ability to obtain resources to meet  
32 even the highest demands or they will have to curtail electricity supplies to some  
33 customers. At other times, we talk about total amount of electricity consumed in a  
34 year, and we use the unit of average megawatts (MWa). 1 MWa is equal to the  
35 electricity produced by generating 1 MW continuously for 1 year.  
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1 BPA and PNUCC each use slightly different methodologies for estimating and  
2 forecasting the regional electricity demand, and their forecasts differ as a result.  
3  
4 BPA reports a regional electric load of 24,411 MWa for 2003, growing to 26,687  
5  
6 MWa in 2011. PNUCC reports a regional electric load of 22,911 MWa for the  
7  
8 2003/04 operating year, growing to 23,750 MWa for the 2007/08 operating year.  
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12 Population growth, economic growth and the increasing electrical intensity of  
13 personal and industrial activities are key factors in growing electrical demand.  
14  
15 Between 1980 and 2000, electrical demand in the region grew at an average rate of  
16  
17 1.2% per year. The economic recession of 2002-03 and the curtailment of operations  
18  
19 at most aluminum smelters in the region resulted in a sharp drop in electrical demand  
20  
21 in 2002-03. As economic activities resume and population growth continues in the  
22  
23 region, electric demand is expected by the NPCC to continue to grow at  
24  
25 approximately 330 MWa per year from 2003 through 2025. This is an annual rate of  
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27 1.5% per year.  
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32 Right now the region's economy is in a severe downturn. Both PNUCC and the  
33  
34 NPCC are estimating that the current electrical demand is significantly down from  
35  
36 that expected during normal economic conditions. However, both PNUCC and the  
37  
38 NPCC forecast that the regional economy will return to more normal levels of  
39  
40 activity over the next several years. When the economy resumes more normal levels  
41  
42 of growth, the demand for electricity will return to the levels predicted before the  
43  
44 energy crisis and economic slowdown occurred. The exact timing of the resurgence  
45  
46 of economic activity is not known with precision, but the NPCC is now predicting  
47

1 that under their “medium” load forecast the loads will grow at 330 MWa per year  
2 between 2003 and 2025.  
3

4 **Q. Are there currently sufficient regional resources to meet that existing regional**  
5 **demand for electricity?**  
6

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9 A. Both BPA and PNUCC project current and future deficits in regional electrical  
10 supply. BPA's most recent White Book reports a regional deficit of 4,171 MWa for  
11 2003, growing to 7,124 MWa in 2011. PNUCC's most recent forecast reports a  
12 deficit of 2,065 MWa for 2003-04, growing to 2,908 MWa in 2007-08. Again, these  
13 forecasts use slightly different methodologies, and make different assumptions about  
14 hydro power supplies and new generation coming on line. The projected deficits do  
15 not necessarily mean that blackouts will occur, but they do mean it is likely that even  
16 more generation will need to be built than the studies assumed, or regional utilities  
17 will have to hope that some of the planned resources are built or they will have to go  
18 outside the region to purchase power.  
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31 **Q. What are the NPCC’s projections of system reliability?**  
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33 A. The NPCC has historically estimated regional supply/demand balances using  
34 methodologies and assumptions similar to those used by PNUCC and BPA. The  
35 NPCC now uses more complex models to estimate the interaction of loads and  
36 resources under a variety of real world conditions. The NPCC’s analysis provides a  
37 probabilistic assessment of the statistical frequency of failures of the region’s power  
38 system to meet electrical demands. These failure statistics provide estimates of the  
39 probability the region will experience a power condition where loads exceed  
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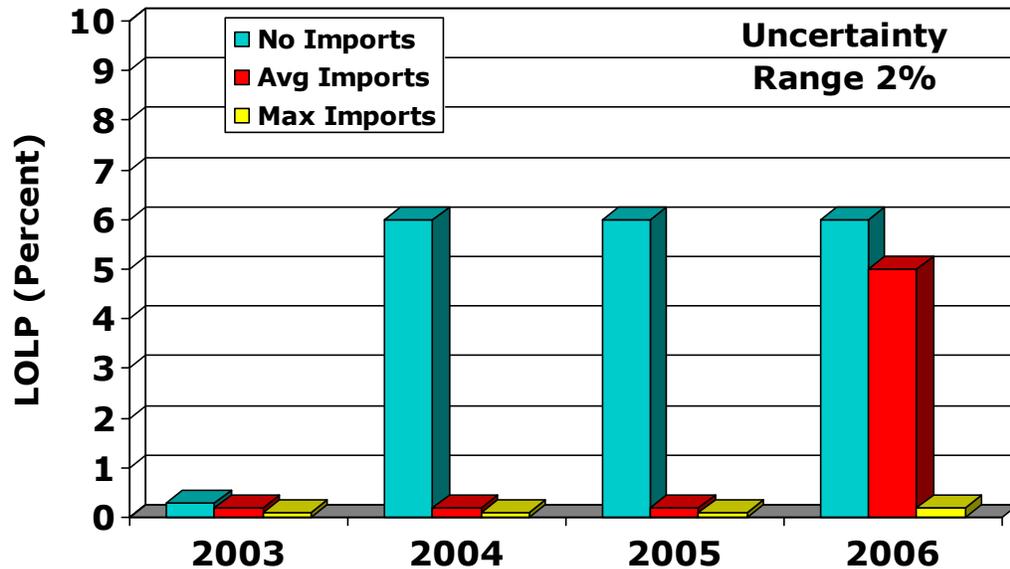
1 available generation. When this occurs in the real world, the utilities must  
2 implement mandatory load reductions or a blackout could occur.  
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5  
6 The Council first conducted quantitative analysis using this new modeling  
7 framework in 1999. At that time, the Council found that there was a 24 percent  
8 probability that the system will be unable to satisfy loads during the winter months.  
9 This was an extremely high probability of a blackout hitting the region, also referred  
10 to as the "loss of load probability" (LOLP). The Council's power system reliability  
11 goal is that the region's power system maintains sufficient generation to insure that  
12 there is no more than a 5 percent LOLP. In its 1999 study, the Council also  
13 estimated that in order to achieve the 5 percent standard, the region would need to  
14 develop approximately 3,000 MW of new power generating capacity. The Council's  
15 projections were prophetic. Beginning in May of 2000 an energy crisis began in  
16 southern California and quickly spread to the entire western United States and  
17 Canada. The primary cause of this crisis was a shortage of available generation to  
18 meet the demand for electric power.  
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34 The Council updated its system reliability studies in January 2003. In this analysis  
35 the Council found that, following the power crisis, there were major corrections in  
36 the power system's loads and available resources. The result was to greatly reduce  
37 the LOLP. The NPPC estimates for 2003 through 2006 are shown in Figure 2.  
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Figure 2 – NPPC Loss of Load Probability, estimated January 14, 2003



The NPPC analysis shows considerably better system reliability than was the case just before the power crisis hit in the summer of 2000. This figure shows that, assuming the region continues to import average or better amounts of power from outside the region, the reliability should continue to be less than the 5 percent LOLP that the NPCC set as the region's goal. However, these studies show that if imports are not available at these levels the LOLP will increase to approximately 6 percent in 2004 through 2006. The NPPC's estimates also include an assumption that 3,800 MW of new power plants will be completed and in-service by 2004.

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**Q. Will additional generating facilities be required to meet projected future demand?**

A. As regional electricity demand increases, more electrical resources will be needed to meet that demand. There is some cost-effective conservation available in the region, but I think all of the energy planners in this region agree that more generating facilities will be needed to meet growing demand. PNUCC, BPA and NPCC all make different assumptions about which of the currently proposed projects will come on line and of those, which ones will be available to meet regional power needs. According to the NPCC, the amount of generation under construction is approximately 1000 MW with a nearly equal amount “suspended” and over 5000 MW “terminated.” Yet a substantial amount of resource remains in uncertain states of “Permitted”, “Permitting Planned” and “Potential.”

One of the key uncertainties for the region is that it is impossible to predict for the new resources that are on the drawing boards how many will be completed and where they will be located. There are many technical, financial, institutional and regulatory hurdles for any major resource that must be successfully addressed. Resource development is a risky business and projects have failed and will continue to fail for a variety of reasons that defy prediction by power planners.

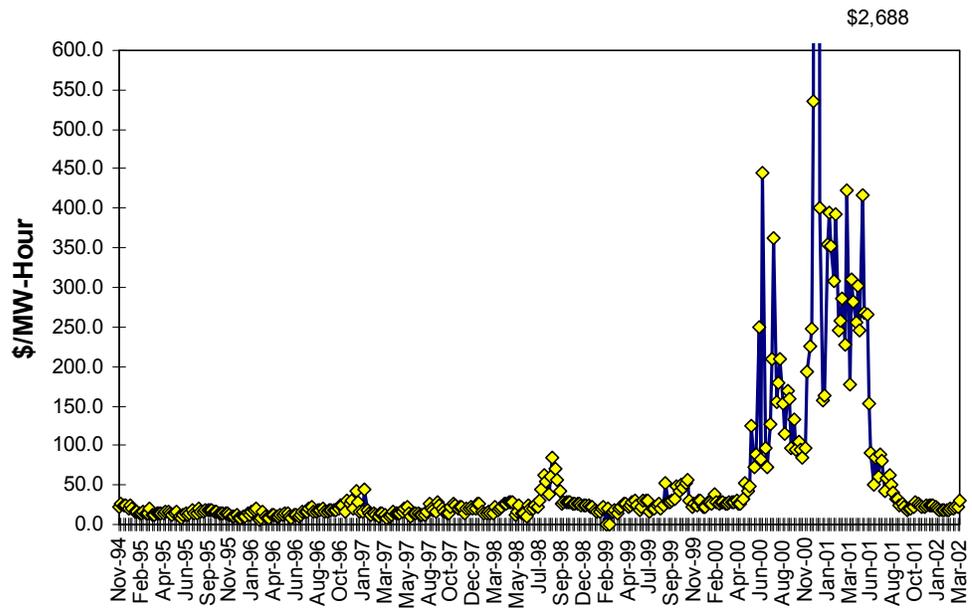
1 **Q. Should we be concerned about these projections for future demand and supply?**

2  
3 A. Yes. The region's economy and electric demand will recover from their currently  
4 depressed levels at some future date. When this happens, it could be with relatively  
5 short notice. This will challenge the electric power industry to have enough resource  
6 available to avoid slipping into another power crisis with the ancillary impacts on  
7 power prices, system reliability and the economy in general. Because new power  
8 plants generally require at least 48 months of lead time for development and  
9 construction, it is important to plan ahead.  
10

11  
12 The BPA, PNUCC and NPCC studies all conclude that unless substantial amounts of  
13 new resources are added in the next 5 to 10 years, the region will risk being  
14 periodically plunged into a shortage of supply. That is what we saw happen in 2001.  
15 Electricity prices went through the roof. (See Figure 3) There were rolling  
16 blackouts in California, and voluntary and involuntary curtailments in Washington.  
17 The hydro system was pressed into service in disregard of limitations ordinarily in  
18 place to protect endangered and threatened salmon, air permit limitations were  
19 waived so that higher-emitting peaking facilities could operate more frequently than  
20 ordinarily allowed, and numerous less efficient temporary generators with few  
21 environmental controls were brought on line.  
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**Figure 3 – Mid-Columbia Power Prices reported by *Clearing Up***



The surest way to address a resurgence of economic growth and its associated electricity demand is to have adequate generation supply that can be constructed and brought online quickly. This was recognized by the NPCC in its very first power plan in 1983. The concept was called resource options by the NPCC and envisioned an inventory of power plants that have been through the necessary siting, licensing and design work, so that they could be completed quickly when economic and power supply conditions warranted. With a number of power plants permitted, it will be possible to bring new power supplies online quickly. This will help to avoid a repeat of the power crisis that gripped the region and stifled the economy. Additional

1 generating capacity would also be able to help reduce the extreme price volatility  
2 seen during the panic buying in the power crisis and they will provide the needed  
3 generation to allow fish protections to continue on the hydropower system.  
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8 **Advantages of Additional Generation**  
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10 **Q. From a regional power supply perspective, would the region benefit from the**  
11 **permitting and construction of the BP Cogeneration Facility?**  
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14 **A.** Yes, the region would benefit in several ways.  
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16 First, additional generating capacity would increase system reliability and help keep  
17 power prices stable. The blackouts and extreme price volatility we saw in 2001 were  
18 a result of having insufficient power generating capacity.  
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24 Second, additional high-efficiency generating capacity will put downward pressure  
25 on prices. High-efficiency gas-fired resources will be able to generate electricity at a  
26 lower price than many existing power plants. In a competitive market, that will put  
27 downward pressure on prices.  
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33 Third, the BP Cogeneration Facility will be better for the environment. New plants,  
34 and especially new cogeneration facilities like the BP Project, will be substantially  
35 more efficient than older power plants that are currently used to meet loads. The BP  
36 Cogeneration Project offers even more environmental advantages than the most  
37 efficient new stand-alone projects, including significant emission reductions at the  
38 BP Refinery. When the BP facility operates, it will be displacing other facilities that  
39 would otherwise be used to generating electricity if the BP facility were not  
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1 constructed. Because these other facilities will likely be less efficient gas and oil  
2 fired facilities, the BP facility will meet the electricity demand while using less  
3 natural gas, and generating fewer emissions of regulated pollutants and greenhouse  
4 gases. By permitting new efficient power plants, EFSEC can reduce the  
5 environmental impacts that are currently being caused by operating older less  
6 efficient and dirtier power plants to meet the electric power needs of Washington  
7 consumers.  
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17 Fourth, added capacity will give the region more flexibility in meeting power  
18 demand. In 2001, we saw the hydro system operated in excess of the limitations  
19 ordinarily applied to protect salmon, and we saw the ordinary rules for air pollution  
20 control waived to produce needed power. By adding an adequate supply of new  
21 high-efficiency generators to our regional power supply mix, the region's energy  
22 policy leaders will maintain the ability to insist on environmental protection rather  
23 than being forced to agree to allow emergency increases in low efficiency, high  
24 emission generation to avert blackouts and the need to waive fish protections to  
25 maximize hydropower generation.  
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37 **Q. Is there any reason to be concerned that more generating facilities might be**  
38 **permitted and built in Washington than we need to meet the state's demand?**  
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40 A. No, not really. The needs of consumers in Washington State require the addition of  
41 new power resources. If too many power plants are developed, the price of power in  
42 the competitive power market will be low and some of the existing power plants will  
43 not operate. If this condition persists, some of the least efficient power plants may  
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1 actually have to go out of business, and loads and resources will return to balance by  
2 preserving the most efficient plants. A surplus of generation will also lead to a  
3 reduction in the market price of power which will provide a lower price for  
4 consumers.  
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10 The transition to privately-financed independent power producers eliminates the  
11 historic concern about over building too many power plants. Unlike in the past,  
12 when the utilities sought recovery of their dry hole risks from ratepayers, today the  
13 development risk is entirely borne by private developers. This is a critical fact that  
14 should reshape how we think of "need." If the risks of a plant not being built or of a  
15 plant going broke are borne entirely by the developer, it seems that it is in  
16 Washington's consumers' interest to have as many plants as possible permitted to  
17 enter construction. Then, when loads are beginning to exceed the amount of  
18 generation available or when new power plants can successfully compete with older  
19 less efficient plants there will be ample supply to meet the region's needs. This will  
20 allow new more efficient power supplies to be added to the market with the  
21 minimum of lead time. The resulting new supply will stabilize prices and provide  
22 power to maintain adequate levels of system reliability.  
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38 **Q. What is your response to the concern expressed by some that Washington will**  
39 **become an "energy farm" for California?**  
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41 **A.** This concern reflects a common misconception that more electricity can be  
42 generated than is currently the demand. In fact, the amount of electricity generated  
43 cannot be greater than the load but with high voltage transmission interconnections  
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1 the load that the region is serving at times includes some of California's loads. The  
2 regional transmission system was developed to allow for the efficient transfer of  
3 electricity between geographical areas because this would lower costs to both  
4 regions while also increasing overall system reliability. While Washington exports  
5 electricity south during the summer, it imports electricity from the south during the  
6 winter. This interstate transmission allows both Washington and California to meet  
7 demand year-round without constructing additional generating facilities that would  
8 be required to be self-sufficient year round. Through interconnection, the overall  
9 system reliability is improved due to the seasonal diversity in loads from north to  
10 south. In this way the industry's reliability standards can be more easily and cheaply  
11 met without having to add additional generation reserve margins in both areas.  
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25 As a general matter, however, I don't believe that Washington will become an  
26 energy farm for California. If a developer wanted to build facility for the purposes  
27 of meeting California load, it would build the facility in California to reduce  
28 transmission costs and avoid transmission constraints. It is generally lower cost to  
29 transport natural gas by pipe than it is to transmit electric power. In addition, the  
30 interties with California are currently limited in size and they are capacity  
31 constrained during most peak use periods in California. This makes it difficult for  
32 new power plants to obtain firm transmission service to California. Without firm  
33 transmission service it is impossible to provide a reliable power supply that would  
34 put Washington in the position of serving as an energy farm.  
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**END OF TESTIMONY**