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2
3 **BEFORE THE STATE OF WASHINGTON**
4 **ENERGY FACILITY SITE EVALUATION COUNCIL**

5
6
7 **IN RE APPLICATION NO. 99.1**

EXHIBIT _____ (DPW-T)

8 **SUMAS ENERGY 2 GENERATION FACILITY**

9
10 **WASHINGTON STATE DEPARTMENT OF COMMUNITY, TRADE, AND ECONOMIC**
11 **DEVELOPMENT**

12 **PREFILED DIRECT TESTIMONY**
13 **OF DAVE WARREN, DIRECTOR, ENERGY DIVISION, OTED**
14

15
16 **Q: Please state your name and address.**

17 A: David P. Warren, 925 Plum St. SE, Bldg. 4, Olympia WA, 98504
18

19 **Q: Please briefly summarize your background and qualifications.**

20 A: I am the Director of the Energy Division of the Washington State Office of Trade and
21 Economic Development. I was formerly the Executive Director of the New Mexico Public
22 Utility Commission where I supervised staff and had final responsibility over the engineering,
23 economics, accounting and legal aspects on all cases that staff presented before the Commission,
24 in addition to being the lead negotiator on many of the more complex cases before the
25 Commission. Prior to my position with the Commission, I was Deputy Staff Director of the NM
26 Legislative Finance Committee overseeing development of budget recommendations to the

1 Legislature of a state budget of over \$6 billion dollars. I served 4 sessions as the Chief Analyst
2 to the NM Senate Conservation Committee, which had jurisdiction over all electricity, land use,
3 environmental, water, oil and gas, mining and other related legislation. One of the higher profile
4 issues that the committee dealt with was the first electric “retail wheeling” bill introduced in any
5 state legislature in the nation in 1993. For almost 7 years I was at the NM Engineering Research
6 Institute at the University of New Mexico as a graduate student, Project Engineer, Project
7 Manager and Principal Investigator providing technical assistance to federal, state and local
8 governments on analyzing, developing and financing environmental infrastructure, energy, and
9 economic development projects. I also provided technical assistance to these same clients on
10 Public Utility Regulatory Practices Act (PURPA), Resource Conservation and Recovery Act
11 (RCRA), Comprehensive Environmental Response Cleanup and Liability Act (CERCLA), NM
12 Solid Waste Act, and NM Tire Recycling Act implementation.

13 I have appeared before the Washington Energy Facilities Site Evaluation Council, the
14 New Mexico Public Utility Commission, the New Mexico Environmental Improvement Board
15 and numerous legislative committees, city councils and county commissions testifying on
16 energy, environmental and economic development issues.

17 I have a B.S. in Civil Engineering (Construction) (1988) and an M.S. in Civil
18 Engineering (Environmental) (1991) from the University of New Mexico. I am a Registered
19 Professional Engineer in the State of New Mexico and am applying for registration in
20 Washington. I have included my CV as Exhibit ___(DPW-1).

21
22 **Q: Please describe the nature of your testimony.**

23 A: First, I will address why, if this facility is recommended for approval by EFSEC, a
24 portion of the capacity and energy should be offered and consigned through a long term Power
25 Purchase Agreement (PPA) to a local or regional purchaser prior to construction. We are
26 concerned that the applicant has not offered any assurances that the power will indeed be

1 available or even offered to anyone other than the highest bidder in the market, while leaving the
2 environmental impacts in Washington.

3 Next, I will describe why the purchaser of a portion of the output should demonstrate
4 consistency with Integrated Resource Planning (IRP), including a public participation provision,
5 or satisfy the requirements themselves. This will enable them to offer the output to a broader
6 cross-section of purchasers while still providing benefits of integrated resource planning and
7 meeting some of the needs of Washington.

8 Third, I will address the need for assurances on the part of the applicant that the site will
9 be restored after the facility has completed its useful life.

10
11 **Q: What is the Energy Division recommending EFSEC require of SE2 to ensure that
12 some of the power is available to benefit the consumers in Washington?**

13 A: As we state below, we believe the EFSEC should require that the applicant, prior to
14 construction, present to the Council a 5 year contract for 60% of the capacity of the facility.

15
16 **Q: Have you reviewed the testimony of Jim Litchfield?**

17 A: Yes, I have.

18
19 **Q: On page 8, Line 1 of his testimony, Mr. Litchfield stated “The Council has further
20 estimated that in order to achieve the 5 percent (loss of load probability) standard, the
21 region would need to develop approximately 3000 MW of new power generating capacity.”**

22 **Do you agree with that statement?**

23 A: No I do not.

24 **Q: Please explain.**

25 A: In the “Northwest Power Supply Adequacy/Reliability Study Phase 1 Report”
26 Exhibit____(DPW-2), on the bottom of Page 3 of the Summary, the report states:

1
2 *in order to meet that standard, we estimate that it would require almost*
3 *3000 MW of new generating **resources** (bold added) by 2003. New*
4 *resources could, however, be some combination of new generating*
5 ***capacity** (bold added) and voluntary load reduction.*

6 ...

7
8 *it seems clear that much of this new capacity will have to be met through*
9 *voluntary load reduction where reducing load makes sense for both the*
10 *end user and the system.*

11 The Northwest Power Planning Council makes it clear that this need can and should be
12 met by a combination of supply and demand side resources. This need is for energy and capacity
13 to address relatively short-lived, infrequent events caused by extreme weather conditions,
14 occasional poor hydro conditions and forced outages on generating plants.

15 Building baseload capacity, such as the one proposed by the applicant, to address the
16 need for power caused by such events would, in all likelihood, be a waste of money. Mr.
17 Litchfield seems to indicate that the Northwest Power Planning Council states that this need has
18 to be met with 3000 MW of new baseload generating capacity, i.e. machines. This misses the
19 main point of the report that both demand and supply resources should be promoted to meet the
20 growing needs of the region and for the benefit of the electric system.

21 **Q: In your opinion, will this facility help meet the state and region's growing electricity**
22 **needs?**

23 A: Not necessarily. In my review of Mr. Litchfield's testimony and the application, I find
24 no guarantee that this facility has any intention of serving the state or region's demand for
25 electricity. Mr. Litchfield states that he does not agree with the claim that the power will be sent
26 to California. Yet he then gives as his only justification that Washington needs the power, and
that the likelihood of electricity shortages occurring in Washington is growing. This is a non
sequitur. The way to insure that the power generated by this facility will address some of the

1 shortage of power in the region is to provide some sort of guarantee as a condition of the SCA to
2 deliver a portion of the output to local purchasers.

3
4 **Q: Do you agree that this facility has guaranteed delivery of or has any incentive to**
5 **deliver power to Washington?**

6 A: No. As a “merchant” plant, this facility will sell its power to maximize its economic
7 return. If that means selling to a higher priced California market that is where the power will be
8 sold. The only way that power will be delivered to Washingtonians, under the current
9 application, is if customers here outbid potential buyers in the California, Oregon, New Mexico
10 or any other market bidding on that power.

11
12 **Q: Do you have any further reason to believe that this power may end up in the**
13 **California market?**

14 A: Yes. A report titled “High Temperature & Electricity Demand, An Assessment of
15 Supply Adequacy in California, Trends and Outlook. A Report of the California Energy
16 Commission Staff, July 1999, Exhibit ___ (DPW__3) addresses possible shortages in California
17 and how those shortages could be addressed:

18
19 On Page 3:

20
21 *In the absence of significant amounts of new generation capacity being*
22 *added in the Southwest, less generation will be available from this region*
23 *for export to California in the coming years. The State will, therefore,*
become increasingly more dependent upon imports from the Northwest to
meet summer peak loads.

24 *The availability of surplus hydro energy from the Northwest will become*
25 *more critical to California being able to reliably meet peak demand in the*
26 *summer until new merchant plants come on line in California “ (or in*
Washington, comment added by the witness).

1 On Page 5:

2
3 *As was noted earlier, the combination of deregulation and thin reserve*
4 *margins throughout the Western Systems Coordinating Council will mean*
5 *a highly competitive market for new generation **regardless of where it is***
6 ***located.***” (Bold added)

7
8 **Q: What is the end result for the consumers of Washington?**

9 A: The end result is that Washington will have to absorb the adverse environmental impacts
10 from the facility, while not having any assurances that the facility’s capacity or energy will meet
11 any of the electricity needs of the state or even the region. If any power from this facility is
12 available to serve Washingtonians under the current EFSEC application, it will only be because
13 Washingtonians have outbid other available customers in the WSCC, leading to higher prices
14 governed in all likelihood by increasing California market prices.

15 **Q: Is there any indication that this increasing price phenomenon is happening now?**

16 A: Yes there is.

17
18 **Q: Please explain.**

19 A: On June 5, 2000, Vanalco announced, Exhibit ____ (DPW__4) the closing of four of five
20 potlines at their Vancouver, Washington Primary aluminum plant because “current high
21 electricity power prices make it uneconomical to operate at full capacity.” Vanalco Vice
22 President Chuck Reali attributed the current high rise to a number of factors,” including “more
23 and more of the electricity produced in the Northwest is being sold into California and indirectly
24 into the Southwest, **so much so that Northwest prices have begun to mirror high California**
25 **prices;**” (bold added)... “[T]he closure will put approximately 450 employees [temporarily] out
26 of work.”

1 In addition, according to Exhibit ____ (DPW 5), on June 14, 2000, Kaiser Aluminum
2 announced a temporary curtailment of 128,000 metric tons of primary aluminum capacity at its
3 Tacoma and Mead Washington smelters “due” to unprecedented high market prices for
4 electricity in the region, affecting “about 400 hourly employees at the two facilities”. “As a
5 result of the curtailment, Kaiser avoids the current high cost of purchasing market power and, in
6 addition, has sold back to the market 100 MW of non-federal power that it has under
7 contract...”.

8 High market prices due to competition with the California and western market have led to
9 a (hopefully) temporary loss of more than 800 jobs here in Washington.

10
11 **Q: Is there a remedy that you recommend the EFSEC undertake to mitigate this price**
12 **risk of Washingtonians having to compete against high California market prices in this**
13 **proceeding?**

14 A: Yes, there is.

15
16 **Q: Please explain.**

17 A: The EFSEC should include the need provision in this SCA that they have included in the
18 Chehalis and Satsop SCAs and that they have included in principle in the Cowlitz SCA.

19
20 From Exhibit ____ (TJU 10) we would recommend the exact language on need that is contained
21 in the Chehalis SCA

22
23 *Need. Prior to beginning each generating unit of SE2, NESCO will enter*
24 *one or more power purchase agreements that provide in the aggregate for*
25 *the purchase and sale of at least 60% of the design capacity of that unit or*
26 *units. Any such power purchase agreement shall have a term of at least*
five (5) years.

1 Having this Power Purchase Agreement will ensure that at least some portion of the power
2 serves consumers of the region for the next 5 years, since the California market is primarily a
3 liquid market. In addition, this requirement constitutes only 10% of the total capacity of the
4 facility over a 30 year life, leaving 40% of the capacity to compete on the open market for the
5 first 5 years, and 100% of the capacity to compete on the open market for the remaining life of
6 the facility.

7
8 **Q: Is anyone in the region looking for long term power contracts?**

9 A: According to Exhibit ____ (DPW 6) in a story from the Wall Street Journal/Northwest
10 dated 3/22/00 about Bonneville Power offering 10 year contracts, on page 2, the story states:

11
12 BPA officials won't say exactly how much 10-year power they are thinking of offering to
13 public utilities. They confirm only that they have received longer contract requests for
14 2700 MW.

15 **Integrated Resource Planning**

16
17 **Q: What is Integrated Resource Planning?**

18 A: I can best describe it as it is defined in the federal Energy Policy Act of 1992, Exhibit
19 ____(DPW 7):

20 The term 'integrated resource planning' means . . . a planning and selection
21 process for new energy resources that evaluates the full range of alternatives,
22 including new generating capacity, power purchases, energy conservation and
23 efficiency, cogeneration, and district heating and cooling applications, and
24 renewable energy resources, in order to provide adequate and reliable service . . .
25 at the lowest system cost . . . and shall treat demand and supply resources on a
26 consistent and integrated basis.

27 The term 'system cost' means all direct and quantifiable net costs for an energy resource .
28 . .including . . . environmental compliance cost.

1 **Q: Is energy conservation and efficiency as used in IRP an environmentally and**
2 **economically effective method to meet demand for electricity?**

3 A: Yes it is. It is the most environmentally effective resource for meeting both existing
4 demand for electricity and future potential load growth because it reduces consumption of
5 electricity, thus ensuring that no generator is dispatched, or turned on, to meet that need. If the
6 generator that would have otherwise met that need was a thermal plant, then emissions
7 attributable to meeting that load, including NOx, CO2, possibly SOx have been reduced to zero.
8 If it is load growth, then meeting that load growth through conservation avoid having to build the
9 next generator.

10 It is, in many cases it is by far the most economically efficient way of meeting load as
11 well. The Draft Fourth Northwest Conservation and Electric Power Plan, adopted on March 13,
12 1996, Chapter 1, Page 1-6 [Exhibit __ (TJU__8)] states:

13
14 An objective of the Northwest Power Act is “to achieve cost-effective energy
15 conservation.” Despite the region’s success in conservation, significant cost-effective
16 energy savings remain. The Plan identifies 1,535 average megawatts of electricity
17 savings that could be obtained over the next twenty years at a levelized cost of 1.7 cents
per kilowatt-hour. These savings are equivalent to the electricity generated by seven
typical combustion-turbine power plants (or about 2 and ½ plants the size of SE2), and
on average, they cost about two-thirds as much.

18 If this conservation is developed, the region’s consumers would save \$2.3 billion
19 on their future electricity bills. Consumers on their own will make some of the efficiency
20 improvements identified in this plan. The regions utilities have indicated they will secure
21 more. Together, consumers and utilities in the region will probably capture about a third
22 of the available and cost-effective savings over the next twenty years. **But, unless the
remaining two-thirds of the savings are secured, the region will pay \$1.7 billion
more in power system needs and natural resource impacts than it need to.** (Bold
added)

23 It would be against the public health, safety and welfare, both economically and
24 environmentally, to not encourage energy conservation, by all means available, as an equal
25 partner, at a minimum, in meeting new load growth for the region.
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Renewable Energy Resources

Q: Would you define renewable energy?

A: I would define renewable energy as energy derived from a non-emitting resource exclusive of nuclear energy, or a resource that emits only recycled carbon. Non-emitting resources would include wind energy, solar photovoltaic and solar thermal energy, geothermal, or fuel cells that derive their hydrogen fuel from non-fossil fuel sources.

Examples of resources that emit only recycled carbon include landfill gas and biomass. These resources are derived from original sources such as wood or garbage that have sequestered carbon from the atmosphere in a short-term cycle. The carbon is then re-emitted to the atmosphere when the resource is utilized to produce energy. In addition, landfill gas is methane generated by the anaerobic decomposition of carbon (organic) products in the waste stream. When the methane is combusted, the by-product is carbon dioxide, which has approximately 5% of the global warming potential of methane; thus the methane is converted to a more environmentally friendly emission while producing energy.

Q: So you are stating that renewable energy is an environmentally “friendly” energy resource relative to a fossil fuel-fired thermal resource?

A: Yes, I am. All of the renewable energy resources defined above emit less CO₂, CO, NO_x, possibly SO_x, mercury, and particulates than the alternative gas, coal, or oil fired generation.

Q: To your knowledge does the public generally favor the development of renewable energy resources?

1 A: Yes, they do. There are multiple polls from around the country that demonstrate the
2 public's support for developing renewable energy resources. From "Wind Energy Weekly, May
3 18, 1998 in an article titled "National Poll Again Finds Renewables Support Strong" Exhibit __
4 (DPW__8):

5
6 For the fourth consecutive year, a national opinion poll commissioned by the Sustainable
7 Energy Coalition has found strong public backing for renewable energy and energy
8 efficiency, as opposed to fossil and nuclear technologies.

9 Respondents in this year's survey not only expressed their support for federal renewable
10 energy and energy efficiency research funding, they endorsed the idea that such funding
11 should be increased immediately to reduce the emission of heat-trapping greenhouse
12 gases.

13 [A] majority of all voters (60%) and nearly three-quarters of those expressing a
14 preference (72%) would give the highest priority in energy research funding to
15 renewables and efficiency.

16 [S]upport for renewables and efficiency cuts across party lines, it noted, with 72% of
17 Republicans, 71% of Democrats, and 76% of Independents selecting those technologies
18 as their highest priorities.

19 And from the executive summary of a market research report titled "Public Service
20 Company of New Mexico and New Mexico Public Utility Commission, Renewable Energy
21 Focus Groups and Deliberated Poll, Moderators Report, June 8, 1998, Exhibit (DPW__9).

22 The 'big question' in these groups was about choosing between paying a voluntary or an
23 involuntary green energy fee. Majority of participants supported the idea of an
24 involuntary fee because they believe it's a worthwhile project and that a voluntary system
25 would not raise enough money.

26 And, by a margin of **4-to-1** (bold added), participants supported the idea of a green
energy surcharge of \$1.40 (average) on electric bills.

These focus groups were convened by an independent market research group on behalf of
a local utility and the NMPUC staff in New Mexico as part of a process to determine whether the

1 public would support adding solar or other renewable energy to the utility’s generating portfolio
2 and at what cost to the ratepayer.

3 And finally, from the Texas Public Utility Commission, in a report titled “1999 Report to
4 the 76th Texas Legislature, Statewide Integrated Resource Plan (SIRP), Executive Summary,
5 page 2 “public Participation” Exhibit (DPW___10)

6 Electric Utilities must begin the IRP process with a public consultation event and
7 demonstrate that the views and preferences of the customers were considered in
8 preparing the IRP. **Public input in the resource planning process has yielded
9 consistent results throughout the State. Customers in every Deliberative Poll TM
10 have shown an overwhelming preference for clean energy, i.e. energy derived from
11 renewable energy technologies and energy conservation products and services,** (bold
12 added) ranking fossil-generated energy and power purchases much lower generation
13 options.

11 Energy efficiency – 55 to 86%
12 Renewable resources – 54 to 85%
13 Fossil fueled generation – 15 to 55%

14
15 **Q: Are there other benefits to developing renewable energy as a portion of the energy
16 portfolio serving the Washington consumer?**
17

18 A: Yes there are. Developing a diversity of energy resources, including renewable energy
19 and energy conservation along with thermal facilities will mitigate against price risk to the
20 consumer that would otherwise be present if we “put all of our eggs in one basket” such as
21 meeting all of our load growth needs with gas- fired combustion turbines.
22

23 The price of gas at Sumas, on the Canadian border, which is the source for most of the
24 gas that serves Washington, has escalated steadily over the past 5 years. Douglas Whisenant,
25 Senior Vice President and General Manager of Williams Gas Pipeline-West, in a presentation to
26 Ziff Energy Group’s Pacific Northwest Gas Strategies Conference on Monday June 5th, 2000,

1 presented a table, Exhibit ____ (DPW____11) on gas prices at Sumas over the previous 5 years.
2 Each year since 1995, gas prices have risen 43.3%, 7.4%, 14.8%, and 17.5% respectively, for a
3 total overall increase from 1995 to 1999 of 108%, or more than doubling from 97.9 cents per
4 MMBTU to \$2.04 per MMBTU, with an even sharper increase since the first of this year.

5 Investing in a diverse energy portfolio utilizing a combination of energy conservation,
6 renewable energy, and thermal energy sources is similar to diversifying one's investment
7 portfolio as a risk management tool. Including a provision in the SCA, requiring consistency
8 with Integrated Resource Planning by any potential purchaser of a block of 20% or more of the
9 energy or capacity, would serve the public interest for all of the above reasons.

10
11 **Q: What do you recommend be included in the SCA to ensure consistency with IRP?**

12 A: My recommendation, to ensure that this facility is developed consistent with IRP, is to
13 include a consistency provision in the SCA similar to what is contained in the Chehalis and
14 Satsop SCA's, but add "and that has a valid public participation process" to the term "has
15 reviewed commercially available supply and demand side resources".

16 Alternatively EFSEC should require the developer/applicant to develop energy
17 conservation and renewable energy projects concurrent with and as a condition to siting and
18 constructing any fossil fuel fired thermal plant in a combination of 75% thermal and a minimum
19 of 25% conservation and renewable energy. For a 660 MW CCCT, this recommendation would
20 add 220 MW of conservation and renewable energy resources. This alternative would lower the
21 emissions profile, thus environmental impacts including CO2, of a kWh sold from this mix,
22 ensure diversity of resources to protect against price risk, conserve economic and natural
23 resources, and provide greater protection from peak outages through diversity and demand side
24 measures.

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26 **Site Restoration**

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Q: What issue do you recommend EFSEC address with respect to site restoration?

A: Historically, Site Certification Agreements have required that permittees commit to restoration of the site to original condition at the conclusion of the project, but no mechanism has been implemented to assure that funding is available when needed. This applicant has made no provision to address funding for site restoration.

Q: What analysis has EFSEC performed on this issue?

A: EFSEC commissioned a study, published in November of 1999, titled “Options to Secure Site Restoration at WNP-4.” Exhibit ____ (DPW____12). The paper opened with a description of

The Problem The Washington Public Power Supply System . . . executed a site certification agreement with the state of Washington for construction of WNP-1/4 nuclear plants, but has not fulfilled the obligation for site restoration, which was an element of that certification. . . . Energy Northwest does not appear to have a ready source of financing to pay for site restoration. The site contains incomplete construction, and structures and materials which may pose health and/or safety hazards.

Q: Does the report contain any recommendations that could be applied to this applicant?

A: Yes it does. On page 14, under the heading “NEXT STEPS” is the recommendation

In particular, we recommend that Option 1 be pursued with respect to all facilities currently operating under EFSEC site certification agreements and all new proposed facilities, so that this problem does not recur.

Q: What is Option 1 referred to in the previous statement?

A: From page 4:

Option 1 – Site Restoration or Surety Bond: Develop rules requiring escrow of funds with the State, or provision of other security for site

1 *restoration, for all projects currently holding site certification agreements*
2 *and any new projects which seek site certification agreements.*

3 **Q: Do you recommend that EFSEC apply this recommendation to this project?**

4 A: Yes, I do. EFSEC should require, as a condition to the SCA prior to construction, a study
5 of the closure and restoration costs and the posting by the applicant of a surety payable to the
6 state of Washington in an amount sufficient to fund all closure and restoration costs. This would
7 ensure that the taxpayers of the state or local government are not held liable for restoration costs,
8 or conversely be required to suffer the potentially adverse environmental and public health
9 consequences of an unrestored site.

10
11
12 **Q: In your opinion, could similar hazards exist at this or any other similar facility?**

13 A: Yes, it could, but that is not to say that it will not be properly cleaned up at the end of the
14 useful life of the facility.

15
16 **Q: Does this conclude your testimony?**

17 A; Yes, it does.
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