BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 99-1	)	
	)	EXHIBIT _____ (PGW-T)
SUMAS ENERGY 2 GENERATION	)	
FACILITY	)	

PREFILED DIRECT TESTIMONY OF

NW ENERGY COALITION AND WASHINGTON ENVIRONMENTAL COUNCIL

WITNESS: PETER G. WEST

INTRODUCTION

Q. Please state your name, address and affiliation.

R. I am Peter West, Assistant Director of the Renewable Northwest Project (RNP) located at 1130 SW Morrison #330, Portland, Oregon 97205. RNP is a Northwest regional group promoting clean air policies, renewable energy and climate change solutions.

Q. Please state your qualifications.

R. As Assistant Director of RNP, I develop and implement policy and market initiatives for sustainable energy and climate change; I advocate for wind, geothermal and solar energy; I educate policy makers, build constituencies and develop collaborative efforts with environmental organizations, industry groups and governments; I develop and negotiate legislation and programs for renewable resources; I provide technical expertise on resource evaluation, power facility siting and economics; and I organize on issues related to clean air, global warming and utility industry restructuring and regulatory change.

I was the co-founder and first Chair of the Board of the Oregon Climate Trust, an organization developing global warming mitigation measures and educational projects. I currently am a member of that board. I was one of the founding members of the Oregon Rivers Council (now Pacific Rivers Council), where I helped ensure protection of more than 40 rivers in Oregon. I also serve on the board of the Oregon League of Conservation Voters.

Before Renewable Northwest Project, I was a Supervisory Regional Economist for Bonneville Power, overseeing economic and electrical demand forecasting. Prior to working at Bonneville Power, I held positions as a Resource Economist for Oregon State University.

I have a graduate degree in Agriculture and Resource Economics from Oregon State University and a bachelors of science degree from the University of Maine.

Q. What is the scope of your testimony?

R. My testimony will cover: the Oregon carbon dioxide (CO2) regulations for power plants; how the Oregon law would apply to the proposed Sumas facility; corrected CO2 emissions for the proposed facility; power plant efficiency and competitiveness; and the applicant's proposed greenhouse gas mitigation program.

Q. What is your understanding of the Sumas Energy 2 proposal?

R. The applicant, Sumas Energy 2, Inc., proposes to build a natural gas power plant that it claims will emit about 2 million tons of CO2 per year. The applicant proposes mitigation expenditures for these emissions, and claims anything more is competitively unachievable. Based on the applicant's stated emissions rates, this single plant would increase Washington's annual CO2 emissions by approximately 3%. The US is responsible for 22% to 25% of the world's greenhouse gas emissions.

Q. What will your testimony show?

R. The testimony to follow will show that the applicant is proposing a relatively inefficient gas plant; underestimates the actual CO2 emissions from the proposed facility; misinterprets Oregon's CO2 regulations; and is out of step with current thinking on CO2 mitigation. Further, this testimony will show that the costs for more realistic levels of mitigation are quite small.

CLIMATE CHANGE

Q. What is the consensus of opinion on climate change?

R. As Philip Mote (PWM-T) and Nancy Hirsh (NEH-T) discuss in their testimonies, predominant economic and scientific opinion recognizes the reality of global climate change. Immediate action is critical to reduce and offset emissions that contribute to global warming.

S. Is there anything you would add to their testimonies?

T. Yes. In its Greenhouse Gas Offset Strategic Plan ("Plan"), the applicant attempts to discredit the weight of scientific opinion in favor of action with the results of a petition circulated by the Oregon Institute of Science and Medicine (Institute).

U. Is this petition credible?

V. As news reports have shown, that petition is not credible and not a valid representation of the consensus of scientific thinking. The Institute is a small outfit in Cave Junction, OR, which specializes in home schooling. The petition was put on the Internet and anyone who claimed to be a scientist could "sign" and be counted. Included among the "scientists" are the real name of Ginger Spice of the Spice Girls, B.J. Hunnicut of "MASH," actor Michael J. Fox and a raft of other obvious names, none of which were checked.

The Institute's petition project includes a reprint of a paper prepared in a style very close to that used by the National Academy of Sciences (NAS). The paper concerned the NAS so much that it issued a rare public disclaimer of it.

Q. Is the debate on climate change being slanted?

R. What we mistake for a "debate" is more often a public relations campaign by the American Petroleum Institute and similar entities, which have recruited and funded a few scientists who question the entire global warming phenomenon. Using a $6 million war chest, energy industry

lobbyists have crafted a targeted campaign to erect a barrier against further efforts to impose Kyoto-like measures in the future, according to a memo obtained by the National Environmental Trust. The media gives equal weight to the industries' scientists, as though they were precisely as objective as the 2,500 scientists who work with the United Nations' Intergovernmental Panel on Climate Change (IPCC). Ross Gelbspan, the Pulitzer Prize winning journalist, documents the efforts to create a phony debate in his book, The Heat Is On.

OREGON'S CO2 REGULATIONS

Q. Can you summarize Oregon's CO2 regulations?

R. In 1997, Oregon enacted a law requiring all new energy facilities regulated by the state to meet a net emissions standard for CO2 gases. This law was supported by the state's largest utilities (Portland General Electric and PacifiCorp) as well as the three gas plant developers in Oregon at the time (Hermiston Power Partners, Klamath Co-Generation and US Generating).

The law applies to facilities that directly emit CO2 gases. The law set an initial limit of 0.7 pounds of CO2 per kWh for base load power generating facilities, and charged the Oregon Energy Facility Siting Council (OEFSC) to extend it to other types of regulated facilities. The standard is measured on a net basis with facilities given credit for meeting higher efficiency levels, incorporating cogeneration and developing mitigation and offset programs.

Q. Have the standards been updated since 1997?

R. The law allows for changes in the standards and other provisions but requires OEFSC to, among other things, determine if changes and extensions are economically achievable. In 1998, OEFSC extended the 0.7 standard to peaking facilities and large pipeline compressors. Late in 1999, OEFSC revised the standard for base-load facilities to a lower allowable rate of 0.675 pounds of CO2 per

kWh. OEFSC found these changes and extensions achievable and to not affect the economic viability of future plants.

S. Does the applicant's Greenhouse Gas Offset Strategic Plan reflect these changes?

T. No.

MEETING THE OREGON CO2 STANDARD

Q. Does the applicant correctly interpret the Oregon law that created this standard?

R. In its testimony, the applicant appears to misunderstand the design of the law and the intent of its provisions. For example, the applicant miscalculates the amount of CO2 emissions it would be required to mitigate or offset under Oregon's law. I describe the applicant's misinterpretation of the law later in my testimony.

S. How can a developer reach the allowable net rate of CO2 emissions in Oregon?

T. The net CO2 standard can be met by any combination of facility efficiency, cogeneration, offsets and mitigation. The law actually encourages developers to build more efficient plants and find thermal hosts for cogeneration.

U. How are the Oregon CO2 regulations applied?

V. For base load facilities, the Oregon standard assumes a plant operates 100% of the time for purposes of calculating its CO2 emissions only. The applicant seems to misunderstand the application of this assumption. Developers of base load facilities in Oregon wanted a one-time, up front calculation for the life of the project. They did not want continued regulatory involvement and did not want to be at risk for higher prices for CO2 mitigation in the future. The 100% assumed for 30 years and the up-front payment balances their desires with the need to maintain a credible requirement and the importance of an offset program that works.

W. Why assume an operating rate of 100%?

X. The 100% level avoids any restrictions on actual operating rates and avoids gaming. In 1997, neither the developers, the environmentalists nor the state wanted to police actual operating levels for purposes of identifying mitigation requirements. By specifying the 100% rate, there is no incentive to claim a lower than actual operating rate to lessen the CO2 emissions on paper.

Y. Why is mitigation required to be established as the plant is constructed?

Z. The up-front payments or programs allow the developer to pay for mitigation at close to today's rates. As the applicant points out, future mitigation is likely to cost more per ton as we undertake the cheaper projects in the near term. Having to offset CO2 levels as you go along opens the developer to potentially higher prices in the future. Recall, the law is not a spending rule, but a requirement to offset actual CO2 emissions. The monetary path discussed below is merely an avenue to satisfy the tons of offsets necessary to meet the emissions standard.

AA.Who carries the risk if a mitigation project underperforms?

BB.It should be noted that when mitigation measures are approved or payment made, the state carries all the risk of performance for the mitigation. Also the one time calculation does not take into account the natural degradation of efficiencies over time for a plant. In part, the 100% compensates Oregon for the extra emissions as a plant ages and the risks that some mitigation measures can underperform.

MODIFICATIONS TO THE OREGON STANDARD

Q. Has the Oregon CO2 standard been modified to accommodate non-base load facilities?

R. Yes. The law was applied to non-base load facilities in 1998, and allows for different operating rates. OEFSC allows a peaking facility to specify its expected operating rate. Based on the plant's efficiencies and expected operating rate, the CO2 that must be offset or mitigated to meet the net emissions standard is calculated.

A developer of a non-base load facility must stipulate in its permit to the projected operating rate for a 30-year life. As with base-load plants, the required mitigation must be done up-front.

Q. Is there a true-up or check on actual plant operation for a non-base load facility?

R. At the end of every five years the actual operating rate for the non-base load plant for the past five years is compared to the projected rate. If actual operations are under the level projected, the developer can carry forward credits to operate above its projected rate -- so long as the average for the historical period does not exceed original projections. If actual operations exceed projections, the developer has to make up the difference with a penalty.

S. Could the features of the Oregon regulations for non-base load facilities apply to the Sumas 2 facility?

T. Technically, Sumas 2 is a base load facility under Oregon law and therefore the applicant should assume 100% load and capacity factors. However, if the applicant was willing to stipulate to the average production rate of 82.4% and the efficiencies it claims in its proposal, the application of the Oregon CO2 law for non-base load facilities could work to solve the applicant's complaint about mitigating for CO2 that may never be emitted by the proposed facility.

OPTIONS FOR MEETING OREGON'S CO2 STANDARD

Q. What options do developers have to meet their CO2 requirements in Oregon?

R. Under Oregon law, developers have two choices for meeting their net CO2 requirements and options within those choices. They can, as part of the site permit process, propose to self-direct a mitigation program for the CO2 they emit above the standard. They can do it themselves or choose a third party. In either case they must spell out a program that is credible and can result in real CO2 offsets. Alternatively, they can use a monetary path and pay a recognized non-profit a pre-determined rate to do all or part of their mitigation.

S. What is the focus of the mitigation obligation in Oregon?

T. The focus of either option to achieve mitigation is the delivery of quantifiable CO2 reductions. Approval of a program or the expenditure of funds through the monetary path is contingent on ensuring the mitigation measures will provide credible and quantifiable offsets. The application of the law is intended to credit new efforts that offset the new emissions generated by the facility.

U. Why was the monetary path developed in Oregon?

V. The monetary path was established at the developers' request to create an easy alternative to meeting the standard. Developers, utilities and environmentalists created the Oregon Climate Trust (Trust) as a separate, independent non-profit to develop mitigation projects through the monetary path. Under current provision of the law, developers pay 57 cents per ton of CO2 for mitigation on the monetary path. Within limits, this initial rate can be periodically adjusted when OEFSC sees evidence that effective mitigation costs more than the established rate.

Q. Is meeting the standard in Oregon flexible?

R. Meeting the standard is extremely flexible. Developers are free to choose among various options. If they feel they can beat 57 cents per ton, they can direct their own program. They are free to design their program in any way that can be judged by OEFSC to achieve the offset requirements. There is no specification, as the applicant claims (Plan, p. 3-3), that developers must exclude certain costs from their programs.

Q. Please describe how power plant developers in Oregon are choosing to meet their CO2 reduction obligations.

R. The Klamath co-generation project was the first to be sited under the 1997 law. That developer is meeting its mitigation obligations through a combination of self-directed projects and payments to

the Trust. Subsequent developers that have earned site certificates (Calpine and Avista) have specified that they will use the monetary path exclusively to meet their CO2 obligations.

BASIS FOR THE OREGON CO2 STANDARD

Q. How was the 57 cents per ton rate in the monetary path developed?

R. The 57 cents per ton value for offsets came from an actual market test. In 1996, Oregon implemented the Best of Batch Proceeding to effectively auction a site permit. The winner of the permit was judged not on costs, but on lowest environmental impact.

The winning bid in the Best of Batch came from Klamath Cogeneration, which provided 35% mitigation of CO2 emissions. Included in this was credit for cogeneration. The present value cost for the mitigation programs was 57 cents per ton.

Q. What did the Best of Batch show?

R. The Best of Batch provided a clear signal that the competitive market could afford to internalize significant levels of CO2 emissions, even at levels higher than the current Oregon standards. It also provided a real market valuation of the cost of CO2 mitigation. Included in the costs of the mitigation were enforcement, monitoring and evaluation. Administrative costs were not included in the price of CO2 mitigation in the Best of Batch.

S. What role did the Governor's Task Force play in the Oregon CO2 requirements?

T. In 1996, a Governor's Task Force examined the entire siting process in Oregon. It recommended streamlining certain administrative processes and, with an eye to the Best of Batch, that regulation of CO2 emissions be included in siting requirements. Oregon's CO2 law was borne of a real market test and a re-examination by a Governor's blue ribbon panel. As stated above, it had significant industry and utility support.

U. The applicant claims the monetary path forces a single price. Do you agree? Why or why not?

V. The applicant is incorrect in claiming that the monetary path forces a single price. Rather, the monetary path is just an easy option for developers to meet their mitigation obligations. The monetary path is one that developers can readily avoid if they feel they can do better themselves.

APPLICATION OF THE OREGON CO2 STANDARD TO SUMAS 2

Q. Does the applicant calculate the proposed facility's CO2 emissions correctly under Oregon law or otherwise?

R. No. The applicant misapplies the Oregon CO2 requirements to its circumstance and facility, understating the likely CO2 emissions and overstating the plant's relative efficiency.

S. What does the applicant claim as the proposed facility's CO2 emissions?

T. The applicant claims that the plant will emit CO2 at a rate of 0.83 pounds of CO2 per kWh (Plan, p. 2-2). At its assumed production rates this produces 1.98 million tons of CO2 per year.

U. Are these the right values?

V. No. In response to a data request (included as Exhibit PGW-1), the applicant indicated that the low heating value for the facility would be 6,505 Btu/kWh while on gas and 7,000 Btu/kWh while on distillate fuel. This would be an accurate value to calculate actual CO2 emissions if gas and distillate fuels were absolutely pure. However, industry averages indicate that due to impurities and conversion chemistry, actual heat values are 10-11% higher with gas and 5-7% higher when on distillate fuels.

ACTUAL EMISSIONS

Q. What are more realistic heat rates for the proposed facility?

R. Rather than an expected low heat rate of 6,505 Btu/kWh on gas, the Sumas Energy 2 facility will have a heat rate up to 11% less efficient and closer to 7,221 Btu/kWh while on gas. While on distillate fuel the heating value could be as high as 7,490 Btu/kWh. These corrected values are often termed the higher heat values or HHV.

S. What is the impact of correcting the efficiency values?

T. Adjusting to the more realistic higher heat values, the actual CO2 emissions are more likely to be 0.86 pounds of CO2 per kWh. This assumes the same mix of fuels for the same periods as proposed by the applicant. Given this higher rate, annual emissions at the applicant's proposed production rates would be closer to 2,049,000 tons of CO2 per year, or 68,900 tons per year higher than the applicant reports. Over 30 years this translates into approximately 2,070,000 additional tons of CO2 emitted.

COMPARATIVE EFFICIENCIES

Q. Is the proposed Sumas Energy 2 facility efficient relative to other new plants?

R. No. Last year the Oregon Office of Energy judged the River Road gas-fired plant in Vancouver, Washington to be the most efficient plant operating for commercial purposes in the US. The HHV heat rate for this project (using the 11% factor above) was found to be 6,955 Btu/kWh with emissions of 0.81 pounds of CO2 per kWh.

The Oregon Office of Energy also found that a new gas-fired power plant in Massachusetts could be even more efficient than the River Road plant. However, the plant in Massachusetts was not yet in full commercial operation. The Oregon law requires that adjustments in the CO2 standard be made

in comparison to commercially operating facilities. OEFSC will now be examining the standard every two years to determine the most efficient commercial plant.

Q. Are other proposed plants also more efficient?

R. In recent conversations, Sam Sadler of the Oregon Office of Energy reported that the two holders of site certificates for the next gas-fired plants to be built in Oregon are talking about higher heating value efficiencies in the range of 6,800 to 6,900 Btu/kWh.

S. Please summarize your points on the efficiency of the proposed Sumas Energy 2 power plant.

T. The applicant is proposing a plant that is notably less efficient and more polluting than a plant that is nearly two years old. The Sumas facility may be significantly less efficient than the next plants sited in Oregon. If the Oregon law was replicated in Washington, the applicant would have the incentive to propose a plant that was less polluting and less wasteful.

EMISSIONS RISKS

Q. Are there ways the Sumas 2 facility could emit more CO2 than projected?

R. Normal plant degradation will cause more emissions. However, the applicant indicates that it will operate the plant to produce 82.4% (85% load factor, 97% capacity factor) of its maximum capacity. Standard assumptions by the Northwest Power Planning Council for base load facilities assume production rates of 92% of rated capacity (95% load factor, 97% availability). If Sumas 2 operates more like the norm, it will emit significantly more CO2 than the applicant claims.

At 92% production rates and assuming the corrected heat rate values, the proposed facility will emit 2,286,268 tons of CO2 per year. This is 306,268 tons more per year than forecast and an extra 9,188,040 tons over 30 years. There is significant upside risk that this plant will emit much more CO2 than the applicant projects.

Q. Can you summarize the impact in added CO2 emissions from adjusting the heat values and production rates?

R. Table 1 below summarizes the greenhouse gas risks from this plant. At minimum the plant could produce 2 million more tons than is projected. Correcting for both heating value efficiencies and higher production rates indicates that about 9 million more tons of CO2 could be emitted, compared to the applicant's assumptions.

TABLE 1

	CO2 Emissions (tons)		
	Annual	30-Year Total	Added
Sumas Assumptions	1,980,000	59,400,000	
Corrected for Heat Values	2,049,000	61,470,000	2,070,000
Corrected for Production Rate	2,286,268	68,588,040	9,188,040

Q. Are these additional emissions the only risk?

R. The risks are not just from the underestimate of likely CO2 emissions. Washington is already emitting at rates higher than 1990 levels. To reach Kyoto targets, Washington will have to make dedicated efforts. Additional millions of tons of CO2 create a much higher hurdle and more of a burden on other industries and residents to overachieve to make up for those emissions.

MITIGATION UNDER THE OREGON CO2 STANDARD

Q. Under Oregon's CO2 standard, how much CO2 would the applicant be required to mitigate or offset?

R. The applicant claims the Oregon standard applied to its operating assumptions would require mitigation of approximately 9.3 million tons of CO2. The actual number under the current Oregon

standards would require the applicant to mitigate about 16 million tons of CO2. This higher value corrects for the applicant's heating values; updates the Oregon target rate of allowable emissions to the current standard of 0.675 pounds of CO2 per kWh; and assumes an operating rate of 100%.

S. What portion of CO2 emissions from the proposed facility would be mitigated under Oregon requirements?

T. The Oregon standard is only partial mitigation, at best 21% of the proposed facility's maximum output. Complete mitigation would mean offsetting 59.4 to 68.6 million tons, depending on the assumptions noted in Table 1. If the plant was assumed to operate 100% of the time, then complete mitigation would mean offsetting 74.6 million tons.

IMPACTS OF CO2 MITIGATION

Q. What are plants in Oregon paying or likely to be paying for mitigation programs?

R. The net present value of Klamath Cogeneration's CO2 mitigation program is about $4.2 million for a 484 MW facility. The Calpine project at about 540 MW will use the monetary path to meet its CO2 requirements in Oregon. This can be estimated to cost Calpine $4.5 to 5.0 million, depending on final configurations. Avista recently acquired the Coyote II site permit for a 250 MW plant and would pay about $2.7 million under the monetary path.

All three Oregon plants are actively moving forward. The Klamath project is a year into construction with completion expected in 2001. All facilities will be merchant plants and are willing to pay significantly more for CO2 mitigation than the small amount offered by the applicant.

Q. What has Oregon determined to be the impact of its CO2 regulations?

R. As noted, OEFSC had to evaluate competitiveness when considering adjusting the net CO2 emissions rate down to 0.675 pounds of CO2 per kWh. The Council found that costs to meet the

CO2 requirements at the new level accounted for 0.2% of the plant's present value, a marginal level that would not effect competitiveness.

Q. What is the impact of the Oregon standard on the applicant's costs?

R. Applying the Oregon standard to the proposed facility and correcting for the heating rates, the monetary path cost would be about $9.2 million. Assuming the entire mitigation cost would be capitalized, this increases costs for power from the facility by $0.00027 (0.027 cents) per kWh – if the applicant produces only 82% of the plant's capacity as claimed. The level the applicant claims to be unaffordable in Table 4 of the Plan (p. 3-4) would change power costs $0.00016 per kWh -- less than two-hundredths of one cent.

Table 2 below summarizes the net effect on the applicant from various levels of mitigation. A mitigation program of $5.3 million raises annual capital costs by $0.7 million. Because only capital costs are affected, the increase changes total costs by less than two-hundredths of a cent per kWh of generation. Mitigation at the Oregon standard raises annual capital costs by $1.3 million and overall costs by less than three-hundredths of a cent per kWh of generation.

TABLE 2

	COSTS			
	Mitigation	Annual Capital	Unit Capital: Level	Unit Capital: Change
	(millions)	(millions)	($/kWh)	($/kWh)
Base (no mitigation)		52.9	0.01110	
Applicant's interpretation of Oregon standard	$5.3	53.6	0.01126	0.00016
Actual Oregon standard	$9.2	54.2	0.01137	0.00027

The calculations above assume: mitigation is done for 57 cents/ton; the plant has capital cost of $579/KW; financing is based on a 70% debt to equity ratio; return on equity is 17.3%; and interest

rate on debt is 8.7%. For purpose of calculating the cost impacts, the plant was assumed to produce 82.4% of its stated capacity. Operating costs are unaffected by capitalized mitigation requirements.

Q. Could there be any adjustments to these costs?

R. Yes. To get the cost impacts in Table 2, the mitigation cost was divided by the lower production rate specified by the applicant (82.4%). The mitigation level under the Oregon standard in the table uses the corrected HHV and a 100% operating rate. If the plant operates at the higher standard assumptions from the Northwest Power Planning Council (92%), the cost impacts in the table would be at least 10% lower.

S. What would it cost under the Oregon standard to mitigate or offset all of the CO2 the proposed facility would emit?

T. If the applicant fully mitigated the proposed facility's CO2 emissions at its assumed production level it would spend about $35 million at 57 cents per ton. The net effect on costs for full mitigation would be about one-tenth of one cent per kWh.

U. Given your experience with acquisition of CO2 mitigation and offsets, do you think that 57 cents per ton of CO2 is a realistic cost today? If not, what is the range of costs per ton of CO2 mitigated or offset?

V. Looking forward, for most mitigation and offset projects, 57 cents per ton of CO2 is considered low. While CO2 is still available at low prices, such projects appear to be going fast. According to Trexler and Associates, a leading company in the area of climate mitigation, the rate to expect for most credible CO2 reduction projects is $1-5 per ton.

W. Given that cost range, how would you revise your estimates for how much it would cost the applicant to fully mitigate or offset the CO2 emissions from the proposed facility?

R. Keeping the focus, as in the Oregon standard, on the amount to be mitigated, the cost could be 2-3 times that shown in Table 2 to achieve the same quantity of mitigation and offsets. This assumes the applicant acts relatively soon to capture projects on the lower end of the cost curve ($1-2 per ton). The net effect of this is still a hardly noticeable price impact – shifting from a range of two-hundredths to three-hundredths of a cent per kWh to a range of four-hundredths to nine-hundredths of a cent per kWh.

SUMAS ENERGY 2 GREENHOUSE GAS OFFSET STRATEGIC PLAN

Q. Please summarize the applicant's CO2 mitigation proposal.

R. The applicant proposes to spend $100,000 per year for ten years on carbon mitigation. The proposal calls for investing in offset projects and research as well as purchasing brokered offsets.

Q. What is the value of the annual payment?

R. The applicant proposes paying into a fund at the end of each operating year. Each year, a full year's CO2 emissions would occur before actions would be taken in that year to mitigate those emissions. As the applicant notes, costs for mitigation projects are rising over time. Inflation will be affecting prices as well. The set annual contribution of $100,000 would lead to less CO2 mitigation per dollar spent as we move through time.

Q. What amount of CO2 will be offset by the applicant's proposed plan?

R. No actual CO2 offset goals, in tons displaced, are provided. Proposed criteria do not address the critical elements of evaluating the ability of a project to deliver real offsets. No independent review of proposals is suggested. A set of example projects are offered in the plan with subjective evaluations.

Q. How are mitigation programs in Oregon different?

R. In Oregon money is collected up front or mitigation put in place prior to the plant coming on line. Once a plant comes on line, it will be emitting CO2. The intent of doing the mitigation up front and early is to try to time the mitigation to come before or coincident with the actual emissions of the plant, and to try and capture the less expensive projects early.

Q. Why is early action important in an offset program?

R. CO2 emissions have a damage function. The increasing concentrations have increasing warming effects. It takes time to get projects in place and, in the case of sequestration, for the trees to grow. If one starts after the fact it makes it certain the CO2 stays in the atmosphere longer and does more damage.

If the goal is to actually get CO2 out of the atmosphere, then one needs to get programs in place prior to emissions. A tree planting program can take a couple of years to put in place and then 15 – 20 years before any noticeable CO2 is sequestered in those trees. It takes even longer for Douglas fir trees to sequester significant amounts of CO2.

Q. How does the applicant's Plan compare to other efforts?

R. The Klamath project is smaller than the proposed facility yet Klamath will spend more than four times the amount proposed by the applicant. The requirement for the proposed Avista 250 MW plant in Oregon is three times that offered by the applicant on a net present value basis.

S. Does the Plan provide appropriate criteria to evaluate potential projects?

T. No. To correctly evaluate CO2 mitigation projects, quantify the offsets and know how reliable the offsets can be, seven factors need to be examined:

- Additionality: the extent to which the effort would happen anyway and whether investment in the project makes a quantifiable difference.

- Comparative baseline: what the project is being compared to in terms of background rates of emissions and ongoing energy, forestry and other regulations. The reference case is necessary in order to know underlying assumptions, uncertainties, and leakages.
- Leakage: the extent to which external events can affect the amount of CO2 captured or offset.
- Timing: when the CO2 is removed or kept from the atmosphere. CO2 removed in the near term has less chance to do harm than CO2 that is not removed for 20 years or more.
- Uncertainties: the range around the values assumed to calculate the CO2 benefits. There needs to be a calculation of the expected value and the range around this. The price per ton is highly affected by the ranges around the calculations.
- Monitoring: the extent to which the project has ongoing reporting, controls and evaluation. Verifying the actual amount of CO2 offset is critical.
- Legal right: the extent to which the project developer can actually lay claim to the CO2 offsets and its willingness to transfer legal claim to project funders.

Q. Are the applicant's proposed criteria sufficient?

R. No, they are not sufficient to evaluate either the sample projects they provide or other projects. They are primarily value judgements for ranking preferences, not complete criteria for evaluating a portfolio of project options in terms of real delivery of actual CO2 offsets.

Q. The applicant includes research projects in its list of potential investments to reduce CO2. Is research a CO2 offset project?

R. Unless it will deliver quantifiable reductions, the project will not qualify as a credible offset.

Q. What do you recommend for the mitigation program?

R. I recommend that mitigation be done as a series of projects that form a portfolio of actions that are evaluated using the criteria above; deliver credible, actual CO2 reductions; and work in concert to

ensure a balancing of return. The program should be designed, built and directed by a group with independent expertise in CO2 mitigation projects. Examples of such groups are Portland-based Trexler and Associates, the Environmental Defense Fund and the Environmental Resource Trust. The focus of the program needs to be on the delivery of results not spending money.

CURRENT MITIGATION ACTIONS

Q, What mitigation is being done in Oregon?

R. The Klamath Cogeneration Project is establishing a series of mitigation and offset projects that met the evaluation standards listed above. Their program includes tree planting on unforested land, solar lighting in China, coal-mine methane to electricity conversion and geothermal district heating in Oregon. All of these would not have been done without Klamath's funding. Some of these immediately reduce greenhouse gas emissions, some avoid future emissions, and others capture CO2 from the atmosphere over time.

Q. What is the key feature of the Klamath mitigation projects?

R. By design the Klamath mitigation projects form a portfolio of actions including a monetary payment to the Trust. Some of the projects will overachieve. Some may underachieve. But taken as a whole, like an investment fund, the risks should balance and an acceptable level of CO2 will be kept out of the atmosphere.

Q. What CO2 mitigation or offset projects has the Oregon Climate Trust pursued?

R. Oregon Climate Trust (Trust) funded its first mitigation and offset projects two years ago. It also undertook some education efforts. One of the original projects funded by the Trust is an ongoing stream-side, sustainable forestry planting project. The landowner is converting the land along the stream from ranching to forestry. The Trust invested in the trees and receives a guaranteed CO2 offset. The negotiated level of CO2 must be delivered, even if poor management or circumstance

affects tree growth. To my knowledge it is the first sequestration project accompanied by a complete guarantee.

Q. What else has the Trust done?

R. This year the Trust issued an RFP for about $1 million in offset projects. The RFP follows the evaluation criteria suggested by Trexler and Associates. The Trust will select enough projects to build a diverse portfolio.

Q. What has the Trust learned that is useful here?

R. The Trust is in the process of evaluating the proposals and the proposals remain proprietary to the Trust, but a few things can be said in summary:

- An RFP is very useful to getting the best competitive prices.
- The evaluation criteria are essential to determining credible and reliable offsets.
- What appears cheap is often not the case.
- Bid prices are moving up from the Best of Batch Proceeding.
- Responses are robust and credible projects exist on all continents.
- Domestic projects are competitive with international projects.

S. Has the Trust prioritized types of mitigation and offset projects.

R. Yes, but that information is currently confidential because we are in the process of evaluating applications submitted in response to our RFP and asking applicants for supplemental information.

CONCLUSION

Q. Please summarize your testimony.

R. The testimony above shows that the applicant understates the CO2 emissions from the proposed facility and overstates the facility's efficiencies. It will be a more polluting facility than indicated and significantly less efficient than the two-year old plant in Vancouver, Washington.

The mitigation program proposed for this plant is unfocused and lacks any commitments to actual levels of CO2 offsets. The level of funding is far below what is needed. The proposed evaluation criteria are missing critical elements and there is no stated process for an open, competitive selection.

My testimony shows that meeting the Oregon standard has extremely minor cost impacts. Complete mitigation is preferable, economically achievable and well within the range of competitiveness.

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

R. Yes.