

## **Response to Comments on Ecology Draft Regional Haze State Implementation Plan**

This is a summary of the comments received during the public comment period and public hearing on the draft RH SIP along with Ecology's responses. Ecology accepted comments between August 25, 2010 and October 6, 2010. In cases where we received a number of comments on the same subject we provide representative examples.

### **A. General**

#### **Comment #1:**

We received several comments asking us to protect Washington's National Parks and other natural resources. Two examples include:

- Please protect our most valuable asset – our beautiful Northwest Mountains and forests. We cannot do so without protecting the clear air.
- Please understand that air quality issues are currently serious enough that from Paradise, Mt Rainier National Park, on a bright sunny day, the summit of Mt Rainier is not clearly visible! I began hiking and climbing in the Cascades in the early 1970's. Over the years, visibility in Washington's high country has deteriorated to the point that rather than recreate here I go to Colorado or Utah. How sad!

#### **Ecology Response:**

Protecting the air quality in Washington State is an important component of air pollution control. Our National Parks and wilderness areas are part of what makes Washington a desirable place to live and visit. Having clear, unspoiled views of the scenery ensures all of us will continue to enjoy these special spaces.

#### **Comment #2:**

DOE's first phase of reducing haze-producing pollutants is a complex and critical part of reaching the long-term goals of the RH Plan. We have worked extensively with the Department of Environmental Quality in Oregon to provide input on strategy development for the Columbia River Gorge and on the RH Plan in Oregon. We would like the precedence of this staff-to-staff working relationship that was developed in Oregon, and proved helpful to all parties concerned, to help us develop a plan to work with the Department of Ecology. For it is through a transparent and productive working relationship, that the Yakama Nation can best ensure that our concerns and priorities are best represented in the development of air quality policy.

#### **Ecology Response:**

Ecology agrees that an effective staff-to-staff working relationship is critical to effective cooperation and ensuring that the Yakama Nation's concerns and priorities are represented in the development of air quality policy. Ecology looks forward to working with the Yakama Nation.

### **B. Northwest Pulp & Paper Association**

### **Comment #3:**

NWPPA's comments have to do with Chapter 10.3 "Plans for Further Controls on Visibility Impairing Pollutants." Specifically in that section you mention the pending plans to consider five industrial categories for technical analysis to determine if RACT rulemaking would be appropriate. It appears that the pulp and paper industry will be one of the categories selected for further analysis.

Given the timeframe outlined in the document, we would appreciate an opportunity to meet with you and discuss further your plans. In general we urge more outreach on the part of Ecology in connection with this task and the RH SIP in general.

### **Ecology Response:**

Thank you for your comment. Ecology agrees with your observation on the need for outreach on regional haze planning.

The RH SIP identifies 5 source categories for technical evaluation of emission reduction opportunities for visibility-impairing pollutants and the potential development of Reasonably Available Control Technology (RACT) limits for 2 of the source categories. Ecology plans to meet with the affected sources or source owners to go over the rationale and scope of the evaluation.

## **C. Clean Coal**

### **Comment #4:**

We received several comments addressing clean coal technology. Examples include:

- There are exciting new state-of-the-art technologies in particulate control, emissions reduction, gasification technologies, Carbon Dioxide (CO<sub>2</sub>) capture technologies (such as the Mountaineer Power Plant in New Haven, W VA) and even more emerging.

On an immediate and local level, haze reduction can be achieved by a retrofit with full-scale air quality control systems. Many systems can be used, depending on the design and type of the plant, such as state-of-the-art scrubber/absorber systems, electrostatic precipitators, and absorber modules.

### **Clean Coal Technology (CCT) – The Next Step!**

Washington State can be a world leader in this new technology. CCT is a term used to describe a number of different state-of-the-art processes being developed; oxy-fuel, pre-combustion, chemical looping combustion, post-combustion, etc. They all have the same goal- to reduce climate pollution on world-wide scale.

Coal has played a huge role in building our nation. CCT with carbon capture/sequester can produce clean reliable energy that will be a model for the rest of the world to follow.

- The objectives of your SIP can be met without shutting down the Centralia steam power Plant. There are technologies at hand to reduce emissions that contribute to haze and thereby improve visibility in the years ahead. Maintaining the Centralia plant would create and preserve jobs at a time of high national and state unemployment, as well as help keep utility costs down by not increasing our dependency on natural gas. Furthermore, this would set an example for other coal power generating facilities to clean up their emissions, while continuing to lessen our dependency on foreign oil to meet our energy needs until new technologies are developed to provide affordable energy without adversely affecting our environment.
- I'm Joe Kramis, a retired Catholic priest and certainly sympathetic for boilermakers. I was a union member for many years as a younger lad and have a great love for union people and what they do and the service they give all of us. So their jobs are on the line, I know, with all of this, and that's an important consideration in how we address this issue.

I noticed from their brochure that they are working very strongly on efforts to reduce their emissions that would clean up their coal. I don't know how far that technology has come along yet. I've got a cousin that works in the coal industry back East and I've got a call in to him to find out what they're doing at that level but, so far as I know, there hasn't been much in the area of reduction that needs to be addressed and taken care of.

My hope is that with things like today they will be encouraged to do something more to make that happen.

- So it's not all this plant, although I will say it does put out a lot like everything else but every waste stream has a product that can be recovered and recycled. We need to start saying, "Yes, we're gonna look at how we can recover and recycle that and turn it into a marketable product." We don't have to just say, "No, we're not gonna have it."
- We have all kinds of technology so instead of just stomping and let's get together on this thing and make coal work. Coal is American and despite what is said, there's room for alternative energy absolutely, but we need American power, American power independence, we have the best craftsmen and we can do this.

### **Ecology Response:**

Ecology shares the interest in instituting clean coal technologies. These technologies are all available and can be very cost effective on new coal fired power plants. Control technologies specific to reductions of visibility impairing pollutants are already in use at the TransAlta plant. While there are additional reductions in nitrogen oxides that could be accomplished at a low capital and operating cost for new plants, Ecology has determined these alternative emission reduction technologies are not appropriate for installation on this older existing plant at this time.

Ecology is also aware of the potential for clean coal technologies to decrease greenhouse emissions. Greenhouse gases are not haze-causing pollutants and, therefore, were not considered in the context of the RH SIP.

## D. TransAlta BART Controls

### Comment #5:

We received several comments requesting changes to the BART controls at the Trans Alta power plant. Examples include:

- Washington must consider pollution controls for TransAlta's nitrogen oxide emissions that would reduce pollution by 90% or more over its current proposal.

Washington must consider the total impact a pollution source like Trans Alta would have on all twelve protected public lands it impairs and require emission reductions to protect all of them.

The Clean Air Act requires power plants to reduce haze causing pollutants, including nitrogen oxides, which can be easily reduced through technologies that have been used by other power plants for decades. At a minimum, Washington should require pollution controls to reduce TransAlta's Nitrogen Oxide (NO<sub>x</sub>). Without these controls, the coal plant in Centralia will continue to unnecessarily obscure views in our national parks and wilderness areas for decades to come and deter tourist, such as me and my family, from visiting the state of Washington and the beloved parks in the region.

- I have to agree with the BART system. There are a lot of issues that need to be addressed and dealt with, I think, before we start worrying about tearing down or completely re-vamping an existing system.
- We encourage the Department of Ecology to take a strong leadership role similar to its sulfur dioxide actions in 1995, and require selective catalytic reduction technology for Centralia as part of the RH SIP. This would limit Centralia's emissions of NO<sub>x</sub> to approximately 3,000 tons per year, or approximately 12,000 tons per year less than currently proposed. The Department of the Interior will make a final decision regarding the petitions for reasonably attributable visibility impacts pending the outcome of the Department of Ecology's control determination for RH.

Like the reduction in Sulfur Oxides (SO<sub>x</sub>), a reduction of NO<sub>x</sub> would lead to a direct improvement in visibility at Mount Rainier National Park, as well as contribute to improved visibility and decreased health effects from fine particulate matter region-wide. While the focus of our concern is the NO<sub>x</sub> emissions, we are also concerned with mercury deposition at Mount Rainer and throughout the region. Recent studies show elevated concentrations of mercury in snow, sediments, vegetation and fish collected in all three of our National Parks in Washington. We note that addition of Selective Catalytic Reduction (SCR) technology, if appropriately designed, would achieve additional emissions reductions of mercury.

Please supplement the exhibits to the comments that Earthjustice submitted yesterday on behalf of NPCA, Sierra Club, and NEDC with the following FIP prepared by EPA Region 9 for the Four Corners coal-fired power plant. As you can see, EPA has determined that SCR technology is BART for Four Corners, further demonstrating that SCR should also be found BART for the TransAlta Centralia coal-fired power plant in Washington. Thank you. <http://www.epa.gov/region9/air/navajo/pdfs/FCPP-Complete-Signed-Notice.pdf>

- I AM TIRED OF BIG COAL GETTING A FREE PASS WHILE THEY POLLUTE OUR AIR.PLEASE APPLY THE SAME STANDARDS TO TRANSALTA THAT YOU WOULD FOR A NEW PLANT THAT IS JUST COMING ON LINE.
- Please put scrubbers in the coal plant stacks to clean the exhaust. This haze will continue to contribute to pollution and eventually start causing effects such as acid rain over the NW forests. We have already felt the effect of this over the eastern forests; please don't let it happen to our beautiful NW forests.
- As former residents and current home owners in Tenino, Washington, we feel that the health of the citizens of Lewis and Thurston counties is adversely affected by the air pollution emitted by the TransAlta coal plant near Centralia. Pollution controls on this caustic plant must be aggressively strengthened to the fullest extent that is legally possible.
- Please strongly reconsider the measures that Washington will put into place to protect our air quality and beautiful natural resources. There is ample proven technology that can be applied to greatly improve the situation with the Centralia power plant.
- We demand action and cogent legislation to stop the dumping of pollution from coal on human populations and treasured public lands.
- If we're serious about clearing the air, we need some serious legislation.
- I am frustrated that the pollution from the TransAlta power plant in Centralia is not being adequately addressed. This plant should be immediately fitted with pollution controls to eliminate NO<sub>x</sub> emissions to the greatest degree possible. I am particularly concerned about the TransAlta plant because it affects views in all parks in our area.
- This is the 21st century, not the early 1900's we already have viable, inexpensive energy alternatives, stop killing the earth and the people of the earth by allowing big business greed for money over all else.
- We have had too much pollution already, Walker Architects, as the inventor of CO<sub>2</sub> Energy Storage, knows and understands the technology to correct this damage, a solution exists and that it can be applied at the TranAlta Plant. It is simply a matter of the expense.
- Please make sure that all our scenic areas stay healthy for our out-door activities and enjoyment of nature, by improvement of pollution control at TransAlta and a better protection of our National Parks.

- There is no reason they can't install precipitators and scrubbers on those stacks and make a huge reduction in the pollutant emissions from that plant. I've witnessed it happening in our own area with one of the largest Pulp & Paper mills in the Pacific Northwest. All it took was a significant amount of PRESSURE, from the EPA. It does cost money but that's why they charge money for the power they produce, they just aren't using it wisely.
- If we can't dispense with this polluting power plant entirely in the near term, we should at least see to it that it operates with as little pollution as is technologically feasible. The proposed plan doesn't come close to that standard.
- The final thing I want to address is that we hear a lot about all the different sources of haze. It kind of would have been nice to see a chart of maybe your plan that showed what the haze sources are and what you plan to do to deal with them, so just suggestion for next time. But one thing that I did find on-line is to look at the Lewis County pollution, the local pollution. The leading cause of NO<sub>x</sub> in Lewis County is electricity generation from the TransAlta plant. Its 18,000 tons per square mile.

The second leading cause is transportation but it's only 3,000 tons per mile. You could eliminate pollution from cars and still have 15,000 tons per square mile in Lewis County. Particulate matter is the wood combustion issue. Its 2,400 tons per square mile from the plant. The second leading cause is wood combustion of those stoves, 480 tons per square mile. It's – Julie you mentioned bang for the buck. This is the biggest leading contributor of pollution locally and in the state. Thank you very much.

### **Ecology Response:**

Ecology's determination of flex fuels meets the BART requirements and will result in a 20% reduction in NO<sub>x</sub>. Ecology's NO<sub>x</sub> BART determination satisfies the six factors for a BART review required by 40 CFR Part 51 Appendix Y, Guidelines for BART determinations under the Regional Haze Rule (RHR). Ecology did evaluate alternatives that may have further reduced NO<sub>x</sub> emissions. However, we concluded that those alternatives were not cost effective to implement on this existing plant.

The TransAlta plant already has controls for particulates and SO<sub>2</sub>. State-of-the-art particulate control occurs through the use of electrostatic precipitators.

In 2000–2002, the TransAlta plant installed a SO<sub>2</sub> scrubbing system. The SO<sub>2</sub> emissions are controlled by wet limestone scrubbing system that provides over 95% removal of SO<sub>2</sub> while producing gypsum that is sold to a local wallboard manufacturing plant. This provides the wallboard plant with a cost effective alternative to gypsum mined in Mexico. Through the terms of the BART Compliance Order issued by Ecology, further reductions in allowable SO<sub>2</sub> emissions are required beyond the existing SO<sub>2</sub> limitations imposed by the Southwest Clean Air Agency.

Environmental Protection Agency (EPA) Region 9's proposed BART determination for the Four Corners Power Plant was issued too late to affect the Ecology's BART determination for TransAlta. By the time EPA Region 9 issued the proposal, Ecology had issued its BART Compliance Order to TransAlta.

## E. Major Changes to the TransAlta Power Plant

### Comment #6:

We received several comments requesting major changes to the Trans Alta power plant. Examples include:

- It simply must not be acceptable to trade away the quality of life of any person in exchange for the continued operation of a technologically obsolete coal plant simply because of the cost of correcting the problem. Close the plant!
- For the future of our environment get rid of coal burning for energy production.
- 1,500 megawatts is a lot. They've done a lot to clean it up and it's not just been TransAlta. They did a lot at PG&E and whatever, however, you know that this is what's changed our technology and a lot is happening and we've got a tremendous amount of coal in this country, a tremendous amount of coal. And the technology is coming that we can burn more. We just can't, in my mind, just shut everything down.
- My feeling is that if we cannot get a program that reduces TransAlta's level of pollution by 90% we should work toward converting the plant to geothermal heat as a source of energy.

The U.S. Geological Survey has issued maps indicating that we are within a reasonable distance from accessible geothermal heat sources in the 300 degree centigrade range.

Tapping that resource could conceivably provide us with a new source of power that uses no fuel and does no polluting. It may also be able to use the current TransAlta generating equipment.

I will be happy to provide you with material in support of the above statements if you so wish.

- So if you're looking just at the NO<sub>x</sub> equation you're missing the big picture because what you really realize when you roll up all of these costs the cheapest thing is to expeditiously transition off coal as fast as possible.
- I feel we need to convert TransAlta to gas immediately, and they have already made enough money to pay for gas conversion. Let's end NO<sub>x</sub> pollution entirely.
- Personally, I believe it's time to phase out coal production entirely. It is too destructive-to the land and people-and is a finite source of energy, as is oil.
- And we just – we do have a common ground and we all want the same thing and I think we can do it without eliminating coal.
- Now is the time to act. The climate cannot wait any longer. Either can my lungs. As a person with asthma, I need you to do the right thing and close down Washington's one and only coal combustion plant. With what we now know about energy conservation we will

have no trouble getting along without the substantial output from this very dirty source of electricity.

- It is way past time to get rid of coal as a source of energy. The stuff is the dirtiest of the dirty. If this were to occur, the haze and pollution problems throughout the US would be GREATLY reduced or eliminated! So, EPA, it's up to you to help bring this about!
- I believe polluters should not be allowed to pollute and wherever possible be stopped from polluting. I believe this is what needs to be done with the TransAlta coal plant. Enough is enough. Something should have been done about this flagrant polluter years ago. This has gone on long enough. Action needs to be taken by you to stop this pollution of our parks and other areas.
- Transalta hazes up my view of Mt Ranier from Seattle. Please cut down on whatever pollutants cause this problem to the max.

Transalta should go away, but unfortunately, that's not what you are reviewing right now. But at least the haze problems can be made to go away.

- Please think seriously about shutting down this single coal plant here in Washington. The effects are devastating to all life. There are many states that have no other ways to obtain energy, but we here in Washington have other choices and we should limit our use to other resources, as well as work a lot harder and more seriously towards developing greener, healthier energy sources.
- We have reached a place in human history where we have got to stop burning coal. It's not even an option. And the rest of this is just politics and moving things around, and we are gonna pay a tremendous price, and certainly our children. We have to stop.
- We should expect more accountability for protecting our air and water from a company like TransAlta in the Evergreen State, and we should expect our state regulators and the governor to do everything in their power to incentivize a transition to cleaner fuels at TransAlta and not business as usual.
- I am opposed to the continued operation of Trans Alta Coal Fired Generation Plant. Washington State has the fourth lowest cost of power in the United States with the average cost per kilowatt hour just over 6 cents. We could and should convert the Trans Alta Coal Plant to burn natural gas.

We would reduce Trans Alta CO<sub>2</sub> emissions by half and nearly eliminate mercury and SO<sub>2</sub> emissions. Our state has ample access to low cost natural gas either domestic or imported from Canada so that incremental increases in cost of power generation would be modest and reasonable considering the benefits of cleaner air and reduced Greenhouse Gas (GHG) as emissions.

It is my understanding that the governor negotiated a secret deal with Trans Alta to allow continued coal burning without application of cleaner air emissions standards. We should

submit a request for public disclosure of the negotiation documents with the Governor's office in an attempt to bring some degree of transparency to this issue.

In summary, an unbiased economic analysis of the impact of converting Trans Alta from coal to cleaner burning natural gas would do much to inform the decision making. This would allow us to make an informed decision as to the "cost" of conversion including assurance to TransAlta employees and stockholders that they would be made whole and would not suffer economic hardship as a result of conversion to natural gas.

- If we were to ramp up the amount of natural gas from these relatively idle natural gas plants we could close – we could shut down one boiler at TransAlta overnight.

### **Ecology Response:**

The RH Program is not a mechanism for requiring the closing of facilities. The RH Program does contain a process for reducing haze causing emissions from older existing sources. Ecology's NO<sub>x</sub> BART determination satisfies the six factors for a BART review required by 40 CFR Part 51 Appendix Y, Guidelines for BART determinations Under the RHR.

Greenhouse gases are not regulated pollutants for purposes of RH and therefore were not considered for purposes of meeting RH requirements. However, Ecology, Department of Commerce, and the Governor's Office are on a separate track to work with TransAlta to transition the Centralia plant away from coal, thereby greatly reducing the plant's GHG emissions. Any agreement to transition off coal would also lead to significant reductions in emissions of pollutants that do cause RH.

### **F. Comments from the United States Environmental Protection Agency**

#### **Comment #7:**

Establish Reasonable Progress Goals (RPGs) for each Class I area that provide for an improvement in visibility for the most impaired days, as required by the RHR (20 CFR 51.308(d)(1)). In the draft SIP Ecology is only committing to "no degradation" at North Cascades National Park and Glacier Peak Wilderness.

#### **Ecology Response:**

Ecology established a RPGs of 15.62 Deciview (dv) for North Cascades National Park and Glacier Peaks Wilderness in the final RH SIP. Ecology found the Western Regional Air Partnerships (WRAP) projected 2018 visibility impairment at these Class I Areas did not include major existing SO<sub>2</sub> emission reductions at 3 large oil refineries and was heavily influenced by the extraordinarily high fire year of 2003. WRAP contractor Air Resource Specialists, Inc. calculated a revised 2018 visibility projection that Ecology is using as the RPG for these 2 Class I Areas. Additional information is available in Chapter 9 and Appendix E.

#### **Comment #8:**

Please further describe how the state has satisfied the requirement to consider the emission reductions that would be required to achieve the Uniform Rate of Progress (URP) for each Federal

Class I area for the period covered by the implementation plan in 40 CFR 51.308(d)(1)(B). Additional analysis is needed to demonstrate whether sources identified in the Four Factor Analysis could be controlled to achieve the URP for each Class I Area.

**Ecology Response:**

Ecology completed a Four Factor Analysis for the public review draft of the RH SIP. The Four Factor Analysis identified 5 source categories as candidates for future Sulfur Oxides (SO<sub>x</sub>) and NO<sub>x</sub> controls. Since Ecology needs to comply with the requirements of state law to develop controls on existing sources, as a best case Ecology could complete rules requiring additional controls on 2 source categories over a 5-year period. As a result additional controls are not reasonable as part of this RH SIP. Please see Appendix F and Chapter 9 for additional information.

**Comment #9:**

BART for TransAlta Centralia. Please explain why you did not conclude that Flex Fuel plus Selective Non-catalytic Reduction (SNCR) is BART for Centralia.

**Ecology Response:**

Ecology's BART determination concluded that flex fuels plus SNCR was not cost-effective based on cost estimates provided by TransAlta. Subsequent to the public comment period on the proposed BART determination, TransAlta was requested to supply additional information on the use and cost of SNCR at this facility. The company had its contractor supply additional information related to the basis of its SNCR cost estimates. This additional detail is contained in a March 31, 2010 report from CH2M Hill to Mr. Richard Griffith (Appendix G to the BART Technical Support Document). The March 31, 2010 report contains more accurate cost estimates.

Applying both Flex Fuels and SNCR substantially increases the cost per ton of NO<sub>x</sub> removed. This combined cost of requiring Flex Fuels plus SNCR rules out this approach as a cost effective means of reducing Nitrogen Dioxide (NO<sub>2</sub>) emissions. Retrofit costs to incorporate SNCR at this facility are higher than for other similarly sized facilities due to an extremely tight boiler outlet configuration, limited available space for new equipment, probable modifications to boiler tubes to accommodate the urea injection lances, construction access difficulties to install SNCR injection equipment, and location of urea storage and solution preparation equipment.

**Comment #10:**

Please provide an analysis of the effects on visibility of Flex Fuels plus SCR.

**Ecology Response:**

As part of the BART analysis, Ecology evaluated the costs associated with SCR. The CH2M Hill costs provided by the source are higher than Ecology costs based on EPA's Control Cost Manual. Whether CH2M Hill's or Ecology's costs are used, SCR is still ruled out as a cost effective means

of reducing nitrogen dioxide emissions. Cost information from both CH2M Hill and Ecology is located in Appendix L of the RH SIP.

Applying both Flex Fuels and SCR substantially increases the cost per ton of NO<sub>x</sub> removed and rules out this approach as a cost effective means of reducing NO<sub>2</sub> emissions. Since Ecology concluded that SCR alone was not cost effective, SCR plus Flex Fuels would be less cost effective, Ecology concluded that a visibility analysis for the SCR plus Flex Fuels scenario was not warranted.

## **G. Comments from the United States Department of the Interior National Park Service**

### **Comment #11:**

Ecology did not address our questions regarding differences in emissions projections for specific point sources between the PRP18a and PRP18b inventories. We asked Ecology to investigate the differences in emissions between the two inventory versions to determine which emissions best represented actual controls. Ecology did not answer this question but identified emissions reductions from three refineries totaling 9000 tons as the basis for revising the RPGs for North Cascades National Park and Glacier Peak Wilderness Area. If the emissions estimates reported in 2018 PRPb are more accurate, Ecology could demonstrate greater visibility improvement than shown by the earlier 2018 PRPa inventory.

### **Ecology Response:**

Only the 2018a inventory was available when Ecology began developing the state's RH SIP. By the time the WRAP PRP18b inventory and modeling were available, Ecology did not have time or resources to redo its analysis or conduct additional analyses. Ecology found that the PRP18a inventory did not include major existing SO<sub>2</sub> emission reductions at 3 large oil refineries. Ecology did look at the PRP18b inventory and learned that it did not include the major existing SO<sub>2</sub> emission reductions at 3 large oil refineries either.

### **Comment #12:**

Chapter 8 BART. We continue to request that Ecology re-consider its BART determination for TransAlta's Centralia power plant. Ecology and TransAlta have not provided a complete BART analysis of NO<sub>x</sub> controls for the Centralia power plant. We believe that a valid "top-down" approach to reducing NO<sub>x</sub> demonstrates that addition of SCR is BART for Centralia.

### **Ecology Response:**

Ecology believes that its BART analysis is complete and meets the regulatory criteria. Ecology considered the six factors required by the BART regulation and used the top-down approach to evaluating emission controls required by the BART regulation for determining BART for power plants over 750 MW site output. Under the top-down approach the facility starts with all control options that are available and technically feasible and ranks them by control effectiveness (most effective to least effective). Then the applicant/state analyzes the impacts (principally cost effectiveness in \$/ton removed) and selects the most effective control that could not be 'defeated' due to feasibility, cost, or any of the other 6 BART criteria.

**Comment #13:**

We continue to recommend that Ecology require controls on Tesoro by 2018. The controls have been demonstrated to be cost-effective if installed in 2018. Ecology should require controls by 2018 under reasonable progress.

**Ecology Response:**

Tesoro identified three heaters or groups of heaters for which replacement of the original conventional design burners with new low or ultra low NO<sub>x</sub> burners was both technically and economically feasible. One heater, which is subject to BART, will have controls installed by 2015. The BART required heater burner replacement will reduce plant NO<sub>x</sub> emissions by 62 tons per year.

Due to the time needed for the design approval process and the major maintenance cycle at the oil refinery, the installation of NO<sub>x</sub> controls on other emissions units was determined to not to meet BART requirements. This determination is detailed in the Technical Support Document for the Tesoro BART Determination in Appendix L.

Ecology agrees that additional reductions from the Tesoro facility may be necessary to continue reasonable progress toward natural visibility conditions. Additional NO<sub>x</sub> controls would be applied under future RACT requirements.

**Comment #14:**

Port Townsend Paper Corporation Mill

- Ecology should have included evaluations of upgrades to existing control equipment.
- Ecology must evaluate the visibility impacts of switching to lower sulfur fuels.
- Ecology should consider the visibility improvements that would occur at all of the Class I areas within 300 km of the BART source.
- A Residual Fuel Oil (RFO) limit of 0.5% sulfur should be considered as the default presumption for SO<sub>2</sub> BART.
- Addition of a wet ESP to control Course Particulate Matter (PM<sub>10</sub>) emissions from the Power Boiler#10 is cost-effective and represents BART.
- Ecology must re-evaluate all of the technically-feasible and proposed options against the proposed BART limits.

**Ecology Response:**

The initial modeling of the facility covered all Class I Areas within 300 km of the plant. That modeling showed that emissions from the plant exceeded the contribute threshold only at the Olympic National Park. In order to save resources, we focused all subsequent modeling data analyses only on the effects at Olympic National Park, though the modeling domain still contained all the other Class I areas.

Ecology and Port Townsend Paper Company evaluated upgrades and improvements to the existing emission control equipment on the power boiler and recovery furnace as part of the project.

Ecology evaluated the costs of switching to lower sulfur fuel oil in addition to the work done by the company in its analysis. The evaluation is documented in the Technical Support Document and in supporting materials from the company posted on our BART web page, specifically BART Analysis, 2nd Addendum. As demonstrated in our Technical Support Document, the cost of switching to a lower sulfur fuel oil is excessive on a \$/ton basis. Since the SO<sub>2</sub> reduction option was not cost effective, we determined that it did not need to have the visibility benefits from using it evaluated.

Ecology evaluated the visibility for the only 2 options that possibly were cost effective for implementation at the facility. As such, the evaluation is complete in accordance with the requirements of the BART guidance.

Ecology respectfully disagrees with the National Park Service that adding a wet electrostatic precipitator to Power Boiler #10 is cost effective.

Ecology notes that subsequent to the BART determination, Port Townsend Paper Corporation has received a Notice of Construction permit (NOC Order No. 7850) from the Department of Ecology's Industrial Section for a cogeneration project. Through the addition of a variety of new and state-of-the-art control equipment, this project will result in significant emission reductions from the facility over and above those contained in the BART order.

#### **Comment #15:**

Intalco Works primary aluminum smelter.

- Intalco and Ecology should better explain its rejection of seawater and sodium-based scrubbing (versus Limestone Forced Oxidation (LSFO)) for potline SO<sub>2</sub> emissions.
- Intalco appears to have overestimated costs for LSFO scrubbing. Intalco and Ecology should have used the EPA Control Cost Manual to estimate costs, or better document and justify costs that deviate from the Cost Manual approach. Intalco should justify the need for a redundant scrubbing module, or revise its estimates to eliminate it.
- Intalco and Ecology should provide modeling results for all Class I areas within 300 km for the base case as well as the 95% potline SO<sub>2</sub> removal case. Ecology should explain how it objectively evaluated the resulting visibility benefits to all of those Class I areas. We believe that, when Ecology does so, it will conclude that 95% SO<sub>2</sub> scrubbing of potline emissions is BART at Intalco.

#### **Ecology Response:**

Sea water scrubbing and sodium based scrubbing both result in a need to discharge wastewater. The source of sea water and the location for discharges requires the installation of new water intakes or outfalls in or adjacent to a marine protection area, the Cherry Point Aquatic Reserve. In 2000, the state-owned aquatic lands not already under a lease agreement were designated by the Washington State Department of Natural Resources (DNR) as part of this reserve to ensure long-

term environmental protection of herring spawning and rearing grounds. Herring are an important source of food for salmon (which include endangered species) which in turn are an important source of food for resident Orca whales.

The effect of designating the aquatic lands at Cherry Point as a reserve was to withdraw the lands from further leasing. DNR, the state agency responsible for protecting this area, will not allow permits for new water intake or discharges within or near the protection area. This significantly limits the feasible options and eliminates the seawater scrubbing option.

The Ecology and Intalco's cost evaluation in the Technical Support Document includes a one scrubbing vessel option. The costs presented by Alcoa utilized the concepts in the EPA Control Cost Manual, and Ecology separately used a newer EPA model to estimate the capital cost of a wet scrubbing system. That analysis is also included in the Technical Support Document.

The modeling results for all Class I areas within 300 km of the facility are included in the modeling done by the company and presented by Ecology in the support document. The modeling results were considered by Ecology along with the other 5 BART factors in making the BART determination.

Please see the Technical Support Document located in Appendix L.

**Comment #16:**

We continue to disagree with Ecology that the non-protocol California Meteorological Model (CALMET) modeling is suitable for exempting the Alcoa Wenatchee facility from BART. Even using the non-protocol approach, the visibility impacts from Alcoa were significant. We recommend that Ecology conduct a focused four factor analysis for Alcoa Wenatchee Works (costs of a wet scrubber were estimated generally in the materials presented in Appendix F) and require controls on the facility in the current five-year review period under reasonable progress.

**Ecology Response:**

As discussed in Appendix I, the finer grid modeling used for the Alcoa Wenatchee Works BART analysis is technically defensible and, given the complex terrain found in the vicinity of Alcoa Wenatchee Works, provides more realistic results for the impacts of the facility on the Alpine Lakes Wilderness (the most heavily impacted Class I area). As shown in Table 11-3, impacts from the BART eligible emission units at Alcoa Wenatchee Works on the Alpine Lakes Wilderness area were below the 0.5 dv threshold for contributing to visibility impairment and thus the facility was not required to perform a BART engineering analysis

Ecology's Four-Factor Analysis in Appendix F evaluates the potential for controls at Alcoa Wenatchee Works.

**Comment #17:**

We encourage Ecology to complete more rigorous source specific four factor analyses.

We believe that Ecology should commit to complete within two years a detailed technical analysis of control options as discussed in Chapter 10 Long Term Strategy (LTS) and commit within the

first five-year review period (by 2015) to implement controls for specific sources or source categories.

**Ecology Response:**

Ecology completed a Washington specific Four Factor Analysis for the public review draft of the RH SIP. The Four Factor Analysis identified 5 source categories as candidates for future SO<sub>x</sub> and NO<sub>x</sub> controls. Since Ecology needs to comply with the requirements of state law to develop controls on existing sources, Ecology as a best case could complete rules requiring additional controls on 2 source categories over a 5-year period. As a result additional controls are not reasonable as part of this first RH SIP. Please see Appendix F and Chapter 9 for additional information.

**Comment #18:**

Ecology should provide a stronger weight of evidence to support the revised RPG for North Cascades National Park and Glacier Peak Wilderness. The Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring data for the Class I areas for the period 2000-2008 should be presented to demonstrate that visibility has been maintained or improved compared to the 2000-2004 baseline. The 2008 emissions data (data available from the draft 2008 National Emissions Inventory for Washington) should be presented similar to Table 5-1 to establish that overall emissions are being reduced during the period 2002 to 2008. California Puff Model (CALPUFF) modeling could be applied to each refinery to demonstrate the relative magnitude of visibility changes after emissions reductions from these sources.

**Ecology Response:**

Ecology established a RPG of 15.62 dv for North Cascades National Park and Glacier Peaks Wilderness in the final RH SIP. Ecology found the WRAP's projected 2018 visibility impairment at these Class I Areas did not include major existing SO<sub>2</sub> emission reductions at 3 large oil refineries and was heavily influenced by the extraordinarily high fire year of 2003. WRAP contractor Air Resource Specialists, Inc. calculated a revised 2018 visibility projection that Ecology is using as the RPG for these 2 Class I Areas. Additional information is available in Chapter 9 and Appendix E.

**Comment #19:**

We remain concerned that the RPGs for several Class I Areas do not demonstrate significant improvement in visibility. Ecology should be more proactive in reducing its emissions contributions to these Class I Areas.

**Ecology Response:**

Ecology has a specific regulatory process it must follow to require new emission controls on existing sources. We anticipate that we can complete 2 of these rulemaking processes in the next 5 years. Additional information on Ecology's approach and timelines for further controls is located in Chapter 10.

**Comment #20:**

Ecology should set RPGs consistent with the WRAP modeling results that represent visibility benefits from existing controls. It is not consistent to set a RPG for the Most Impaired Days that use better visibility than projected by WRAP modeling and then set a RPG for the Least Impaired Days that is less visibility improvement than projected by the WRAP modeling.

### **Ecology Response:**

We quote the preamble to EPA's RH rule published on July 1, 1999 (64 FR 35714) to address the differences between RPGs for the Most Impaired Days and RPGs for the Least Impaired Days.

*Today's final rule requires the States to determine the rate of progress for remedying existing impairment [Most Impaired Days] that is reasonable, taking into consideration the statutory factors, and informed by input from the stakeholders (64 FR at 35731).*

*The final rule maintains the approach used in the proposed rule, which established a goal of no degradation for the best visibility days [Least Impaired Days]. The EPA believes this approach is consistent with the national goal in that it is designed to prevent future impairment, a fundamental concept of section 169A of the CAA....under the final rule, the clean days for most Class I areas are expected to improve over time (64 FR at 3733).*

## **H. Comments from the United States Department of Agriculture Forest Service**

### **Comment #21:**

The rate of progress in improving visibility in the Class I Areas analyzed in your draft RH SIP is much slower than the URP, yet Ecology is proposing no actions other than BART to remedy this. The rate of progress achieved through BART alone is inadequate to meet the requirements of the RHR and the expectations of citizens for excellent visibility conditions in the Class I Areas of this state.

### **Ecology Response:**

First, let us all recognize that Reasonable Progress does not depend solely on BART. The RPGs also reflect rules on the books, generally through 2006.

Secondly, Ecology has a specific regulatory process it must follow to require new emission controls on existing sources. We anticipate that as a best case, we can complete 2 of these rulemaking processes in the next 5 years.

Finally, there are new rules such as International Maritime Organization (IMO) rules for commercial marine shipping and EPA's corresponding commercial marine vessel rules which will come into effect before the end of the first visibility control period in 2018.

Additional information on Ecology's approach and timelines for further controls is located in Chapter 10.

**Comment #22:**

The BART analysis and selection of control requirements for TransAlta Centralia is not adequate. Post-combustion NO<sub>x</sub> controls are appropriate as BART for TransAlta Centralia coal-fired power plant. SCR was never adequately evaluated for BART. Once properly evaluated, if Flex Fuels plus SCR is not economically reasonable, Flex Fuels plus SNCR should be selected as BART.

**Ecology Response:**

It is Ecology's opinion that it has done a proper evaluation of BART for the Centralia Plant and has issued a BART Compliance Order that requires the emission control process that meets the BART criteria and regulation. Please see the information in section 4 of the BART Technical Support Document along with the supplemental materials related to this facility which are located in Appendix L.

**Comment #23:**

Ecology has inappropriately exempted Alcoa Wenatchee Aluminum Works from BART based upon a technically flawed modeling analysis. A BART analysis for this facility is needed, or the facility must take federally enforceable limits to reduce its contribution to haze in the Alpine Lakes Wilderness.

**Ecology Response:**

As described in Appendix I, Ecology is confident in the technical basis of the BART modeling for the Alcoa Wenatchee Works facility. This modeling showed that the BART eligible units at Alcoa Wenatchee facility do not cause or contribute to visibility impairment above the 0.5 dv threshold at any Class I area (see Table 11-3), so a BART analysis of this facility is not required by the RHR.

Ecology's Four-Factor Analysis in Appendix F evaluates the potential for controls at Alcoa Wenatchee Works.

**I. Comments from Earth Justice****Comment #24:**

Ecology must conduct a proper evaluation of BART for the Centralia plant and require the installation of a SCR system as BART for the NO<sub>x</sub> emissions at the TransAlta Centralia Plant.

**Ecology Response:**

It is Ecology's opinion that it has done a proper evaluation of BART for the Centralia Plant and has issued a BART Compliance Order that requires the emission control process that meets the BART criteria.

**Comment #25:**

Ecology has proposed a NO<sub>x</sub> emission limit for the Centralia plant of 0.24 lb/MMBtu 30-day rolling average with both units averaged together. This is well in excess of EPA's presumptive NO<sub>x</sub> BART limit for similar boiler and coal types. Indeed, the fact that Ecology's determination of NO<sub>x</sub> emission limits achievable with current NO<sub>x</sub> controls is 60% higher than EPA's presumptive BART limit for similar boiler and coal types dictates the addition of post-combustion controls for NO<sub>x</sub> removal in the BART analysis.

**Ecology Response:**

The presumptive BART limitation proposed by EPA is not a requirement, but a preliminary evaluation based on a limited number of facilities of what should be attainable through the use of combustion controls only. If a source cannot meet the presumptive BART limitation, the state can determine appropriate BART controls based on the six criteria in BART regulation.

**Comment #26:**

The burning of Powder River Basin coal at Centralia should simply be considered part of base case emissions in the BART evaluation. The "Flex Fuels" technology is the plant's current mode of operation and has been since at least 2006 if not earlier, it fails to conform to presumptive BART limits, and thus it does not meet the haze reduction requirements of the Clean Air Act (CAA) or EPA regulation.

**Ecology Response:**

Ecology does not agree with the commenter's characterization of the Flex Fuels project. The Flex Fuels project required the installation of boiler modifications so that TransAlta's boilers could burn low sulfur coal full-time. The lower sulfur content of PRB or similar coals contains less fuel bound nitrogen and higher net energy content compared to coal from the Centralia coal field. TransAlta's boilers were originally designed to burn coal mined from Centralia, which has lower energy content than low sulfur coal from the PRB.

Low sulfur coal provides more energy per pound burned. Because less coal is burned to meet the same boiler energy input requirements, less NO<sub>x</sub> is emitted. The Flex Fuels project will provide at least a 20% reduction in NO<sub>x</sub> emissions from previously permitted levels at the facility.

The Flex Fuels project is already installed, and Ecology has observed the reduction in NO<sub>x</sub> emissions. In combination with the existing combustion controls, the average NO<sub>x</sub> emissions for calendar 2008 from the TransAlta facility are approximately 0.21 lbs NO<sub>x</sub>/MMBtu, a rate that is more than a 25% reduction from the previously permitted level of 0.30 lb/MMBtu (the baseline emissions for conducting the BART analysis). The presumptive BART limitation proposed by EPA is not a requirement, but a preliminary evaluation based on a limited number of facilities of what should be attainable through the use of combustion controls only.

TransAlta will still impact visibility at Class I areas from its NO<sub>x</sub> emissions even with the Flex Fuel project. In fact, TransAlta will impact these Class I areas from its SO<sub>2</sub> and Particulate Matter (PM) emissions, even though TransAlta has been determined by EPA to meet BART for those pollutants due to its existing controls. The evaluation and application of BART under the

RHR does not require that a facility have no residual impact on visibility at Class I areas. BART instead requires a multiple factor analysis of a facility for emission reductions. Ecology has completed this analysis and use of PRB or similar coal meets the six BART criteria.

**Comment #27:**

Ecology should have required TransAlta to evaluate various combustion control techniques to reduce NO<sub>x</sub> emissions from the TransAlta Centralia Plant boilers and also should have required evaluation of those combustion control techniques along with SCR at the Trans Alta Centralia Plant.

**Ecology Response:**

It is Ecology's opinion that it has done a proper evaluation of BART for the Centralia Plant and has issued a BART Compliance Order that requires the emission control process that meets the BART criteria and regulation. Please see the information in section 4 of the BART Technical Support Document located in Appendix L of the RH SIP.

**Comment #28:**

TransAlta appears to have overstated the cost of hot-side SCR installation at the TransAlta Centralia Plant units. Total capital costs are higher than reported by others. TransAlta and Ecology used an improper cost method. TransAlta underestimated the NO<sub>x</sub> emission reductions that can be obtained with SCR.

**Ecology Response:**

Please see the fourth section of the Appendix L which contains additional information on the SCR costs at this facility. Whether costs are based on TransAlta's information or EPA's Control Cost Manual, SCR is not cost effective.

**Comment #29:**

Ecology must require that the BART analysis of SCR at the Centralia units be based on achievable NO<sub>x</sub> emission rates, which would be lower than the 0.07 lb/MMBtu emission rate assumed by TransAlta. NO<sub>x</sub> emission rates of 0.03 lb/MMBtu should be achievable at the Centralia units given the current NO<sub>x</sub> emission rate, which is below 0.24 lb/MMBtu. The ceiling for the NO<sub>x</sub> BART limit evaluated should be no higher than 0.05 lb/MMBtu, which should be readily achievable with SCR at the Centralia units.

**Ecology Response:**

Review of most power plant BART determinations in western states indicate that for the few facilities required (or volunteering) to install SCR for BART, none have an emission limitation below 0.07 lb/MMBtu.

**Comment #30:**

Neither TransAlta nor Ecology evaluated the cost-effectiveness of SCR in a low dust or tail end location. Ecology's BART analysis for Centralia is deficient without a cost analysis of alternative SCR locations.

**Ecology Response:**

Ecology did request TransAlta evaluate locating an SCR system after the Electrostatic Precipitators (ESPs). As indicated on the plant layout drawings submitted in March 2010, there is limited space to install the SCR catalyst and the flue gas will require reheating. It is not clear that reheating could be provided by a bypass of the ESPs, and still is able to meet the plant particulate limit and gypsum sales contract requirements. The information submitted in March 2010 is on our web page (<http://www.ecy.wa.gov/programs/air/TransAlta/TransAltaAgreement.html>). It is also available in the supplemental materials related to this facility which are located in Appendix L.

**Comment #31:**

If the TransAlta Centralia Plant were subject to the best control technology for NO<sub>x</sub> reductions, *i.e.*, SCR (along with Powder River Basin coal and current or upgraded combustion controls), as compared to continuing with the current status quo at the TransAlta Plant, significant environmental benefits would be obtained. Those benefits must be considered by Ecology in determining BART for NO<sub>x</sub> at the TransAlta Centralia Plant.

**Ecology Response:**

Ecology believes that its BART analysis is complete and meets the regulatory criteria. Ecology considered the six factors required by the BART regulation and used the top-down approach to evaluating emission controls required by the BART regulation for determining BART for power plants over 750 MW site output. Under the top-down approach the facility starts with all control options that are available and technically feasible and ranks them by control effectiveness (most effective to least effective). Then the applicant/state analyzes the impacts (principally cost effectiveness in \$/ton removed) and selects the most effective control that could not be 'defeated' due to feasibility, cost, or any of the other 6 BART criteria.

**Comment #32:**

Ecology cannot adopt its regional haze plan and finalize BART requirements for the TransAlta Centralia Plant without requiring analysis of the visibility benefits of Flex Fuels plus SCR at both the TransAlta Centralia Plant unit. Ecology has failed to require a modeling analysis that would show the benefits to RH in the state's national parks and wilderness areas due to installation of SCR along with the burning of Powder River Basin coal at the TransAlta Centralia Plant units. With that analysis, Ecology could then assess BART in terms of \$/dv of improvement, which would be a fair way to compare BART costs among different sources. Based on the available information, Conservation Organizations submit that such an analysis would further demonstrate that SCR is the appropriate requirement for BART.

**Ecology Response:**

Ecology believes that its BART analysis is complete and meets the regulatory criteria. Ecology considered the six factors required by the BART regulation and used the top-down approach to

evaluating emission controls required by the BART regulation for determining BART for power plants over 750 MW site output. We also note that we could find no state that utilized the \$/dv metric in making a BART determination.

**Comment #33:**

Ecology cannot justify allowing the Tesoro refinery to avoid having to meet BART for NO<sub>x</sub> simply because the compliance deadline does not fit the refinery's preferred maintenance cycle. At a minimum, Ecology should require Tesoro to install new low NO<sub>x</sub> burners in 2017 during the normal turnaround time for the CO boiler 2 (F-304) and the F6650 to F6653 heaters. Yet, Ecology has not specified any reasonable progress requirements for this (or any other) facility. There is simply no excuse for Ecology's failure to require the installation of cost-effective NO<sub>x</sub> controls at these units as part of its regional haze plan. The NO<sub>x</sub> and SO<sub>2</sub> BART determinations for the Tesoro Refinery are inadequate. Given that the SIP does not provide for reasonable progress toward the national visibility goal, it is imperative that Ecology require installation of cost effective pollution controls as BART, or at the minimum, to meet reasonable progress requirements.

**Ecology Response:**

Tesoro identified three heaters or groups of heaters for which replacement of the original conventional design burners with new low or ultra low NO<sub>x</sub> burners was both technically and economically feasible. One heater, which is subject to BART, will have controls installed by 2015. The BART required heater burner replacement will reduce plant NO<sub>x</sub> emissions by 62 tons per year.

Due to the time needed for the design approval process and the major maintenance cycle at the refinery, the installation of NO<sub>x</sub> controls on other emissions units was determined not to meet BART requirements. This determination is detailed in the Technical Support Document for the Tesoro BART Determination in Appendix L.

Ecology agrees that additional reductions from the Tesoro facility may be necessary to continue reasonable progress toward natural visibility conditions. Additional NO<sub>x</sub> controls would be applied under future RACT requirements.

**Comment #34:**

Until approval for the use of a non-guideline model is obtained from EPA, Ecology cannot assume that the Alcoa Wenatchee Works plant is exempt from BART. Ecology should have evaluated BART options for this facility.

**Ecology Response:**

The fine grid modeling of Alcoa Wenatchee emissions used the newly accepted guideline version of CALPUFF. The modeling showed no contribution to visibility impairment at Alpine Lakes Wilderness above the contribution threshold of 0.5 dv used the newly accepted guideline version of CALPUFF.

**Comment #35:**

As the modeling for Washington's Class I areas shows, there is no way the state can show reasonable progress toward the national visibility goal without the adoption of additional emission reduction measures.

### **Ecology Response:**

Ecology believes that it has established RPGs for 2018 under the regulatory criteria required by the CAA and the RHR. The RHR requires Washington to establish RPGs (expressed in  $\mu\text{v}$ ) for the 8 mandatory Class I Areas within the state. The RPGs are to provide for an improvement in visibility on the Most Impaired Days and ensure no degradation in visibility on the Least Impaired Days.

The establishment of the RPGs for the Most Impaired Days under the RHR requires Washington to consider both the uniform rate of progress needed to attain natural conditions by 2064 and the four factors required by the CAA to determine Reasonable Progress. These four statutory factors are costs of compliance, the time necessary for compliance, energy and non-air impacts of compliance, and the remaining useful life of any potentially affected sources. Please see Chapter 9 for additional information.

Under the RHR, Ecology must set new RPGs in 2018 to define Reasonable Progress for the next 10 years and repeat the establishment of new RPGs every 10 years thereafter.

### **J. Comments from Tesoro**

#### **Comment #36:**

Tesoro: Tesoro suggested changes to the following sections of the SIP:

- Chapter 9, Section 9.2.2, Table 9-2 & p. 9-13, 2<sup>nd</sup> paragraph
- Chapter 11, Section 11.4.2, Table 11-4
- Chapter 11, Section 11.5.2, 2<sup>nd</sup> paragraph
- Chapter 11, Section 11.5.2, 5<sup>th</sup> paragraph, 2<sup>nd</sup> & 3<sup>rd</sup> sentences
- Chapter 11, Section 11.5.2, Table 11-13
- Chapter 11, Section 11.6, Tables 11-16 & 11-17
- Appendix F, Page 2, Table 1
- Appendix F, page 13, Table 6
- Appendix F, page 14, Last paragraph, last sentence
- Appendix F, page 15, table

Tesoro also questioned the need for the data presented in the "Maximum  $\mu\text{v}$  impact on any one day in a 3 year period" column of Table 11.4. Tesoro pointed out the appropriate modeling result for comparison to the visibility impact contribution threshold is the 98<sup>th</sup> percentile value in the 3 year modeling period. The 98<sup>th</sup> percentile result is used because of the recognition that modeling results often produce higher "spikes" that are often data anomalies. Therefore, providing maximum visibility impact value in this table most likely represents an overestimation of the visibility impact.

### **Ecology Response:**

We have made many of the suggested edits. We agree with the comments regarding the maximum dv impact on any one day in a 3 year period. The US Department of Agriculture, Forest Service (USDA-FS) and US Department of the Interior, National Park Service (USDI-NPS) requested that information on maximum dv impacts be included with the BART modeling for each facility subject to BART.

## **K. TransAlta**

### **Comment #37:**

The Centralia Plant BART Order's coal sulfur content limit actually achieves "greater reasonable progress." The Centralia Plant's BART Order complies with EPA's RH Regulations as an "alternative measure." The 2668 lb/hr reduction in SO<sub>2</sub> emissions from baselines emissions is "greater" than the 984 lb/hr in NO<sub>x</sub> from adding SNCR to the Flex Fuels Projects. SO<sub>2</sub> contributes significantly more than nitrogen oxide emissions to visibility impairment at Washington Class 1 areas. The BART Order Support Document currently references the sulfur content limit as providing visibility benefits beyond those of the NO<sub>x</sub> limit but does not characterize the SO<sub>2</sub> emission reductions as a BART alternative.

TransAlta requests that Ecology review the proposed RH SIP and request EPA's approval of the Centralia Plant BART Order on two alternative grounds: First, the BART order NO<sub>x</sub> limits comply with the BART requirement. Second, the BART Order's coal sulfur content limit exceeds the BART requirement for SO<sub>2</sub> and achieves "greater reasonable progress" compared to the NO<sub>x</sub> control scenario of Flex Fuels Project plus SNCR. The BART order also qualifies for approval as an alternative BART measure.

### **Ecology Response:**

Ecology agrees that the SO<sub>2</sub> reduction coming from the requirement to use PRB or similar coal goes beyond EPA's 2002 SO<sub>2</sub> BART determination. This reduction results from an approximately 50% reduction in the sulfur content of the coal when the average sulfur content in Centralia mine coal is compared with PRB coal from the Jacobs Ranch.. The reduced sulfur content of the coal results in a 'less stressed' wet scrubber system and a lower concentration of SO<sub>2</sub> in the flue gas. The lower concentration of SO<sub>2</sub> in the flue gas entering the scrubber directly translates to less SO<sub>2</sub> emitted from the stack and being converted into secondary particulates that impair visibility. The end result is greater reasonable progress toward the natural condition visibility goal than would be achieved by BART alone.

### **Comment #38:**

The remaining useful life will be nine years or less if EPA approves the RH SIP in 2011 and new controls would not be installed and operations until 2016. TransAlta requests that the following statement be added to the Support Document: "When an enforceable agreement to implement Executive Order 09-05 is completed, Ecology will update the BART cost-effectiveness analysis. Under an agreement consistent with the Executive Order, SNCR and SCR will be significantly less cost-effective than under the current useful life assumption."

**Ecology Response:**

EPA requires a federally enforceable order to shutdown the plant by a specific date for any limitation on the lifetime of a facility. Without an enforceable order, Ecology must assume that there is no restriction on the lifetime of the facility.

**Comment #39:**

TransAlta recommends that the Mohave Study be referenced in the RH SIP with the following comment: “The Mohave Study is the only study of the actual visibility impacts of reducing emissions from a major power plant by 100 percent. The Study supports the conclusion that CALPUFF may overstate visibility benefits from emission reductions by the Centralia Plant. The Mohave Study should be a consideration when evaluating the modeled visibility benefits of emission reductions.

**Ecology Response:**

The commenter refers to a scientific paper by Jonathan Terhorst and Mark Berman, “Effect of coal-fired power generation on visibility in a nearby national park” published in Atmospheric Environment 44 (2010), p. 2524-2531.

Ecology determined visibility benefits from CALPUFF modeling in compliance with EPA’s regulatory guidelines for BART determinations and a three state protocol that was developed in coordination with EPA. Ecology believes that it conducted the appropriate modeling for this facility.

**Comment #40:**

TransAlta encourages the Department of Ecology to respond to the National Parks Conservation Association’s (NPCA’s) letter by stating in the RH SIP or a separate letter that the Clean Air Act authorizes the states to exercise their discretion in tailoring BART determinations for individual sources and that “national consistency” should not be a significant factor in EPA’s review and approval of the RH SIP.

**Ecology Response:**

Ecology developed its BART determinations based on the six criteria and other requirements of EPA’s regulatory guidelines for BART determinations. While all states across the country should be following EPA’s regulatory guidelines for BART determinations, Ecology expects that each state will tailor its individual BART determinations to each individual BART source.

**L. Comments from Port Townsend Paper Corporation****Comment #41:**

PTPC asks Ecology to revise Order No. 7839 to build some monitoring flexibility into the order, so that the deletion of obsolete monitoring methods does not require a SIP amendment. We do not propose that Ecology should give itself authority to weaken the monitoring requirements for BART-eligible process units. We seek only to give Ecology the flexibility to approve changes that maintain or enhance the stringency of the monitoring, without amending the SIP.

### **Ecology Response:**

The request is reasonable in light of the forthcoming Boiler Maximum Available Control Technology (MACT) and Commercial and Industrial Solid Waste Incinerator (CISWI) rules from EPA and the various new monitoring requirements contained in the proposed rules and what can be anticipated in the final rule. We have issued a revised Compliance Order to allow substitution of the monitoring recordkeeping and reporting to with methods that will provide equal or better information on emissions and compliance status.

### **M. Regulation of Regional Haze**

#### **Comment #42:**

We received several comments encouraging us to regulate RH. A few examples include.

- Air pollution in Washington is projected to increase by 2018, but the state says it is making progress towards eliminating haze-pollution. This conclusion is inconsistent with actual projections.
- As a 25 year volunteer fire lookout for the Forest Service I am speaking here from bitter personal experience regarding air quality. As each week went by during fire season, my ability to spot fires diminished due to continually degrading air quality until finally I was actually guessing if I was seeing a smoke or not. The fire season began in late June or early July at my lookout, Suntop, just North of Mt. Rainier, and the skies were clear, clean, sweet and blue. As the season progressed we would first see the colors of the sunsets begin to change from red to a bronze/gold color, very pretty but an indication of chemicals in the air. Then we would see a wall of brown air to the west. Daily it would edge closer and closer until finally there was no more blue sky to the west, but, east of the Cascade Mountains the air was still clear and blue, as the muck was held back by the Cascades.

Then a few days later streaks of muck began flowing Eastward across the Cascades, then quickly there were no more blue skies. Just slowly roiling muck rendering visibility very difficult, and breathing nasty tasting. This needs to be stopped!

- Washington's plan should not allow the air quality in North Cascades National Park and Glacier Peak Wilderness to get worse.
- Washington's plan must get rid of haze pollution in Olympic National Park by no later than 2064, but as currently written the plan will allow hazy air at Olympic for 323 more years!

- Plans to reduce haze in Olympic National park must be implemented on a timetable that will allow my children to appreciate them – significant reduction in the next fifty years at least.
- My husband and I were just up on Hurricane Ridge the other day, along with people from all over the country and world. If pollution from the coal plant obscures the view there, no one will come. What a shame, since the Olympic Peninsula is ever so worth protecting!
- With regards to the plan according to National Parks and Conservation Association analysis it will cause the air pollution to increase, not decrease over the next decade. The goal for Washington is to completely eliminate haze in Olympia National Park by 2064. This plan actually allows hazy air in the Olympics for 323 more years.

One of the reasons that we heard that the State couldn't put forward a plan that would adequately deal with the pollution is that it would end up being too expensive for the company but we see this as putting corporate profits against – ahead of protecting our cherished national parks.

We also hear a lot of talk about communities and strong economy and jobs. According to the NPCA, the National Park sites and Class 1 Air Sheds like Mount Rainier National Park on the Olympic Peninsula in Washington support 3,800 local jobs and saw more than 4.2 million recreation visits. In the same year park visitors and staff contributed more than \$160 million to local economies. Those are jobs and that's an economy structure that can't be out-sourced.

Across the state travel and tourism spending in 2008 supported more than 150,000 local jobs, contributed \$15.4 billion to the Washington economy and generated \$1.1 billion in state and local taxes. I think that has to be taken into consideration when the economics are considered.

### **Ecology Response:**

Protecting visibility in Washington State's National Parks and wilderness areas is an important component of air pollution control. These areas are part of what makes Washington a desirable place to live and visit. Having clear, unspoiled views of scenery ensures all of us will continue to enjoy these special spaces. The same pollutants that cause haze also harm human health and the environment. This is another important reason for regulating haze-causing pollutants.

### **Comment #43:**

We also received several comments asking us not to regulate RH. A few examples include:

- You are going to regulate Haze now!

How are you going to avoid forest fires cut down all the trees and pave over the mountains?

I bet 90 percent of the haze is caused by the fires set buy lightning how are you going to fine God or mother nature.

Thank you I guess I needed to vent and you were the first government agency to ask me for my opinion in a long time... sorry I don't think your idea is a good one.

- We do not need another rule that further reduces our personal freedoms enacted by far away bureaucrats who will be completely unaffected with the restrictions created by said rule.

Any proposed rules regulating home heating, wood stoves, and fireplaces merely hurts people in this area without any affect air quality because most of the pollution comes on the winds from far-off places.

Please concern yourself with real pollution.... Say that pollution that comes from cars in the Seattle area. Once you have your house cleaned up, you have my permission to consider mine.

- If there are problems with man-made pollutants they are being generated by the people who are competing with us (USA) in the world (primarily China and India) of industry. I suggest you get them to clean up their acts. The DOE can stop destroying forest roads. When we have the inevitable wild fires in our wild places, DOE's radical insane policies will be one of the factors resulting in a very large amount of air pollutants.

### **Ecology Response:**

In 1977, the U S Congress amended the CAA to include provisions to protect scenic vistas in National Parks and wilderness areas. The objectives of these amendments are to remedy existing visibility impairment caused by man-made sources and prevent any future degradation of visibility by man-made sources. The RH Regulations require each state to adopt a RH SIP that focuses on improving the haziest days and protecting the clearest days. This RH SIP was developed to identify both man-made and natural sources of haze and to reduce man-made emissions that contribute to haze.

### **N. Prescribed Fire**

#### **Comment #44:**

We received several comments concerned with the effects the SIP would have on prescribed fires. A few examples include:

- The Cle Elum Ranger District will once again burn 800 acres and slash piles through the district in September. There will be smoke visible from HW 97, I-90, and the Kittitas Valley. In addition to spending my tax dollars on this effort, I will have to pay for medications and natural remedies to stave off the “secondhand” smoke from this ban. Why aren't there controls on the practice of slash burning?
- One of the best ways to help with haze-reduction is to have controls on slash burning. This includes the burns allowed by the Forest Service in the national parks. The carcinogenic smoke settles in Cle Elum's and Roslyn's valley and will not dissipate before the 'forest

fires” begin in August and September. We have our air polluted for the whole spring, summer and fall. It is the burning of slash that pollutes the air and causes health issues. We need to become a true SMOKE FREE STATE!

- Entiat community suffers from the harmful effects of wildfire-created poor air quality almost every summer. Entiat community prefers smoke from prescribed fire which is restoring or maintaining ecosystems rather than wildfire smoke. We ask that DOE recognize their responsibility as the ESB 2514 lead agency and the ongoing partnership with the Entiat Watershed Planning Unit by classifying prescribed fire in the Entiat Watershed that is covered by one of the above plans as ‘natural’.

We think the onerous bureaucratic permitting requirements of anthropogenic prescribed fires may doom the success of our plans which are being enthusiastically implemented. Entiat community has counted on and prided itself on its collaboration with DOE water resources. We truly understand that cost that effective collaboration takes. Entiat landowners have donated/volunteered thousands of hours working on these plans and securing community acceptance of them. I would not be happy if DOE air resources decisions sabotaged our grass-roots plans.

- Eastern Washington forests are in bad shape, as a result of fire suppression. Trees that would have been naturally thinned out, by wild fire survive. The result is thickets of small diameter unhealthy trees.

When a fire occurs under dry windy conditions, all of the trees over large areas get wiped out- and a huge amount of smoke pours into the air. In prescribed fire, managers pick their time for a fire to occur. The intent is to reduce the fuel under ideal conditions. There is also a benefit in that many shrubs that provide forage for wildlife are rejuvenated by fire.

Any intent to curtail prescribed fire due to smoke concerns ignores the fact that every acre of eastern Washington forest is going to burn sooner or later. The choice is between little fires and big fires. There will be smoke no matter what policy is in place.

Please leave prescribed fire off the list of activities you intend to regulate.

- Based on the foregoing in reference to the RH Reduction Implementation Plan we respectfully submit that prescribed burning be segregated from other “anthropogenic” pollution sources and as such that prescribed burning, and emissions there from, be managed as an ecosystem service that sustains fire dependent ecosystems, reduces negative environmental, ecological, economic, and social impacts.

Further we request that prescribed burning emissions be considered “natural” emissions. Despite the ignition source, pyrolysis or fire in its natural environment, i.e., fire dependent ecosystems, is a natural process.

### **Ecology Response:**

The federal RHR requires states to consider multiple factors in developing a long-term strategy. One of these factors is smoke management techniques for forestry management purposes.

Under state law the Washington State Department of Natural Resources serves as the Smoke Management Plan (SMP) administrator and is responsible for managing smoke emissions from silvicultural forest burning. The SMP “applies to all persons, landowners, companies, state and federal land management agencies, and others who do outdoor burning in Washington State on lands where Washington DNR provides fire protection or where such burning occurs on federally managed, unimproved forestlands and tribal lands of participating Indian nations in the state” (1998 Smoke Management Plan, page 5).

The WRAP is a voluntary organization of western states, tribes, and federal agencies that worked collaboratively to address visibility impairment in mandatory Class I Areas. In 1998 WRAP established a Fire Emissions Joint Forum (FEJF) to make recommendations to the WRAP and related WRAP forums on policies and methodologies for categorizing natural and human-caused emissions from fire.

Washington’s RH SIP was developed following the RHR and the policy recommendations developed by the WRAP’s FEJF.

## **O. Emissions from Ships**

### **Comment #45:**

Particularly while at anchor ships continue to discharge visible exhaust. In calm weather especially, the exhaust of one ship can cause a visible layer of haze covering much of the harbor and adjacent foothills.

Based on my frequent observations of shipping in Port Angeles harbor and passing the entrance of the harbor, the level of emissions and related haze must be tremendous. Taken cumulatively over the area of the Strait and Puget Sound, this influence is potentially affecting several of the National Parks and wilderness areas in this project.

I have no way of quantifying the amount or degree of this problem other than my personal, visual observations. I don't know if stopping or mitigating emissions from ships is possible in the short-term, especially while those that are in motion. But ships at anchor, and especially those at dock, should be required to shut down if they are to remain for a certain period.

### **Ecology Response:**

The impact of visibility impairment from ship emissions on mandatory Class I areas has been evaluated and can be a noticeable portion of the emissions. Some adopted rules, which will lead to emission reductions and visibility improvement, are too recent to have been taken into account in the 2018a inventories or the PRP18a modeling used for Washington State’s RH SIP. These include the following:

- Marine Diesel Emission Standards for engines with a cylinder displacement of less than 30 liters
- IMO rules reducing NO<sub>2</sub> and SO<sub>2</sub> emissions from commercial marine vessels

- Corresponding EPA rules for Category 3 Marine Diesel Engines with a cylinder displacement equal to or greater than 30 liters
- Some of Washington's ports are providing electricity to ships at dock.

## **P. Emissions from Biomass**

### **Comment #46:**

We received several comments regarding regulation of biomass emissions. A few examples include:

- My concerns regarding air quality include the current plans for bringing dozens of biomass plants to Washington State. Allowing these plants without size limits and maximum pollutant control standards will further destroy our air quality.
- Please NOTE that particulate emissions from biomass burning have been documented as higher than from coal. PLEASE ensure that all pollution controls include emissions from all sizes of biomass incinerators.

The several proposed biomass incinerators in the South Sound area will add considerably to the health hazards as well as to the haze over our beautiful Olympic Peninsula.

- We the people, through our elected and appointed officials should be doing everything possible to ensure that the proposed Biomass Plants don't happen or are prevented from Hazing our Parks, which they will, my opinion. This is a dirty technology that will further pollute the air and make us all less healthy, and the Polluters are looking to get paid by the Taxpayers of America through Stimulus Money Grants. This is shameful.

### **Ecology Response:**

Ecology has conducted a four-factor analysis on existing wood-fired boilers. The four factor analysis concluded there may be individual existing units where cost-effective emission controls can be installed. Additional information is located in Appendix F.

Starting in January 2011 existing wood-fired boilers are expected to be subject to requirements of new federal regulations. These new requirements are anticipated to result in reductions of particulate matter and other pollutants from existing boilers.

New wood fired boilers are required to implement BACT for all pollutants. The level of control required to meet this level of control is very stringent. Starting in January 2011, these units will also have to meet more stringent requirements than existing wood fired boilers.

## **Q. Health Effects**

### **Comment #47:**

We received several comments concerned with health effects. A few examples include:

- Let's not forget the long-term effects on human health and those who suffer from bronchial and asthmatic issues. This haze has to blow somewhere, and into the cities it goes!
- Nitrogen oxide pollution is also a threat to public health. This type of pollution has been linked to heart and lung disease and in some cases can contribute to premature death. It can cause respiratory problems such as asthma, emphysema and bronchitis and can damage lung tissue and aggravate existing heart disease.
- Haze pollution harms public wilderness areas and hurts public health. Please stop it.
- I am a licensed physician residing in Wenatchee, WA. While I am completely in favor of improving air quality for the restoration of visibility, and for reducing global warming, I would also like to remind you of the adverse health effects of air pollution. These affect all of us, not just those suffering from lung disease. The impact of open burning in the Wenatchee valley is evident whenever the air is stagnant and visibility is reduced to a few miles. Less tangible but possible to calculate would be the increased hospital admissions and the added premium of health care expenses during these events. It is also very likely that the agricultural burning contributes to the dispersion of exotic pollutants which are carcinogens as well. Needless to say, there is no regulation of agricultural burning so long as there is no enforcement. It is my opinion that WA State efforts to improve air quality should be accelerated as rapidly as possible.
- Haze pollution damages our health and is horrible for young lungs. TransAlta is shameful. BURNING COAL? COME ON!! HEART AND LUNG DISEASE? PREMATURE DEATHS? For WHAT? PROFIT?
- As an ex-worker at the Centralia steam plant for over 23 years, I have seen the what has happened to my health and other workers health from working at the plant. It is time to shut it down before more people become as ill as I am.
- The same pollutants that cause haze are also damaging our human health here in Washington. As the largest source of NO<sub>x</sub> pollution in our state the Centralia generation facility owned by TransAlta is contributing to the known health impacts of nitrogen oxide which include impaired lung development, which often leads to asthma and COPD, and asthma exacerbation, and unfortunately as I think was mentioned here, the people most vulnerable to these impacts are children and the elderly and the already sick. I would like to testify in support of a strong plan to reduce these haze-causing pollutants.
- In our state our biggest concern is the coal plant in Centralia. I'm sorry to say that the plan in front of you, the NO<sub>x</sub> Plan for the State of Washington is not one that we find makes an improvement in the situation. For us the issue is human health, the toxics that affect newborns, the toxics that affect old people, the pollution that is harmful not only to our glaciers but also to the poorest who can't get healthcare for the illnesses that they face. So we ask not just for protection from haze but also protection from the mercury, from the coal ash and from the carbon pollution that this plant creates.

### **Ecology Response:**

The same pollutants that cause haze also harm human health and the environment. This is another reason for regulating haze-causing pollutants.

## **R. Other**

### **Comment #48:**

It is my understanding that the TransAlta plant is also a major source of mercury pollution. I believe that the Department of Ecology should take steps to reduce putting that hazardous element into the environment.

#### **Ecology Response:**

Mercury emissions are not visibility-impairing pollutants and thus are not addressed in the RH SIP. There is a separate agreement between Ecology and TransAlta that will result in the plant reducing its mercury emissions by at least 50% by January 2012. Based on testing by the company, it is anticipated that the actual reduction achieved will be between 70 and 80%.

### **Comment #49:**

The League of Women Voters maintains that restricting GHG emissions from coal fired power plants is one of the most important steps that we can take to counter global climate change. Coal is the largest source of global warming pollution in the United States.

#### **Ecology Response:**

GHGs are not regulated pollutants for purposes of RH and therefore were not considered for purposes of meeting RH requirements. However, Ecology, Department of Commerce, and the Governor's Office are on a separate track to work with TransAlta to transition the Centralia plant away from coal, thereby greatly reducing the plant's greenhouse gas emissions.

### **Comment #50:**

We received the following comments regarding the public process for the development of the RH SIP:

- Looking at all the problems with the coal plant really lacked public process. That is why today the Sierra Club hosted a number of events where we had hundreds of people coming out across the state from Vancouver to Spokane, to Kent, to Seattle, to Olympia, as well as other smaller events and smaller locations across the state because there has been such a lack of public process.

We can't honestly assess and engage the public and assess the problems unless we do many more of these forums and because we have lacked so many forums over the past year and a half we've had to go out and create our own forums to bring the public into this part of the equation.

- Last year as we all remember being here for the hearing was a chance for the public to comment on the initial step of this process, we submitted letters, a united message from

environmental groups, faith groups, health groups saying that the draft that was put forth was completely inadequate.

We generated and talked with folks across the state representing those constituencies and more than 1,200 comments were entered into the record along those lines. According to analysis and the review that we've seen there has been no substantial improvement to the plan based on all that public input. So we're looking at this process, this one evening hearing here and hoping that this testimony will weigh in a lot more and maybe have some more influence than perhaps all that previous comment had.

### **Ecology Response:**

Ecology conducted formal public participation on the RH SIP in two stages. Each stage included a formal public comment period and a public hearing. In October 2009 Ecology held two hearings on its preliminary determinations for controls on certain older sources of visibility-impairing pollutants. On September 28, 2010, Ecology held a public hearing on the entire RH SIP and specifically on the other two major requirements of the RHR, RPGs and the Long-Term Strategy (LTS) for Visibility Improvement.

Ecology reviews all comments received during a comment period and makes changes to the documents open for comment as appropriate, given the regulatory requirements.

### **Comment #51:**

I would like to share one comment regarding "haze". I have camped in 3 campgrounds recently. The problem I see is smoke from campfires in the campgrounds. It gets so bad I cannot keep our windows open in our small RV or walk in the area during the evening or when major fires are burning. People bring in or buy huge amounts of wood, build very large fires and burn all day (often leaving them going and going inside their RVs to cook and eat meals). They burn fires and get groups together drinking and making noise until late. Then go to bed and let fires smolder. I propose 1. limiting hours of burning to 2 hours for morning meals and 2 at night 5-7 pm to cook meals ( and enforcing the time). 2. discouraging campfires by teaching people better and not featuring fires in all the literature about camping such as the newspapers. 3. Teaching people to stop burning garbage in fires. 4. Raise prices on campfire wood sold or stopping the sale of wood. 4. Having "no burn" sections in campground to phase out campfires.

I know this is something that people associate with camping, but we can change attitudes and behaviors, it has been done with many things before such as cutting wood in the campgrounds or feeding wildlife.

The second comment I have is that we need to discourage driving by getting some shuttles in place, especially natural gas or electric buses. I love parks that have these in place. Some parks allow no driving in some areas and it works for them, parts of Olympic National Park could do this also including Hurricane Ridge area.

### **Ecology Response:**

These are all good ideas that should be brought up with the campground owners/operators such as the National Park Service, US Forest Service, Washington State Parks, and private campground owners.

**Comment #52:**

Ecology received some comments on ways to reduce air pollution.

- I highly recommend reducing "regional haze" in Bellingham and Whatcom County through hybrid heat pump installations perhaps funded by federal stimulus "green shoots" dollars.
- I have a plan and drawings for a project that could provide a world wide effort to clean our air and put many people to work. This would save our race from airborne toxins and low visibility.
- Pursue clean energy such as water turbine/dams, solar, wind and geothermal. Not biomass! That too produces air pollution!

**Ecology Response:**

Thank you for your comments. Ecology is always looking at ways to reduce air pollution.

**S. Commenter Index**

The table below lists the names of organizations or individuals who submitted a comment on the rule proposal and where you can find Ecology’s response to the comment(s). We listed the names in the table in alphabetical order of last names.

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