

## Response to Comments Regarding Draft Air Operating Permit SW98-8-R3 for TransAlta Centralia Generation, LLC

**Background.** The Southwest Clean Air Agency issued draft Air Operating Permit SW98-8-R3 for TransAlta Centralia Generation, LLC on May 15, 2009. The draft Air Operating Permit was issued in response to a Title V renewal application submitted by TransAlta Centralia Generation, LLC in accordance with the deadline contained in Air Operating Permit SW98-8-R2-B.

During the public comment period, 1,279 substantially identical e-mail comments were received through a Sierra Club website, a set of consolidated comments were received from EarthJustice on behalf of a group of organizations (referred to collectively as the "Conservation Organizations" in the comments), and one comment letter was received from an individual via U.S. mail. The "Conservation Organizations" consist of Sierra Club's Cascade Chapter, the National Parks Conservation Association, the Northwest Environmental Defense Center and the NW Energy Coalition.

### Comments Submitted Through Sierra Club's Website

**Comments.** The text of the comments submitted in 1,279 individual electronic mail messages through Sierra Club's website is exactly the same or substantially similar to the text reproduced below:

*Greenhouse gas emissions from the TransAlta coal plant threaten the health, welfare, and economy of Washington State and its residents. Decision makers throughout the state and federal governments have recognized the harmful impacts of global warming pollution, yet the draft Title V clean air permit recently issued by the Southwest Clean Air Agency ("SWCAA") for the TransAlta coal plant fails to address greenhouse gas emissions. Please ensure that SWCAA issues a final permit that uses best available science to limit greenhouse gas emissions from the TransAlta coal plant.*

*The TransAlta coal plant is Washington State's single largest greenhouse gas polluter and is therefore a threat to public health and the state's economy. Governor Gregoire has ordered the plant to reduce its global warming pollution by 50% by 2025, but this is inadequate. Scientists warn us that more immediate action must be taken to avoid the worst effects of climate change. Consequentially, the Department of Ecology and the Southwest Clean Air Agency have the legal mandate and the moral obligation to protect public welfare by including greenhouse gas controls in the TransAlta coal plant's Title V clean air permit. If we don't act immediately to reduce global warming pollution we are condemning our children to a world that will be much worse than the one we inherited. This is a moral failure of leadership and, under our clean air laws, also a legal failure. In the words of Governor Gregoire, "We can't further delay action on climate change. This problem is too big and its consequences too dire to wait any longer. We must address climate change today. Tomorrow is too late."*

*Pollution from the TransAlta coal plant affects the lives of all Washington residents, but not everyone has had the opportunity to have their voices heard yet. Please extend the public comment period for this permit and hold a public hearing close to my community. We all deserve to have our voices heard in this process.*

Response. The Air Operating Permit Program implements Title V of the Federal Clean Air Act. As indicated in Washington Administrative Code (WAC) 173-401-100, the Air Operating Permit Program does not, and can not, impose substantive new requirements on sources. The federal and state Air Operating Permit Program does not authorize or allow any agency, including SWCAA, to impose new emission or operating limits on a facility. On the other hand, if new permit limits or other requirements were to be imposed by a rule, permit, or Regulatory Order, the Air Operating Permit for TransAlta will be revised to include those new applicable requirements. Please note that any new requirements that become applicable to TransAlta must be complied with at the time they become effective irrespective of when they are included in the Air Operating Permit.

New requirements related to greenhouse gas emissions have been proposed and are being contemplated at the state and national level. However, at this time there are no applicable requirements related to greenhouse gas emissions, other than CO<sub>2</sub> emission monitoring as part of the Acid Rain Program, to incorporate into the Air Operating Permit. The CO<sub>2</sub> emission monitoring requirement has been incorporated into the Air Operating Permit.

Because none of the issues raised in your letter can be addressed through the Air Operating Permit Program, SWCAA is respectfully denying your request to extend the public comment period and hold a public hearing on draft Air Operating Permit 98-8-R3 for TransAlta Centralia Generation, LLC.

## **Comments from the Conservation Organizations**

Comments. The full text of the comments is attached as Appendix A. The comments addressed the following subject areas:

1. Carbon dioxide (CO<sub>2</sub>): The Conservation Organizations argue that carbon dioxide emission limits must be included in the Title V permit. The Conservation Organizations comment that CO<sub>2</sub> meets the definition of an air contaminant under the Washington Clean Air Act, that emissions of CO<sub>2</sub> are a threat to the public health and welfare, and therefore such emissions must be regulated under WAC 173-400-040(5) and SWCAA 400-040(5).
2. Mercury: The Conservation Organizations argue that mercury emission limits or standards must be included in the Title V permit in accordance with WAC 173-400-040(5), SWCAA 400-040(5) and federal Maximum Achievable Control Technology (MACT) requirements.
3. Nitrogen Oxides: The Conservation Organizations argue that more stringent emission limits for nitrogen oxides must be included in the permit to protect visibility in federal Class I areas.

General Response. The Air Operating Permit Program implements Title V of the Federal Clean Air Act. As indicated in Washington Administrative Code (WAC) 173-401-100, the Air Operating Permit Program does not, and can not, impose substantive new requirements on sources. The federal and state Air Operating Permit Program does not authorize or allow any agency, including SWCAA, to impose new emission or operating limits on a facility. On the other hand, if new permit limits or other requirements were to be imposed by a rule, permit, or Regulatory Order, the Air Operating Permit for TransAlta will be revised to include those new applicable requirements. Please note that any new requirements that become applicable to TransAlta must be complied with at the time they become effective irrespective of when they are included in the Air Operating Permit.

Response No. 1. WAC 173-400-040(5) and SWCAA 400-040(5) "Emissions detrimental to persons or property" reads:

*"No person shall cause or permit the emission of any air contaminant from any source" if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business."*

New requirements related to greenhouse gas emissions have been proposed and are being contemplated at the state and national level. In part because state and federal legislation is currently under consideration to regulate emissions of CO<sub>2</sub>, SWCAA believes it would be inappropriate to individually address CO<sub>2</sub> emissions from this facility. At this time there are no applicable requirements related to greenhouse gas emissions in regulation, permits, or Regulatory Orders, other than CO<sub>2</sub> emission monitoring as part of the Acid Rain Program, to incorporate into the Air Operating Permit. The CO<sub>2</sub> emission monitoring requirement has been incorporated into the Air Operating Permit.

Response No. 2. New requirements related to mercury emissions will be addressed by new rules currently under development by the USEPA in accordance with Section 112 of the Federal Clean Air Act. This is consistent with the United States Court of Appeals for the District of Columbia Circuit's ruling on February 8, 2008 that EPA's removal of coal-fired Utility Units from the list of sources to be regulated under section 112 of the Federal Clean Air Act was unlawful. In addition, the Washington Department of Ecology is currently pursuing an agreement with TransAlta to voluntarily install mercury emission control technology. No enforceable agreement exists at this time to incorporate into the Air Operating Permit.

Coal-fired electrical generating units are not a category with a Clean Air Act section 112(j) deadline, therefore SWCAA is not required to conduct a case-by-case MACT evaluation for these units. Section 112(g)(2) requires that a case-by-case MACT determination be made for new or reconstructed major sources of HAP emissions where no applicable emissions limitations have been established by EPA. The electrical generating units at this facility are not new or reconstructed since the listing of coal-fired electrical generating units as an source applicable to MACT regulation on December 20, 2000.

Response No. 3. New requirements or emission limits related to visibility impacts must be addressed under Washington's visibility protection program. Any new requirements developed to address visibility impacts from TransAlta Centralia Generation, LLC's Centralia Plant will be generated by the Washington Department of Ecology implementing WAC 173-400-151. The Washington Department of Ecology is currently in the process of evaluating Best Available Retrofit Technology (BART) for this facility. The Title V permit will be updated with any new applicable requirements resulting from this BART analysis when it is finalized with a Regulatory Order.

### **Comments From Roger Cole**

Comments. The comment text is reproduced below:

**Greetings:**

**I would like to comment on the clean air permit for the TransAlta coal plant in Centralia. I will start by stating that the EPA is in the process of making a new standard for regulating carbon dioxide as an endangerment to human health. I recently traveled to Seattle for the EPA hearing along with 100 other people from the Portland area. A rally outside the hearing drew about 2,000 people and about 200 others testified inside. The testimony was at about 9 to 1 in favor of regulating CO2.**

**Carbon dioxide is one of many pollutants emitted by coal-fired power plants. It is estimated that Centralia emits 9 million tons of CO2 annually. We cannot and must not ignore that because CO2 is directly related to global warming or climate change.**

**I am not going to go into the hazards of climate change. We are all familiar with them and we must do something now, not in the future. The climate is increasing in temperature every year that we delay taking action.**

**Sequestration is not an option. Sequestration is an unproven technology. Besides SB 6001 requires coal plant emissions to be 100% captured. That is a pretty high standard, perhaps unrealistic, but that is the law in Washington.**

**I would like to suggest that you deny the permit for Centralia to continue operating because of the carbon dioxide problem, which is simply inherent in any coal plant. Coal plants are just too dirty to continue operation. We can replace the energy lost through renewable sources. Wind potential in Washington State is more than enough to offset the power lost by closing down Centralia.**

Response. Please see the SWCAA's response to the comments submitted through Sierra Club's website and the first comment response to the Conservation Organizations.

## **Appendix A**

### **Comments From Conservation Organizations**



July 2, 2009

Mr. Clint Lameroux  
Southwest Clean Air Agency  
11815 NE 99<sup>th</sup> Street Suite 1294  
Vancouver, Washington 98682-2322

**Re: TransAlta Centralia Generation, LLC  
Title V Air Operating Permit  
Permit No. SW98-8-R3**

Dear Mr. Lameroux:

Earthjustice submits these comments on the TransAlta Centralia coal-fired power plant's proposed Title V Air Operating Permit, on behalf of the Sierra Club, Cascade Chapter, the National Parks Conservation Association, Northwest Environmental Defense Center and NW Energy Coalition (collectively "Conservation Organizations").

The Sierra Club is a national organization founded in 1892, with more than 60 chapters throughout the U.S., including the Cascade Chapter located in Seattle Washington. The Cascade Chapter's membership resides and recreates throughout the state. Sierra Club is devoted to the study and protection of the earth's scenic and ecological resources—mountains, wetlands, woodlands, wild shores and rivers, deserts, plains, and their wild flora and fauna. An important part of Sierra Club's current work at both the national and chapter level, is its Beyond Coal campaign which, among other things, focuses on retiring and reforming old coal-fired power plants that are significant contributors to health-harming soot and smog pollution, global warming pollutants, and hazardous pollutants such as mercury.

The National Parks Conservation Association ("NPCA") is a national organization whose mission is to protect and enhance America's National Parks for present and future generations. NPCA performs its work through advocacy and education. NPCA has over 340,000 members nationwide with its main office in Washington, D.C. and 24 regional and field offices. NPCA's regional Northwest office is located in Seattle where it works on a variety of issues affecting Northwest National Parks such as North Cascades, Olympic, and Mt. Rainier National Parks. NPCA is active nation-wide in advocating for strong air quality requirements in our parks, including submission of petitions and comments relating to visibility issues, regional haze State Implementation Plans, global warming and mercury impacts on parks, and emissions from individual power plants and other sources of pollutants affecting National Parks. NPCA's members live, work, and recreate in all the National Parks of the Northwest, including those directly affected by the TransAlta coal-fired power plant in Centralia, Washington.

The Northwest Environmental Defense Center ("NEDC") is a regional non-profit organization, based in Portland, Oregon. NEDC works to protect the environment and natural

resources of the Pacific Northwest, by providing legal support to individuals and grassroots organizations with environmental concerns, and engaging in litigation independently or in conjunction with other environmental groups. NEDC also provides valuable hands-on experience for students seeking to enhance their education in environmental law. NEDC is regularly involved in efforts to maintain or enhance the air quality of the Pacific Northwest, by serving as a watchdog over Oregon's Department of Environmental Quality, Washington's Department of Ecology and each state's respective permitting processes. Student volunteers regularly comment on proposals for new air permits and permit modifications, monitor current permits in search of violations, and stay on top of major air quality issues, such as changes in administrative regulations.

The NW Energy Coalition is an alliance of more than 110 environmental, civic and human service organizations, faith communities, unions, utilities, and clean energy businesses in Washington, Idaho, Montana, Oregon and British Columbia. With its diverse and active membership, the Coalition is an influential public-interest advocate for clean and affordable energy throughout the Northwest. The Coalition promotes energy efficiency, low-income and consumer protection, renewable energy and restoration of fish and wildlife harmed by the regional power system. The Coalition has participated in a number of proceedings related to the operation of the Centralia/TransAlta coal plant. In 1996 the Coalition was a participant in the Collaborative Decision Making process to resolve air quality issues. In 1999, the Coalition was a party in regulatory proceedings around the sale of the plant to TransAlta. And most recently, the Coalition participated in the Department of Ecology's Proposed Electric Generating Unit Rule development process in 2007.

The Conservation Organizations object to issuance of the proposed permit due to the permit's lack of controls for carbon dioxide ("CO<sub>2</sub>") and mercury, and due to inadequate controls for nitrogen oxides ("NO<sub>x</sub>") that contribute to haze pollution in the region's National Parks and Wilderness Areas. The Conservation Organizations request that the proposed permit be revised to adequately control these pollutants.

## **I. APPLICABLE LAW AND REGULATION--GENERAL**

These comments concern the draft air operating permit issued by the Southwest Clean Air Agency ("SWCAA") for the TransAlta coal-fired power plant located in Centralia, Washington (the "TransAlta Coal Plant") pursuant to Title V of the Clean Air Act ("CAA"), 42 U.S.C. § 7661 et seq. The TransAlta Coal Plant is a major stationary source under the CAA subject to Title V permitting. Title V permits shall include enforceable emission limitations and standards, a schedule of compliance, and monitoring and reporting requirements. 42 U.S.C. § 7661c(a). Under the provisions of 42 U.S.C. § 7661e(a), state permitting authorities may require additional, more stringent permit requirements. If any permit contains provisions that are not in compliance with the applicable requirements of the CAA, including the requirements of an applicable State Implementation Plan ("SIP"), the Environmental Protection Agency ("EPA") shall object to the issuance of the permit. 42 U.S.C. § 7661d.

The Washington State Clean Air Act grants the Department of Ecology and local pollution control agencies such as SWCAA, the authority to control, regulate, and eliminate air pollutants, including ensuring compliance with the CAA. RCW 70.94.141, .331(2), .380. This authority includes carrying out the legislature's stated missions and goals in the Washington Clean Air Act:

It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.

It is further the intent of this chapter to protect the public welfare, to preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions.

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The legislature further recognizes that energy efficiency and energy conservation can help to reduce air pollution and shall therefore be considered when making decisions on air pollution control strategies and projects.

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To these ends, it is the purpose of this chapter to safeguard the public interest through an intensive, progressive, and coordinated statewide program of air pollution prevention and control, to provide for an appropriate distribution of responsibilities, and to encourage coordination and cooperation between the state, regional, and local units of government, to improve cooperation between state and federal government, public and private organizations, and the concerned individual, as well as to provide for the use of all known, available, and reasonable methods to reduce, prevent, and control air pollution.

RCW 70.94.011.

Ecology's own general clean air act regulations, echoed by those of the SWCAA, provide that:

No person shall cause or permit the emission of any air contaminant from any "source" if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business.

WAC 173-400-040(5). See also SWCAA 400-040(5).<sup>1</sup> Air contaminants are defined to include

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<sup>1</sup> These requirements are federally-enforceable having been incorporated into Washington's State

vapor and gas, and air pollution is the presence of one or more air contaminants in such quantity or characteristic as to be or likely to be injurious to human health, plant, or animal life, or property or that unreasonably interferes with the enjoyment thereof. RCW 70.94.030; WAC 173-400-030. The SWCAA's regulations also provide that all emissions units are required to, at a minimum, use reasonably available control technology ("RACT") to control air contaminants and that for some sources, RACT may be more stringent than the applicable emission limitations otherwise set forth in SWCAA regulations or in Title 173 of the Washington Administrative Code. SWCAA 400-040. If current controls are determined to be less stringent than RACT, the SWCAA shall define RACT for the source and issue a rule or regulatory order. Id.

Under the State's permitting requirements, (applicable to SWCAA), each permit must contain emissions limitations and standards to ensure compliance with all applicable federal and state CAA requirements at the time of permit issuance. WAC 173-401-605.

As set forth in detail below, the proposed permit fails to include emissions standards and limitations adequate to protect public health, the environment, and the economy of Washington and further fails to conform to additional requirements of federal and state law.

## **II. CARBON DIOXIDE**

The proposed Title V Operating Permit for the Plant (the "proposed Permit") contains no emissions limitations or standards (and of course, no compliance schedule) for carbon dioxide emissions. As a result, the proposed Permit fails to include all applicable requirements for the control of emissions of air contaminants.

### **A. Impacts to Public Health, Environment, and Economy of Washington.**

Between 2000 and 2006, the TransAlta Coal Plant emitted an average of 10 million metric tons of carbon dioxide ("CO<sub>2</sub>"), approximately 10 percent of total greenhouse gas emissions in Washington State.<sup>2</sup> The evidence of climate impacts from emission of greenhouse gases such as CO<sub>2</sub> from coal-fired power plants like the TransAlta Coal Plant is "unequivocal."<sup>3</sup> Rising sea levels, diminishing freshwater resources, more droughts and flood, more forest fires and forest pests, and impacts to human health are among the many anticipated consequences of climate change.

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Implementation Plan, September 1993 and 1995. See proposed permit, Req-5.

<sup>2</sup> CTED, "Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020" (Dec. 2007), available at [http://www.ecy.wa.gov/climatechange/docs/WA\\_GHGInventoryReferenceCaseProjections\\_1990-2020.pdf](http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf) (last viewed July 1, 2009).

<sup>3</sup> IPCC, Fourth Assessment Report, Summary for Policymakers at 2 (2007), available at [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_spm.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf) (last viewed June 30, 2009).

Greenhouse gas emissions have already caused significant changes to the climate in Washington State and the region. For example, the average temperature in the Pacific Northwest has increased by 1.5 degrees Fahrenheit since 1920.<sup>4</sup> As a result, snowpack in the Pacific Northwest has declined significantly, especially at lower elevations<sup>5</sup>—some parts of the Cascades have already experienced a 30-60% decline in spring snow water equivalent between 1945-2006,<sup>6</sup> with attendant adverse impacts on water availability throughout the region. If greenhouse gases are not sharply and immediately reduced, 70-90 percent of snowpack in the Sierra Nevada and Cascade Mountains could vanish by the end of the century.<sup>7</sup>

Increased rain in the west may also increase flooding. In November 2006, more than 18 inches of rain fell in 36 hours overwhelming streams and creeks running through Mt. Rainier National Park. The flooding destroyed sections of road, requiring it be closed for six months. Rebuilding the road is estimated to cost upwards of \$36 million. The Mt. Rainier flood also destroyed trails and campgrounds, broke utility lines and filled water reservoirs with mud and debris.<sup>8</sup> Seattle has seen an intensification of precipitation extremes, especially in fall and winter.<sup>9</sup> Specifically, a 24-hour precipitation accumulation that would have only happened every 50 years based on observations from 1956-1981, now occurs on average every 8.4 years.<sup>10</sup>

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<sup>4</sup> CIG Report at 1.

<sup>5</sup> Stewart, IT, Cayan, DR, and MD Dettinger. 2005. Changes toward Earlier Streamflow Timing across Western North America. *J. Climate* 18:1136-1155 as cited in NPCA 2007.

<sup>6</sup> Mote, P.W. 2003. Trends in snow water equivalent in the Pacific Northwest and their climatic causes. *Geophysical Research Letters* 30(12) 1601, doi:10.1029/2003GL017258, 2003, available at <http://ces.washington.edu/db/pubs/abstract100.shtml>.

<sup>7</sup> Cayan, D, Luers, AL, Hanemann, M, Franco, G, and B Croes, 2006, Scenarios Of Climate Change In California: An Overview. Report for California Air Resources Board, available at [http://www.climatechange.ca.gov/biennial\\_reports/2006report/index.html](http://www.climatechange.ca.gov/biennial_reports/2006report/index.html); Leung, LR, Qian, Y, Bian, X, Washington, WM, Han, J, and JO Roads, 2004, Mid-Century Ensemble Regional Climate Change Scenarios For The Western United States. *Climatic Change* 62:75–113 as cited in NPCA 2007.

<sup>8</sup> Blumenthal, L. 2007. Possible Rainier price: \$100 million. *The Olympian*, March 28 as cited in NPCA 2007. See also Salathé, E.P. 2006. Influences of a shift in North Pacific storm tracks on western North American precipitation under global warming. *Geophysical Research Letters* 33, L19820, doi:10.1029/2006GL026882, 2006.

<sup>9</sup> Mote, P.W., and E.P. Salathé. 2009. Future climate in the Pacific Northwest. Chapter 1 in *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington, Seattle, Washington, available at <http://ces.washington.edu/db/pdf/wacciach1scenarios642.pdf>.

<sup>10</sup> Hamlet, A.F., and D.P. Lettenmaier. 2007. Effects of 20th century warming and climate variability on flood risk in the western U.S.. *Water Resources Research* 43, W06427, doi:10.1029/2006WR005099, available at <http://ces.washington.edu/db/pubs/abstract524.shtml>;

If CO<sub>2</sub> emissions are not adequately and immediately controlled, Washington and the region's residents will suffer worsening impacts from climate change during the 21st century. The average temperature in the Pacific Northwest is projected to increase by 2.0 degrees Fahrenheit by the 2020s, 3.2 degrees by the 2040s, and 5.3 degrees by the 2080s.<sup>11</sup> Experts anticipate that this temperature increase will have adverse impacts on the health of Washington and the region's residents. For example, by 2025, temperature increases are expected to cause 101 additional heat-related deaths.<sup>12</sup> Air pollution deaths are also expected to increase.<sup>13</sup> According to projections, "[b]y mid century, King County will likely experience 132 additional deaths between May and September annually due to worsened air quality caused by climate change."<sup>14</sup>

In addition to the human health related impacts, experts anticipate that Washington State's ecosystems will be severely disrupted by the anticipated changes in the local climate. For example:

- **Washington State's snowpacks**, which "are among the most sensitive to warming in the West because of their relatively low elevation" will be significantly reduced.<sup>15</sup> Even small temperature increases will likely reduce the amount of winter precipitation falling as snow and reduce the amount of water stored in snowpack.<sup>16</sup> Average snowpack in the Pacific Northwest on April 1 are expected to decline by 28% by the 2020s, 40% by the 2040s, 59% by the 2080s.<sup>17</sup> Reductions in snowpack will result in changes in streamflow timing that will impact sensitive watersheds and water management.<sup>18</sup>
- **Glaciers.** A quarter of the world's mountain glaciers could disappear by 2050 due to

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Rosenberg, E.A., P.W. Keyes, D.B. Booth, D. Hartley, J. Burkey, A.C. Steinemann, and D.P. Lettenmaier. 2009. Precipitation extremes and the impacts of climate change on stormwater infrastructure in Washington State. Chapter 9 in *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington, Seattle, Washington, available at <http://cses.washington.edu/db/pubs/author639.shtml>

<sup>11</sup> CIG Report at 6.

<sup>12</sup> CIG Report at 18.

<sup>13</sup> CIG Report at 2.

<sup>14</sup> CIG Report at 2.

<sup>15</sup> CIG Report at 8.

<sup>16</sup> CIG Report at 8.

<sup>17</sup> CIG Report at 8.

<sup>18</sup> CIG Report at 9-10.

climate change.<sup>19</sup> In the western national parks alone, glacial retreat and disappearance is well documented. Sixty percent of North Cascades National Park in Washington is covered by 318 glaciers. In the last 50 years, the total mass of the park's glaciers has been reduced by 80 percent.<sup>20</sup> As glaciers are lost, water runoff that feeds freshwater stream flow is reduced, degrading the aquatic ecosystem, and, of course, significantly affecting water supplies of the entire Puget Sound region.

- **Salmon**, a natural icon of the Pacific Northwest, are very sensitive to climate change.<sup>21</sup> The projected increases in average stream temperatures will likely “reduce the quality and quantity of freshwater salmon habitat substantially.”<sup>22</sup> In addition, flooding will occur more frequently, resulting in more rapid destruction of salmon spawning habitat.<sup>23</sup>
- **Forest ecosystems** may also undergo “[p]rofound changes” as a result of climate change. For example, as a result of higher summer temperatures and lower summer precipitation, the area burned by fire in the Columbia Basin is projected to double or triple during this century.<sup>24</sup> In national parks around the country, increasingly extreme heat events correspond to an increase in the frequency and duration of wildfires.<sup>25</sup> Since 1987, western wildfires have become four times more frequent than during the fifteen years prior, are 78 days longer and take five times as long to control.<sup>26</sup> Climatic stress on trees will also result in more frequent pine beetle outbreaks and increased tree mortality.<sup>27</sup>

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<sup>19</sup> Union of Concerned Scientists, “Climate change,” [http://www.uscusa.org/global\\_warming/science/early-warming-signs-of-global-warming-glaciers-melting.html](http://www.uscusa.org/global_warming/science/early-warming-signs-of-global-warming-glaciers-melting.html); B. Redeker, “Glacial Retreat,” September 2, 2003, G4, [http://www.g4rv.com/techtv/vault/features/45427/Glacial\\_Retreat.html](http://www.g4rv.com/techtv/vault/features/45427/Glacial_Retreat.html) as cited in Rocky Mountain Institute (RMI), “Loosing Ground, Western National Parks Endangered by Climate Disruption (July 2006) at 4.

<sup>20</sup> D. Granshaw, “Glacier Change in North Cascades National Park Complex, Washington State, U.S.A, 1957-1998” (Master’s Thesis, Portland State University, 2001), 2 as cited in RMI 2006.

<sup>21</sup> CIG Report at 13.

<sup>22</sup> CIG Report at 13.

<sup>23</sup> CIG Report at 13.

<sup>24</sup> CIG Report at 14.

<sup>25</sup> National Parks Conservation Association, “Unnatural Disaster: Global Warming and Our National Parks” (2007), available at <http://www.npca.org/globalwarming>.

<sup>26</sup> Westerling, A and B Bryant., “Climate Change And Wildfire In And Around California: Fire Modeling And Loss Modeling. Report for California Air Resources Board”, (2006) available at [http://www.climatechange.ca.gov/biennial\\_reports/2006report/index.html](http://www.climatechange.ca.gov/biennial_reports/2006report/index.html).

<sup>27</sup> CIG Report at 14.

- **Sea Level.** Computer models predict climate change will also cause sea levels to rise 48 centimeters by 2100, in contrast to the approximately 18 centimeters recorded over the entirety of the past century.<sup>28</sup> Sea level rise can cause coastal erosion, saltwater intrusion into groundwater aquifers, inundation of wetlands and estuaries, and damage to park structures, including irreplaceable cultural and historic treasures.<sup>29</sup> Scientists are only beginning to ascertain how America's cultural and historical relics may be lost should additional impacts of climate change be realized, for example, rising sea levels also threaten to immerse petroglyphs located near Cape Alava in Olympic National Park.

Overall, it is anticipated that the total cost to Washington residents from climate change will be \$3.8 billion per year by 2020, rising to \$12.9 billion per year by 2080.<sup>30</sup> Anticipated economic impacts include the following:

- **Agriculture** in the Yakima Valley currently produces about a quarter of the value of all crops grown in Washington State.<sup>31</sup> As a result of increases in temperature, it is projected that the Yakima basin will be less able to supply water to irrigators and the irrigation season will be shorter.<sup>32</sup> Thus, for junior water rights holders apple and cherry yields are project to decline by 20% to 25% by the 2020s, and by 40% to 50% by the 2080s.<sup>33</sup> The value of apple and cherry production will accordingly be reduced by approximately \$23 million by the 2020s, and \$70 million by the 2080s.<sup>34</sup>
- **Hydroelectric power generation**, which accounts for approximately 50-70% of energy production in the Pacific Northwest, will also be adversely impacted by the temperature increases and the associated changes in streamflow levels and timing.<sup>35</sup> While hydropower production could increase in the winter, hydropower production during the summer is expected to decrease significantly.<sup>36</sup> The value lost from this reduction is

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<sup>28</sup> Intergovernmental Panel on Climate Change, 2001 as cited in United States Geological Survey, "Vulnerability of U.S. National Parks to Sea-Level Rise and Coastal Change" (September 2002).

<sup>29</sup> Id.

<sup>30</sup> Niemi, E., Climate Leadership Initiative, "An Overview of Potential Economic Costs to Washington of a Business-As Usual Approach to Climate Change," at iv (February 2009), available at [http://climlead.uoregon.edu/pdfs/Inaction\\_WA\\_FnlRpt.pdf](http://climlead.uoregon.edu/pdfs/Inaction_WA_FnlRpt.pdf) (last viewed July 1, 2009) [hereinafter "CLI Report"].

<sup>31</sup> CIG Report at 10.

<sup>32</sup> CIG Report at 10.

<sup>33</sup> CIG Report at 10.

<sup>34</sup> CIG Report at 10.

<sup>35</sup> CIG Report at 10; <http://www.nwcouncil.org/energy/powersupply/source.htm>

<sup>36</sup> CIG Report at 10.

estimated at \$150 million per year by 2020, rising to \$1.12 billion per year by 2080.<sup>37</sup>

- **Human health impacts** associated with climate change are expected to result in significant costs to Washington residents. For example, increased low altitude ozone pollution is projected to have human health impacts costing Washington State residents \$1.2 billion per year by 2020, and \$3.7 billion per year by 2080.<sup>38</sup> Health impacts associated with increased heat waves will likely cost Washington residents \$130 million per year in 2020, rising to \$712 million in 2080.<sup>39</sup>
- **Increased forest fires** are expected to result in \$84 million in losses in 2020, rising to \$380 million by 2080.<sup>40</sup> Expenditures associated with control of wildfires is expected to cost an additional \$18 million by 2020, rising to \$82 million by 2080.<sup>41</sup> Without limits to greenhouse gas emissions by 2100 the occurrence of large wildfires may increase by more than 50 percent.<sup>42</sup>
- **Homes and other structures built near the shore** will be threatened by anticipated sea level increases of 2 to 13 inches (depending on location) by 2100.<sup>43,44</sup> The cost associated with property damage from the anticipated rise in sea level is \$21 million per year by 2020, rising to \$97 million per year by 2080.<sup>45</sup>
- **Stormwater drainage infrastructure** will likely be overwhelmed by more frequent extreme precipitation events.<sup>46</sup> Property and crop damage associated with extreme weather events is expected to cost Washington residents \$51 million per year by 2020, rising to \$255 million per year by 2080.<sup>47</sup>

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<sup>37</sup> CLI Report at 16.

<sup>38</sup> CLI Report at 34-35.

<sup>39</sup> CLI Report at 37.

<sup>40</sup> CLI Report at 31.

<sup>41</sup> CLI Report at 32.

<sup>42</sup> Westerling, A and B Bryant., "Climate Change And Wildfire In And Around California: Fire Modeling And Loss Modeling. Report for California Air Resources Board", (2006) available at [http://www.climatechange.ca.gov/biennial\\_reports/2006report/index.html](http://www.climatechange.ca.gov/biennial_reports/2006report/index.html).

<sup>43</sup> CIG Report at 16.

<sup>44</sup> CIG Report at 6.

<sup>45</sup> CLI Report at 23.

<sup>46</sup> CIG Report at 2.

<sup>47</sup> CLI Report at 25.

- **Shellfish production** could be negatively impacted by increasing ocean temperatures and acidity, and other changes in the marine ecosystem.<sup>48</sup>
- **Declining salmon populations** will represent a loss in value to Washington residents of \$531 million per year by 2020, rising to \$3 billion by 2080.<sup>49</sup>
- **The Ports of Seattle and Tacoma**, which are located only slightly above the existing sea level, will need to raise the height of their piers and protect port lands and transportation networks from flooding.<sup>50</sup>

While these economic impacts are significant, it is likely that the projections are conservative. For instance, the cost estimates associated with climate change scenarios in Washington State do not incorporate increased cooling costs for businesses, higher costs from flood and wind damage due to more frequent and intense storms, reduced recreation opportunities due to increased wild fires, and other costs.<sup>51</sup>

## **B. Legal Requirements**

CO<sub>2</sub> meets the definition of an air contaminant under the Washington CAA. The United States Supreme Court has rejected the argument that carbon dioxide does not constitute an “air pollutant” under the federal CAA and has held that EPA has statutory authority to regulate greenhouse gases under the federal law. *Massachusetts v. EPA*, 549 U.S. 497 (2007). In furtherance of its obligations under the requirements of *Massachusetts v. EPA*, EPA has published draft findings that a mix of six key greenhouse gases (carbon dioxide<sup>52</sup>, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere may reasonably be anticipated to endanger public health and welfare. 74 Fed. Reg. 18886 et seq. (April 24, 2009). In fact, EPA’s notice provides that “[i]t is the Administrator’s judgment that the total body of scientific evidence *compellingly* supports a positive endangerment finding for both public health and welfare.” 74 Fed. Reg. at 18888. (emphasis added.) EPA bases its draft finding on both observed and projected future effects and in consideration of a wide range of established science regarding risks and impacts to people and the environment. *Id.* Governor Gregoire, in a recent executive order, likewise acknowledged that “greenhouse gases are air contaminants within the meaning of the state’s Clean Air Act and pose a serious threat to the health and welfare of Washington’s citizens and the quality of the environment.”<sup>53</sup>

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<sup>48</sup> CIG Report at 16. See also, Seattle Times, June 14, 2009 regarding potential collapse of oyster production due to ocean acidification caused by increased CO<sub>2</sub> in the atmosphere.

<sup>49</sup> CLI Report at 20.

<sup>50</sup> CIG Report at 16.

<sup>51</sup> CLI Report at vi.

<sup>52</sup> Note that CO<sub>2</sub> is by far the most prevalent of these six.

<sup>53</sup> Executive Order 09-05 (May 21, 2009), available at

States have the power to regulate air pollutants more stringently than the federal government. See 42 U.S.C. § 7416. See also *Exxon Mobil Corp. v. EPA*, 217 F.3d 1246, 1255 (9th Cir. 2000) (“Air pollution prevention falls under the broad police powers of the states, which include the power to protect the health of citizens in the state.”). As set forth above, Ecology and SWCAA have the authority and obligation to regulate air pollutants that are injurious to public health and the economy; authority and obligation Ecology and SWCAA recognize in generally forbidding the emission of any air contaminant that is detrimental to public health or damaging to property and business. WAC 173-400-040(5) and SWCAA 400-040(5).

### C. Emission Controls

As demonstrated above, CO<sub>2</sub> emissions threaten the health, welfare, and economy in Washington State, and SWCAA therefore has the obligation to control CO<sub>2</sub> emissions from the TransAlta Coal Plant. In determining the level of controls necessary to adequately protect the public from global warming pollution, the SWCAA should consider the legislature’s recently adopted state-wide emissions reductions targets. Specifically, the legislature has targeted a 25% reduction in statewide greenhouse gas emissions from 1990 levels by 2035, and a 50% reduction below 1990 levels by 2050. RCW 70.235.020.

SWCAA should also assess recent data suggesting that the legislature’s targets will be insufficient to adequately protect against the threats of global warming—several prominent scientists recently determined that limiting global warming to a 2 degree Celsius increase above preindustrial levels, the goal set in IPCC report, would require reductions in current emissions by at least 35% by 2020.<sup>54</sup> And, given the negative impacts already apparent with current levels at 389 ppm, and rising by 2 ppm annually, data suggest that the proper the 2 degree goal targeted in the IPCC report is almost certainly insufficient.<sup>55</sup>

While it is “certain” that Washington State will suffer adverse impacts as a result of climate change over the 21st century, “the magnitude of those changes will be greatly influenced by the success or failure of efforts to reduce greenhouse gas concentrations both in the near-term

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[http://www.governor.wa.gov/execorders/eo\\_09-05.pdf](http://www.governor.wa.gov/execorders/eo_09-05.pdf) (last viewed July 1, 2009).

<sup>54</sup> Stephen Schneider, et al., Letter to Congressional Leaders (March 23, 2009), available at [http://stephenschneider.stanford.edu/Publications/PDF\\_Papers/Congressional\\_Ldrs\\_Ltr.pdf](http://stephenschneider.stanford.edu/Publications/PDF_Papers/Congressional_Ldrs_Ltr.pdf) (last viewed July 1, 2009).

<sup>55</sup> See Hansen, J., et al., Target atmospheric CO<sub>2</sub>: Where should humanity aim? (2008), available at [http://pubs.giss.nasa.gov/docs/2008/2008\\_Hansen\\_etal.pdf](http://pubs.giss.nasa.gov/docs/2008/2008_Hansen_etal.pdf) (last viewed July 1, 2009); see also Brown, L., et al., Time for Plan B: Cutting Carbon Emissions 80 Percent by 2020” (2008), available at <http://www.earth-policy.org/Books/PB3/80by2020notes.pdf> (last viewed July 1, 2009).

and over time.”<sup>56</sup> A 2006 report by the Environmental Integrity Project (EIP) called "Dirty Kilowatts" classifies Centralia as one of the most polluting 50 coal plants in the country for Carbon Dioxide by Tons of CO<sub>2</sub>, and number 62 in the country for most polluting on a CO<sub>2</sub> per megawatt hour basis.<sup>57</sup> In light of the EPA and Governor's proclamations, the SWCAA must exercise its authority under the Washington Clean Air Act and regulate CO<sub>2</sub> emissions from the TransAlta Coal Plant as an "air contaminant" in order to protect the health, welfare, and economy in Washington State. WAC 173-400-040(5); SWCAA 400-040(5).<sup>58</sup>

### III. MERCURY

The proposed Permit contains no emissions limitations or standards (and of course, no compliance schedule) for mercury emissions. As a result, the proposed Permit fails to include all applicable requirements for the control of emissions of air contaminants.

#### A. Impacts to Public Health, Environment, and Economy of Washington.

Mercury emissions from coal-fired power plants like the TransAlta Coal Plant pose a serious threat to public health and to our environment, particularly lakes, streams, fish and wildlife that consume fish. Mercury is a toxic pollutant which, when released into the atmosphere, as in emissions from coal-fired power plants, deposits into lakes, rivers, streams, and the ocean where it bioaccumulates in fish. Ingestion of fish with elevated levels of mercury can lead to a variety of human health problems, particularly in fetuses or children. Mercury exposure is more of a concern for children and fetuses because their nervous systems are still developing making it particularly vulnerable to neurotoxins like mercury. Among the health impacts is impaired neurological development, and detrimental impacts on cognitive thinking, memory, attention, language, and fine motor and visual skills.<sup>59</sup>

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<sup>56</sup> Littell, J.S., et al. (eds), Climate Impacts Group, The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate - Executive Summary, at 19 (2009), available at [www.cses.washington.edu/db/pdf/wacciaexecsummary638.pdf](http://www.cses.washington.edu/db/pdf/wacciaexecsummary638.pdf) (last viewed June 30, 2009) [hereinafter "CIG Report"].

<sup>57</sup> [http://www.dirtykilowatts.org/Dirty\\_Kilowatts.pdf](http://www.dirtykilowatts.org/Dirty_Kilowatts.pdf)

<sup>58</sup> The United States Supreme Court has also determined that CO<sub>2</sub> constitutes an "air pollutant" as that term is defined in the federal CAA and has held that EPA has statutory authority to regulate greenhouse gases under the federal law. *Massachusetts v. EPA*, 549 U.S. 497 (2007). Furthermore, under most circumstances,<sup>58</sup> states have the power to regulate air pollutants more stringently than the federal government. See 42 U.S.C. § 7416; see also *Exxon Mobil Corp. v. EPA*, 217 F.3d 1246, 1255 (9th Cir. 2000) ("Air pollution prevention falls under the broad police powers of the states, which include the power to protect the health of citizens in the state.").

<sup>59</sup> Mergler et al., Methylmercury Exposure and Health Effect in Humans: A Worldwide Concern, *Ambio*, Vol. 35, No. 1 (Feb. 2007); Toxicological Effects of Methylmercury, Executive Summary, National Academies Press, 2000, available at <http://www.nap.edu/openbook.php?isbn=0309071402>; U.S. EPA, Mercury Study Report to

Damaging levels of exposure to mercury are not insignificant in the U.S. Nationwide, approximately 6-8% of women of childbearing age are at risk of having mercury blood levels that exceed the levels associated with the health risks outlined above.<sup>60</sup> As a result, hundreds of thousands of children are born each year at risk of mercury-caused learning disabilities and other developmental problems, including loss of IQ that will affect the child throughout his or her lifetime. In turn, the loss in productivity costs society an estimated \$8.7 billion per year, approximately \$1.3 billion of which is attributable to the mercury from coal-fired power plants such as the TransAlta Coal Plant.<sup>61</sup>

According to the EPA's 1999 National Emissions Inventory, coal-fired power plants are the largest source of human-caused mercury air emissions in the U.S. Overall, these power plants account for approximately 40% of total U.S. mercury emissions and are the largest source of mercury found in freshwater fish.<sup>62</sup> Similarly, a recent report by the California Energy Commission confirms that coal-fired power plants like the TransAlta Coal Plant are the number one source of mercury air pollution in North America.<sup>63</sup> Mercury emissions can travel hundreds or even thousands of miles, impacting waterbodies over a wide area. However, a significant portion of mercury emissions from coal-fired power plants has been demonstrated to deposit near the source of the emissions, increasing mercury exposures and risks in communities and natural

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Congress, EPA-452/R-97-003 (Dec. 1997), available at <http://www.epa.gov/mercury/report.htm>; Oken et al. Maternal Fish Consumption, Hair Mercury, and Infant Cognition in a U.S. Cohort, *Environmental Health Perspectives*, Vol. 113, No. 10 (Oct. 2005); Debes F, Budtz-Jørgensen E, Weihe P, White RF, Grandjean P, Impact of prenatal methylmercury toxicity on neurobehavioral function at age 14 years, *Neurotoxicol Teratol*, Vol. 28, pp. 363-75 (2006); Grandjean P, Weihe P, White RF, Debes F, Araki S, Yokoyama K, Murata K, Sørensen N, Dahl R, Jørgensen PJ. Cognitive deficit in 7-year-old children with prenatal exposure to methylmercury. *Neurotoxicol Teratol* Vol. 19 pp. 417-28 (2007); Lederman SA, Jones RL, Caldwell KL, Rauh V, Sheets SE, Tang D, Viswanathan S, Becker M, Stein JL, Wang RY, Perera FP. Relation between Cord Blood Mercury Levels and Early Child Development in a World Trade Center Cohort. *Environ Health Perspective* Vol. 116 pp. 1085-91 (2008); CJ, Kleinman KP, Hu H, Gillman MW, Maternal fish intake during pregnancy, blood mercury levels, and child cognition at age 3 years in a US cohort. *Am J Epidemiology* Vol. 167 pp. 1171-81 (2008).

<sup>60</sup> Report to Congress ; U.S. Centers for Disease Control, Blood Mercury Levels in Young Children and Childbearing-Aged Women – United States, 1999-2002 (Nov. 5, 2004).

<sup>61</sup> Trasande, L., Landrigan, P.J., and Schechter, C., *Public Health and Economic Consequences of Methyl Mercury Toxicity to the Developing Brain*. *Environmental Health Perspectives*, 113(5), 590-596 (May 2005).

<sup>62</sup> Children's Environmental Health Network, at <http://www.cehn.org/cehn/policy/mercuryimpacts.html>.

<sup>63</sup> California Energy Commission, at <http://www.cec.org/trio/stories/print.cfm?varian=English&ed=13&ID=148>

areas near the source.<sup>64</sup> Reducing mercury from those sources will reduce mercury exposures and risk in nearby communities and natural areas.<sup>65</sup>

Mercury contamination is also having and will have, adverse effects on Washington and the region's economy. Fishing is an important industry in this state and region. A report by the Fish and Wildlife Commission provides that "[i]n terms of economic impacts, commercial and recreational fishing conducted in Washington fisheries directly and indirectly supported an estimated 16,374 jobs and \$540 million in personal income in 2006."<sup>66</sup> There are also many subsistence fishing communities in the region from Native American tribes to Southeast Asian immigrants. Fish contaminated with mercury are a threat to Washington's fishing industry and especially to communities which rely substantially on fish for their diet. See also below.

Tourism also plays a significant role in Washington's economy. According to a report published for the Washington Community, Trade, and Economic Development Office in December of 2008, travel spending accounted for over \$1 billion in local and state tax revenue in 2008. The total employment directly generated by travel spending was 149,900 in 2008. This represents approximately 3.8 percent of all jobs in Washington. The six counties with more than 10 percent travel-generated jobs were all non-urban (Skamania, Pacific, San Juan, Grays Harbor, Jefferson, and Chelan). The 12 counties with more than 6 percent travel-generated jobs were also all non-urban.<sup>67</sup> Primary destinations for tourist travel are obviously Washington's abundant, prime natural areas: national parks, national forests, wilderness areas and ocean and freshwater beaches. Unfortunately, recent research by the National Park Service demonstrates that our precious National Parks contain high levels of mercury and other contaminants.

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<sup>64</sup> Hutcheson, M. et al., Freshwater Fish Mercury Concentrations in a Regionally High Mercury Deposition Area, *Water Air Soil Pollution* (Dec. 2007); Evers, DC, et al., Biological Mercury Hotspots in the Northeastern United States and Southeastern Canada, *BioScience* 57:1-15 (Jan. 2007); Sullivan, T.M., et al., Local Impacts of Mercury Emissions from the Monticello Coal Fired Power Plant, Brookhaven National Laboratory, Upton NY, Miles College, Fairfield AL (October 2006) Environmental Sciences Department, Environmental Research Technology Division; Gerald J. Keeler, Matthew S. Landis, Gary A. Norris, Emily M. Christianson, and J. Timothy Dvonch, Sources of Mercury Wet Deposition in Eastern Ohio, USA, *Environ. Sci. Technol.*, 40 (19), 5874 -5881, 2006; Testimony of Gerald J. Keeler, In the Matter of: Proposed New 35 Ill. Admin. Code 225 Control of Emissions From Large Combustion Sources (Mercury), Illinois Pollution Control Board R06-25 (April 23, 2006).

<sup>65</sup> Florida Department of Environmental Protection, Integrating Atmospheric Mercury Deposition with Aquatic Cycling in South Florida (Nov. 2003), available at <http://ftp.dep.state.fl.us/pub/labs/assessment/mercury/tmdreport03.pdf>.

<sup>66</sup> Washington Fish and Wildlife Commission, "Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State", (Dec. 2008), available at [http://wdfw.wa.gov/commission/econ\\_analysis.html](http://wdfw.wa.gov/commission/econ_analysis.html).

<sup>67</sup> "Washington State Travel Impacts", available at [http://www.experiencewa.com/images/pdf/R\\_WAImp08pSt.pdf](http://www.experiencewa.com/images/pdf/R_WAImp08pSt.pdf).

For example, the National Park Service reports that “[s]now in Olympic National Park contained unexpectedly high levels of mercury,” and that “mercury levels at Mt. Rainier were also high compared to other parks studied.”<sup>68</sup> The study also found that mercury compounds in fish at Olympic and Mt. Rainier were unusually high and that all fish from both parks exceeded health thresholds for one or more species of fish-eating wildlife.<sup>69</sup> Some fish sampled exceeded health thresholds for human consumption.<sup>70</sup> Researchers participating in the Western Airborne Contaminants Assessment Project independently published their findings that mercury has accumulated to high levels in trout in National Parks indicating concerns from an organism and ecosystem perspective.<sup>71</sup> The report also found high levels of mercury in the sediments of high lakes in Olympic National Park. While the study did not investigate the source of the mercury, it did suggest that the extremely high levels in these parks was likely due, at least in part, to a single local source. Recent research confirms that mountainous and arctic areas are sinks for some contaminants like mercury making Washington’s wild places especially vulnerable.

The TransAlta Coal Plant is the single largest source of mercury emissions in the State of Washington. Reports for the year 2007 for the coal-fired units at the plant reflect a combined mercury emission total of a little over 372 pounds for the year.<sup>72</sup> Mercury from the TransAlta Coal Plant is contributing to adverse health effects in our children and as a result to our economy as outlined above. Mercury from the TransAlta Coal Plant is also having direct adverse impacts on our local and regional environment. The TransAlta Coal Plant is only 50 miles from Mt. Rainier National Park and approximately 75 miles from Olympic National Park. Clearly, the TransAlta Coal Plant is having an adverse impact on these and other important natural areas.

## **B. Legal Requirements**

As set forth above, SWCAA and Ecology have an obligation and the authority to regulate emissions of air contaminants that are injurious to public health, the economy and the environment. The evidence that mercury presents such a threat is overwhelming. As a result, the complete lack of emissions limitations in the proposed permit violates the substantive air quality requirements of WAC 173-400-040(5) and SWCAA 400-040(5) under applicable state

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<sup>68</sup> <http://www.nps.gov/olym/parknews/airborne-contaminants-study-released.htm>. Western Airborne Contaminant Project, Feb. 2008

<sup>69</sup> Id.

<sup>70</sup> Id.

<sup>71</sup> Schwindt, Adam R., Fournie, John W. Landers, Dixon H. Schreck, Carl B. Kent Michael L. “Mercury Concentrations in Salmonids from Western U.S. National Parks and Relationships with Age and Macrophage Aggregates”, *Environmental Science and Technology*, vo. 42, No. 4 (2008).

<sup>72</sup> Mercury Summary for 2007 and Air Emissions Inventory for 2007, emissions units 1 and 2, showing plant total of 372.15 pounds per year. Documents from SWCAA TransAlta file.

law and Washington's SIP. SWCAA, as the permitting authority, must develop emissions limitations for mercury from the TransAlta Coal Plant and include those emissions requirements in the Title V permit.

Moreover, contrary to the statements in the proposed permit, TransAlta and SWCAA must develop an emission limitation for mercury that meets the CAA requirements for Maximum Achievable Control Technology ("MACT") and include it in the permit. As recognized in an exchange of correspondence between SWCAA and TransAlta as well as in the proposed permit, the Federal Court of Appeals for the D.C. Circuit invalidated the EPA mercury rule causing electric generating units such as the TransAlta Coal Plant to be subject to case-by-case MACT requirements laid out in section 112 of the CAA. *New Jersey v. EPA*, 517 F.3d 574, 577 (D.C.Cir. 2008); 42 U.S.C. § 7412. For existing facilities such as the TransAlta Coal Plant, SWCAA must impose an emission standard for mercury that is the maximum degree of reduction in emissions, including a prohibition of such emissions where achievable, that SWCAA, taking into consideration the cost of achieving such emission reduction, determines is achievable in the category or subcategory to which the emission standard applies, through application of various measures, processes, methods or techniques of emissions reductions. 42 U.S.C. § 7412(d)(2). For existing sources, MACT may not be less stringent, and may be more stringent, than the average emission limitation achieved by the best performing 12 percent of the existing sources. 42 U.S.C. § 7412(d)(3)(A). This requirement is commonly referred to as the "MACT floor".<sup>73</sup> It appears from the correspondence that TransAlta has submitted a Part 1 MACT application, but has not submitted Part 2. As it is more than 18 months from the court's decision in *New Jersey v. EPA*, SWCAA and TransAlta are not in compliance with the requirements of the CAA and the permit's lack of a MACT standard and controls for mercury is in violation of the substantive requirements of the CAA.

### C. Emission Controls

From studies and other information in Ecology's TransAlta file, as well as information widely available regarding activated carbon injection systems, it is clear that TransAlta could be

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<sup>73</sup> It should be noted that there are a number of analytical steps and requirements that TransAlta and SWCAA are required to perform in a case-by-case MACT analysis, for example, identifying the 12% best performing similar sources (after properly identifying the category of similar sources) and the emissions performance they achieve in order to set the MACT floor. After establishing the MACT floor, SWCAA is required to further examine a range of mercury controls to determine if additional control, beyond the MACT floor, is achievable, taking into account cost. Because it appears that none of these steps have been taken, Conservation Organizations will not describe those requirements in detail here, but simply state that those steps are necessary and information developed and determinations made in that process must be part of a larger public process and must be identified in the permit. 42 U.S.C. § 7412(d)(3); 40 C.F.R. §§ 63.52(e)(1) and 63.55. See also EPA, No. 453/R-##-026, *Guidelines for MACT Determination Under Section 112(j) Requirements* (Feb. 2000), available at <http://www.epa.gov/ttncaaa/t3/reports/j-guid.pdf>.

achieving 90% reduction in mercury emissions. Sorbent injection involves the introduction of a compound into the flue gas stream that absorbs mercury and facilitates its capture by a downstream particulate control device (such as a fabric filter). The sorbent most commonly applied for mercury removal is activated carbon, in a process known as activated carbon injection, although other sorbents may also be considered.<sup>74</sup>

Based upon the availability of this and other technologies, states have been imposing mercury reduction requirements on existing coal-burning power plants well in excess of the minimal 54% mercury reduction figures that TransAlta appears willing to agree to based upon statements at a public meeting on March 31, 2009. For example, Illinois has adopted a state rule that requires generators producing more than 25 megawatts of electricity to adopt mercury control technology by July 1, 2009. The rule allows generators to demonstrate compliance through a mercury emissions standard of 0.0080lb/GWh or an emissions reduction of 90% from input mercury.<sup>75</sup> Maryland has adopted regulations that require power-plants to meet a 12-month rolling average removal efficiency for mercury emissions of at least 80% between 2010 and 2012, and at least 90% by 2013.<sup>76</sup> In addition, the Maryland regulations provide the actual emissions limits, in pounds per year of mercury, for the seven electrical generating units affected by this rule.<sup>77</sup> By 2010, these limits range from 14 to 127 pounds of mercury per year, and by 2013, from 7 to 66 pounds per year. In Michigan, beginning in 2015, all existing electric generating units would be required to meet a minimum 90% reduction from baseline input mercury levels or an output-based emission standard of 0.008 pounds of mercury per gigawatts-hour on a yearly basis.<sup>78</sup> Finally, Minnesota requires a 90% mercury reduction from 1999 levels, by December 31, 2010 for plants with dry scrubbers and December 31, 2014 for plants with wet scrubbers.

Other existing coal plants are using, testing, and moving toward use of technologies that will reduce mercury well beyond the levels disclosed by Ecology for TransAlta's Coal Plant at the March 31, 2009 public meeting. For example, Minnesota Power, with plants located in Northern Minnesota within the Great Lakes Initiative area which is particularly susceptible to bioaccumulation of mercury and which has very strict mercury standards for water quality,

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<sup>74</sup> R. Chang, et al., Development and Demonstration of Mercury Control by Dry Technologies: 2005 Update, EPRI Document # 1004263 (Feb. 2005). See also March 30, 2009 Letter from the Institute of Clean Air companies to Director Jay Manning, Ecology, regarding mercury removal technologies.

<sup>75</sup> Final rule available at <http://www.ipcb.state.il.us/documents/dsweb/Get/Document-55427/>.

<sup>76</sup> Maryland regulation 26.11.27.03, available at <http://www.dsd.state.md.us/comar/26/26.11.27.03.htm>.

<sup>77</sup> Maryland regulation 26.11.27.04, available at <http://www.dsd.state.md.us/comar/26/26.11.27.04.htm>.

<sup>78</sup> Michigan DEQ Air Pollution Control Rules 336.2503 and 336.2503(1), (2), available at [http://www.michigan.gov/deq/0,1607,7-135-3310\\_4105-142890--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3310_4105-142890--,00.html).

reports significant progress on aggressive mercury controls:

One of the more promising technologies that has emerged is the injection of PAC [powdered activated carbon]. The injected carbon compound captures flue gas mercury in a particulate form which is then removed by a fabric filter. Minnesota Power believes it is possible to achieve 90% mercury removal at Boswell Unit 3 using PAC in combination with a fabric filter and that this use of multiple emission control technologies to reduce mercury is consistent with the intent of Minn. Stat. §216B.682, subd. 3(a) to 'demonstrate that [Minnesota Power] has considered achieving the mercury emissions reduction required through multiple pollutant control technology.'<sup>79</sup>

In addition, there is strong evidence that 99% mercury control has been achieved and is achievable for pulverized coal plants using brominated activated carbon, the ReACT technology, or other technologies that are currently available. For example, packed beds of sorbent material, typically carbon, have been used in Japan and Germany to remove mercury from a wide range of combustion sources, including coal-fired power plants. ReACT has been installed on 14 commercial units to date, including 4 coal-fired utility boilers in Japan and Europe. The technology has been in operation at the 350 MW Takehara Unit 2 since 1995 and the 600 MW Isogo Unit 1 since 2002. A 600 MW unit is currently under construction at Isogo Unit 2. Isogo Unit 1 has achieved greater than 98% SO<sub>2</sub> removal, 10-50% NO<sub>x</sub> removal, greater than 95% particulate removal, and greater than 90% mercury removal.<sup>80</sup>

Ecology's own files on this matter contain studies demonstrating that 90% mercury removal is achievable. One paper outlines the efforts of Newmont Mining Corporation for its power plant in Nevada. Relative to the mercury in coal, the system utilized by the Newmont facility achieving total mercury reduction as high as 98%.<sup>81</sup> Another paper gives an overview of a variety of options for controlling power plant mercury emissions with performance levels as high as 90 and 95% removal for some technologies or combinations of technologies. In fact, it appears that, Selective Catalytic Reduction technology for control of NO<sub>x</sub> (see below), adds benefits for mercury removal as well.<sup>82</sup>

The complete lack of mercury emission control requirements in the proposed Permit fails to comply with substantive law. The Washington Clean Air Act and attendant regulations

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<sup>79</sup> Excerpted from "Minnesota Power's Boswell 3 Environmental Improvement Plan" submitted to the Minnesota Public Utilities Commission 10/27/06 (Docket No. E015/M-06-1501).

<sup>80</sup> C. Dene et al., ReACT Process Demonstration at Valmy Generation Station (Mega 2008).

<sup>81</sup> Seeliger, J., Brown, J.H., Jankura, B., Redinger, K., "Cost Effective Mercury Emissions Control At the Newmont TS Power Plant" (2008) (presented at Power Plant Air Pollutant Control "Mega" Symposium, August 2008).

<sup>82</sup> Chang, R., Dombrowski, K., Senior, C., "Near and Long Term Options for Controlling Mercury Emissions from Power Plant", Paper # 25 (2008)

requires SWCAA to impose mercury emissions controls in the permit for the TransAlta facility as mercury is a toxic pollutant that adversely affects the health of Washington's citizens, environment and economy. Moreover, any such limits should require much higher mercury removal than that currently proposed by TransAlta as the research shows that mercury removal of 90% is achievable.

#### **IV. NITROGEN OXIDES**

##### **A. Impacts to Environment and Economy of Washington.**

Various pollutants from coal-burning power plants create haze pollution in our most-valued natural areas—National Parks and Wilderness Areas. Congress recognized the importance of protecting the air quality of these areas by designating them “Class I areas” and affording them the highest level of air quality protection. Unfortunately, that protection has not been realized and air quality in our Class I areas has deteriorated, particularly from haze. One of the pollutants that significantly contributes to haze pollutants (and which is currently inadequately controlled at the TransAlta Coal Plant) is nitrogen oxides (“NO<sub>x</sub>”).<sup>83</sup>

Air quality at a number of Class I areas, including Mt. Rainier National Park, Olympic National Park, and the Alpine Lakes and Goat Rocks Wilderness Areas, is (or is likely)<sup>84</sup> violating CAA requirements for haze pollution. As noted above, tourism is an important industry for Washington's economy, and a significant portion of those tourist dollars are drawn in as a result of Washington's parks and wilderness areas. Mt. Rainer National Park alone reports over two million visitors annually. Unfortunately, those visitors' experiences are clouded by poor air quality in the Class I areas.<sup>85</sup>

In 1995 the Department of Interior certified that impairment in Mount Rainier and Olympic National Parks was reasonably attributable to emissions from the TransAlta Coal Plant. On an annual basis, the TransAlta Coal Plant emits approximately 12,000 tons of NO<sub>x</sub>.<sup>86</sup> As far

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<sup>83</sup> An additional and growing environmental concern for parks and wilderness areas is deposition of nitrogen from high levels of NO<sub>x</sub> pollution in the air. This nitrogen deposition acts as a fertilizer which is adversely affecting water quality and vegetation in parks and wilderness areas. In particular, Mt. Rainier shows a significantly worsening wet deposition trend.  
[http://www.nature.nps.gov/air/Pubs/pdf/gpra/GPRA\\_AQ\\_ConditionsTrendReport2006.pdf](http://www.nature.nps.gov/air/Pubs/pdf/gpra/GPRA_AQ_ConditionsTrendReport2006.pdf).

<sup>84</sup> Monitoring is not available for all Class I areas.

<sup>85</sup> According to a presentation by Dennis Haddow of the U.S. Fish and Wildlife Services (“FWS”), “[v]isitors rank visibility and clear scenic vistas (viewing the air through “clean, fresh air”) as one of the most important aspects of their experience” in visiting Washington's Class I areas.  
[http://www.fs.fed.us/eng/rsac/airQ/docs/Haddow\\_Visibility\\_SIPS.ppt#258.5,FLMCONCERNS](http://www.fs.fed.us/eng/rsac/airQ/docs/Haddow_Visibility_SIPS.ppt#258.5,FLMCONCERNS).

<sup>86</sup> EPA emissions database at <http://camddataandmaps.epa.gov/gdm/index.cfm>.

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back as August 2, 1995 the National Park Service formally notified the Southwest Air Pollution Control Authority (now SWCAA), that

Specifically, in the language of the regulation, the Centralia Power Plant [TransAlta Coal Plant] is an existing stationary facility which may reasonably be anticipated to . . . contribute to impairment of visibility in . . . mandatory Class I Federal area[s] where the impairment is reasonably attributable to the power plant.

Approximately two months later, on October 16, 1995, the Park Service also notified the Washington Department of Ecology that Park Service studies:

demonstrate that the Centralia Power Plant emissions contribute to visibility impairment and acid deposition in one or more Class I national park and wilderness areas in Washington. We request that you review and, if appropriate, confirm our finding of reasonable attribution, with respect to the Centralia Power Plant.

The Park Service's reasonable attribution findings never resulted in either the state of Washington or SWCAA making a determination of Best Available Retrofit Technology ("BART") for the TransAlta Coal Plant.

According to EPA's regional haze regulations, a single source that is responsible for a 1.0 deciview change or more should be considered to cause visibility impairment. 40 C.F.R. Part 51, Subpart P, Appendix Y Guidelines for BART Determinations Under the Regional Haze Rule, Section III A. 1. A deciview is a perceptually correct haze index such that uniform changes in haziness correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to highly impaired. 40 C.F.R. § 51.301. TransAlta's regional haze CALPUFF modeling, submitted to Washington's Department of Ecology in January of 2008, demonstrates that Centralia is causing visibility impairment in Mount Rainier and Olympic National Parks (in addition to other Class I areas).

As set forth in TransAlta's modeling, the impact of the TransAlta Coal Plant's current NO<sub>x</sub> emissions on visibility in Mount Rainier National Park was shown to be worse than three deciviews or three times greater than EPA's causation threshold on at least eight days in a year.<sup>87</sup> TransAlta's modeling results are supported by photographs that show significant haze in both Mount Rainier and Olympic Parks.<sup>88</sup> According to the National Park Service, the TransAlta Coal Plant alone affects the largest number of Class I areas of any other single power plant in the U.S. and appears to have the largest (or at least one of the largest) cumulative impacts in the

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<sup>87</sup> TransAlta Extinction Budgets for Design Days, 2008.

<sup>88</sup> See, for example, [http://www.ecy.wa.gov/programs/air/globalwarm\\_RegHaze/regional\\_haze.html](http://www.ecy.wa.gov/programs/air/globalwarm_RegHaze/regional_haze.html).

U.S.<sup>89</sup>

The TransAlta Coal Plant's on-going impact to visibility in Mount Rainier and Olympic Parks is directly attributable to its emissions of NO<sub>x</sub>, as demonstrated by modeling performed recently by TransAlta. By requiring stringent controls on TransAlta Coal Plant's NO<sub>x</sub> emissions, visibility in Mt Rainier and Olympic National Parks and Alpine Lakes and Goat Rocks Wilderness Areas (not to mention the many other Class I areas such as North Cascades National Park, and the Pasayten, Glacier Peak, Mt. Hood and Mt. Adams Wilderness Areas, and the Columbia River Gorge) will improve measurably. Stringent controls on the TransAlta Coal Plant's NO<sub>x</sub> emissions will result in significantly more improvement to the air quality of the Northwest's Class I areas than from any other stationary source.

## **B. Legal Requirements**

In 1977, Congress amended the Clean Air Act to, among other things, declare:

as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution.

42 U.S.C. § 7491(a)(1). As part of its obligation to meet this goal, Congress required EPA to promulgate regulations to ensure that each state revise and/or develop its State Implementation Plan ("SIP") to contain "such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal." 41 U.S.C. § 7491(b)(2). Congress further required EPA regulations to ensure that:

each major stationary source which is in existence on August 7, 1977, but which has not been in operation for more than fifteen years as of such date, and which . . . emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any [mandatory Class I] area, shall procure, install, and operate, as expeditiously as practicable (and maintain thereafter) the best available retrofit technology . . . for controlling emissions from such source for the purpose of eliminating or reducing any such impairment.

42 U.S.C. § 7491(b)(2)(A). In determining BART, the state shall take into consideration, among other things, costs of compliance and the improvement in visibility that is to be attained through the proposed controls. 42 U.S.C. § 7492(g). While BART may impose initial pollutant reductions, the obligation of states to make "reasonable further progress" on the timeline for

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<sup>89</sup> See tables submitted by TransAlta to Ecology and the National Park Service. The National Park Service notes that it is currently relying on these tables as it has not yet had the opportunity to conduct independent analysis. Given the tables submitted by TransAlta, the National Park Service, Don Shepard, has offered the opinion that the TransAlta Coal Plant's cumulative impact of 33 deciviews is one of the highest, if not the highest, impact to Class I areas in the country.

returning Class I areas to natural condition, may require imposition of controls more stringent than, or in addition to, initial BART determinations.

In response, EPA developed regulations requiring states to revise/develop SIPs to address regional haze in Class I areas. The SIPs are to provide for return of Class I areas to natural conditions by 2065 with interim milestone dates to ensure reasonable further progress toward that goal. 40 C.F.R. § 51.302 and § 51.308. EPA's regulation further requires states to identify facilities for which BART should be required and to impose BART (with schedules of compliance) on those facilities. Id. EPA defines BART as:

an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility...established on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

40 C.F.R. § 52.301. See also requirements of 40 C.F.R. § 51.308.

### **C. Emission Controls**

Despite the obvious negative impact that NO<sub>x</sub> from the TransAlta Coal Plant is having and will have on the environment and economy of Washington, the proposed Permit simply continues the existing inadequate NO<sub>x</sub> controls for the TransAlta Coal Plant. The TransAlta Coal Plant currently employs a technology called "lo-NO<sub>x</sub> burners" to minimally-control NO<sub>x</sub>. EPA has unequivocally informed TransAlta, Ecology and the SWCAA that the lo-NO<sub>x</sub> burner technology is not BART. Nonetheless, it appears from Ecology's public statements and its file that Ecology believes (presumably in consultation with SWCAA) that BART for the TransAlta Coal Plant is the lo-NO<sub>x</sub> burners and switching from burning coal from the Centralia mine to burning lower sulfur, lower nitrogen coal from the Powder River Basin (PRB) (the so-called "Flex Fuels Project."). As pointed out in Dr. Ranajit Sahu's Report regarding the BART considerations for the TransAlta Coal Plant (enclosed), the Flex Fuels Project<sup>90</sup> does not appear to be supportable as BART for a couple of reasons, not the least of which is the fact that burning PRB coal had already commenced at the TransAlta Coal Plant and it appears to have been planned by TransAlta for reasons other than NO<sub>x</sub> control. The mine was actually closed in 2006

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<sup>90</sup> It should be noted that Dr. Sahu also questions whether the Flex Fuels Project should be subject to New Source Review under the CAA, based upon conflicting statements by TransAlta and/or Ecology regarding the project. Conservation Petitioners submit that SWCAA and Ecology have an obligation to examine, and make public their findings, whether the Flex Fuels Project is subject to NSR and potentially BACT requirements.

and the TransAlta Cola Plant has been burning only PRB since 2008.<sup>91</sup> More importantly, as pointed out by Dr. Sahu, the TransAlta Coal Plant will still be a large contributor to haze violations at all the Class I areas it affects, even after implementation of the so-called Flex Fuels Project.

Dr. Sahu further points out how the preliminary decision to not require Selective Catalytic Reduction (“SCR”) technology for NO<sub>x</sub> control at the TransAlta Coal Plant is questionable and lacking in documentation. SCR is clearly available and clearly achievable. It consistently achieves the best and most pollutant reduction for NO<sub>x</sub>.<sup>92</sup> For example, Minnesota Power projects significant NO<sub>x</sub> reduction with the use of SCR—with side benefits for mercury control:

As part of the Boswell 3 Plan, Minnesota Power proposes to install a powdered activated carbon (“PAC”) injection system to capture flue gas mercury and a continuous emission monitoring system (“GEMS”) for mercury; Low NO<sub>x</sub> Burners (“LNB”), Over-Fire Air (“OFA”) and Selective Catalytic Reduction (“SCR”) to reduce NO<sub>x</sub> as well as a Combustion Optimization System (“COS”) to optimize the balance between NO<sub>x</sub> reductions and carbon monoxide (“CO”) control; a flue gas desulfurization (“FGD”) scrubber to further reduce SO<sub>2</sub>, and a fabric filter to control PM and help optimize mercury removal performance.

With a combination of LNB/OFA<sup>93</sup> and SCR, Minnesota Power expects a NO<sub>x</sub> reduction of approximately 80% compared to current baseline levels. That is, a reduction in the NO<sub>x</sub> emission rate from 0.37 lbs/mmBtu to 0.07 lbs/mmBtu with a corresponding annual reduction of 3,904 tons (from 4,808 tons to 904 tons). Finally, mercury oxidation across the SCR may also contribute co-benefit mercury removal.<sup>94</sup>

It appears that TransAlta’s arguments objecting to installation of SCR NO<sub>x</sub> control technology go only to its cost, claiming that it is “too expensive”. As Dr. Sahu points out, Ecology (and, apparently, SWCAA) appears ready to accept this assertion with little to no

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<sup>91</sup> “On Nov. 27, 2006, we ceased mining activities at our Centralia coal mine as a result of increased costs and unfavorable geological conditions. Inventory extracted up to the date on which we ceased operations was mostly consumed throughout 2007. Coal requirements for the foreseeable future are expected to be sourced from coal imported from the PRB.” From TransAlta 2008 Annual Report.

<sup>92</sup> See generally, TransAlta submissions to SWCAA, Ecology and the National Park Service from consultants C2M Hill.

<sup>93</sup> Another benefit of reducing the initial formation of NO<sub>x</sub> in the boiler is reduction in the amount of ammonia required to further reduce NO<sub>x</sub> emissions.

<sup>94</sup> Excerpted from “Minnesota Power’s Boswell 3 Environmental Improvement Plan” submitted to the Minnesota Public Utilities Commission 10/27/06 (Docket No. E015/M-06-1501).

evidence behind it. TransAlta's assertion is unsupported and its numbers questionable. Further, TransAlta measures the purported high cost against improvement in visibility only in Mt. Rainier, the Class I area most affected by the TransAlta Coal Plant's pollutants. However, as pointed out by the National Park Service, the improvements that must be assessed are to all the Class I areas affected by the TransAlta Coal Plant pollutants, which cumulatively is a much larger, more significant improvement. (Again, the TransAlta Coal Plant is the worst coal plant in the nation in terms of adverse impacts on National Parks and Wilderness Areas.)

SWCAA, with Ecology, must immediately, in this permit, require SCR controls for NO<sub>x</sub> at the TransAlta Coal Plant, as required by WAC 173-400-040(5) and SWCAA 400-040(5), and as required by the CAA and regulations regarding visibility and BART.

#### **IV. SUMMARY AND CONCLUSION**

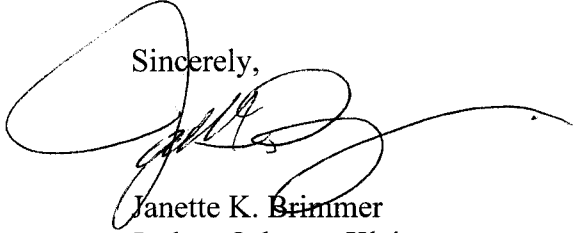
The proposed Permit, Statement of Basis, and communications from SWCAA over the last several months, suggest that SWCAA believes it serves nothing more than a "scrivener" function in the Title V permitting process; that the comments contained herein are not properly before SWCAA. This is absolutely inconsistent with the law. Just like the NPDES permitting program for water, the Title V permit gathers together all the requirements from various parts of the CAA into one place for a particular facility. Also, as with an NPDES permit, the public is entitled to review and comment on the adequacy of the Title V permit at the time of its issuance. Conservation Petitioners are using this opportunity to assert and demonstrate that the proposed Title V Permit for the TransAlta Coal Plant fails to conform to all substantive requirements for the control of air contaminants and/or air pollutants in state and federal law. The SWCAA, with Ecology, has an obligation to ensure that the permit conforms to those substantive legal requirements and that the health of Washington citizens, Washington's spectacular natural places, and Washington's economy are fully protected from the significant adverse impacts of the TransAlta Coal Plant's very large pollution emissions. TransAlta has had a free ride for the toxic pollutant mercury, the haze-inducing pollutant NO<sub>x</sub>, and perhaps the biggest threat to human health and the environment today, CO<sub>2</sub>, for far too long. SWCAA has an obligation to not allow the next 5 years of this Permit to be nothing more than business as usual. Conservation Petitioners urge SWCAA to address these pollutant now in this Permit.

Thank you for the opportunity to submit these comments. Conservation Petitioners look forward to working with SWCAA and Ecology on new, aggressive pollutant controls for the TransAlta Coal Plant.

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Please do not hesitate to contact the undersigned should you have any questions.

Sincerely,



Janette K. Brimmer  
Joshua Osborne-Klein  
Earthjustice  
*For Sierra Club, National Parks  
Conservation Association and Northwest  
Environmental Defense Center*

Sean Smith, M.S.  
National Parks Conservation Association  
Policy Director, Seattle Regional Office

Mark Riskedahl  
Executive Director, Northwest  
Environmental Defense Center

Nancy Hirsh  
Policy Director  
NW Energy Coalition

cc: Washington Department of Ecology  
Sarah Rees  
Director Jay Manning

**Report of Dr. Ranajit Sahu**  
**TransAlta Coal-fired Power Plant, Centralia, Washington**  
**Preliminary BART Determinations for NOx**

1. I have been asked by the Sierra Club to review the ongoing assessment of the Washington Department of Ecology of existing and proposed controls of Nitrogen Oxide (“NOx”) emissions from the TransAlta-owned coal-fired power plant located in Centralia, Washington. My background and qualifications are as follows: I have a Bachelor of Technology Degree with Honors from the Indian Institute of Technology, and a Masters of Science in Mechanical Engineering and Ph.D. in Philosophy, both from the California Institute of Technology. I have over 18 years of experience in the fields of environmental, mechanical and chemical engineering including program and project management services as well as design and specification of pollution control equipment. In that time I have successfully managed and executed numerous projects. This includes basic and applied research projects, design projects, regulatory compliance projects, permitting projects, energy studies, risk assessment projects, and projects involved the communication of environmental and technical data to the public. I have provided and continue to provide consulting services to numerous private sector, public sector, and public interest clients. My clients over the past 18 years have included steel mills, petroleum refineries, cement companies, aerospace companies, power generation facilities, various manufacturers of equipment, chemical distribution facilities and various public sector entities such as the Environmental Protection Agency, U.S. Department of Justice, California Toxic Substances Control, municipalities etc. I have performed projects in 45 states. In addition to my consulting work, I have taught and teach numerous courses at several Southern California universities, including University of California at Los Angeles (air pollution), University of California at Riverside (air pollution and process hazard analysis), and Loyola Marymount University (air pollution, risk assessment, hazardous waste management).

2. I have reviewed a number of documents from TransAlta, consultants retained by TransAlta, and from the Department of Ecology, including analysis and reports by CH2M Hill. Unfortunately, it appears that a number of documents that are relevant to the consideration of NOx controls have been withheld by the Department of Ecology which has hampered my ability

to fully analyze emissions and control technologies for the TransAlta Centralia facility (the “Plant”).

3. The electrical output of each of the two boiler units at the TransAlta coal-fired power plant located in Centralia, Washington, is 702.5 MW net.<sup>1</sup> The units are tangentially fired and currently use Powder River Basin (“PRB”) coals. TransAlta and the Department of Ecology claim that Best Available Retrofit Technology (“BART”) for NO<sub>x</sub> emissions from each boiler is the current set of combustion controls (called the “LNC3” combustion controls) along with the completion of the Flex Fuels project and the full use of PRB coals. The expected NO<sub>x</sub> emissions reduction is around 20% of current (0.3 lb/MMBtu) based on modeling conducted by the applicant or approximately 0.24 lb/MMBtu. Since the units already have the set of combustion controls (low NO<sub>x</sub> burners, close-coupled and separated OFA installed during 2000-2002) and already fire PRB coals, the expected 20% reduction is to accrue from the Flex Fuels project, which appears to be something the Plant already wants to do for other reasons and which appears to have been a project the Plant was working toward since closing the Centralia mine around 2006. Thus, BART is to be met with no additional incremental effort by TransAlta. As a result, the Plant collectively has significant visibility impacts for a number of Class I areas, even after implementation of the NO<sub>x</sub> BART option proposed by TransAlta that Ecology appears ready to accept.

4. From the description provided, it does not appear that the Flex Fuel project is geared towards NO<sub>x</sub> controls, per se. While combustion modeling may indicate that there may be a 20% reduction in NO<sub>x</sub>, this is incidental to the overall goals of what is essentially an efficiency improvement project.

5. Ecology acknowledges a 5-step BART process (see January 9, 2009 BART Determination Support Document, Section 1.1). Ecology also notes that the state can consider

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<sup>1</sup> While there is no discussion of reduction of the Unit ratings in this matter, the applicant notes in its December 2008 submittal that it evaluated emission rates for the “...maximum potential sustainable load (663 MW)...” It is not clear why the Vista modeling would be limited to this lower net load. Nor it is clear if the imputed NO<sub>x</sub> reductions of 20% would be sustained at the higher and current maximum load of 702 MW. Ecology or the permitting entity should clarify.

additional controls beyond those that are available, but is not required to do so. This one plant has a significant impact on many Class I areas, and therefore Ecology must consider using its authority to consider additional controls. If Ecology does not do so for this Plant, it raises serious question regarding whether Ecology will consider adequate controls to address visibility impacts from any emissions in Washington state.

6. There is a question regarding whether the Flex Fuel project might trigger NSR review that must be examined by either or both the permitting entity and Ecology. Ecology's summary contains contradictory statements. On page 10 of 25 of the January 9, 2009 document, it states that "[T]he Flex Fuel project....does not increase the boilers' potential steam generating capacity." Yet, later on the same page, it also states that "[T]he lower nitrogen content of the PRB coals combined with the lower total quantity of fuel required to produce the same heat input to the boilers along with the potential for additional steam production after the project has been completed...." TransAlta, the permitting entity and Ecology should clarify whether the Flex Fuel project is a purely efficiency driven project in which heat input and emissions will not increase or if it involves debottlenecking the boiler island in any manner. If the latter is possible, Ecology must examine the NSR aspects of this project.

7. Ecology notes that Transalta "continues to investigate" the use of neural net controls such as by NeuCo or others as a "potential supplementary or polishing" technology. It is not clear if such technologies will be implemented or not. Utilities have routinely expected and obtained 10-15% additional NOx reduction by implementing such techniques. It is not clear why these technologies are any less reliable in predicting NOx reduction than the Flex Fuel project. In the latter, the imputed NOx emissions derive from computational modeling of the project modifications – and do not appear to result from any specific changes to hardware. As such, it is not clear why Ecology would not expect and assume a further 10-15% NOx reduction from the implementation of neural net technology implementation.

8. The major error in the BART analysis is the rejection of Selective Catalytic Reduction ("SCR") as the NOx control option for the boilers. Although Ecology erroneously declares SCR

to be technically infeasible, it is clear from the applicant's analysis and Ecology's own summary (see Table 2-1) that SCR is a technically feasible option.<sup>2</sup> The only impediment to its installation seems to be "...the lack of room..." at the boilers for an easy SCR installation. Although TransAlta claims that the configuration is tight, there is scant detail regarding the congestion. In response to Ecology's questions<sup>3</sup> regarding SCR as discussed in the initial BART application, the applicant provided three figures (3-3 through 3-5) in its revised BART application purporting to support its contention that space was unavailable for the SCRs. Yet, simple examination shows that these figures do not contain anywhere near the level of detail that Ecology asked for or would be needed to make a proper engineering assessment of the space or retrofit difficulty for SCR. These figures, at the scales provided, simply do not make the case that space may or may not be available for SCR. They certainly do not make the case for an engineering assessment of the degree of difficulty of the retrofit. Figure 3-3 is a plan view of the entire facility in which the scale and distances are barely legible. Figure 3-4 is an elevation with illegible details and a SCR box pasted onto the figure. Figure 3-5 is a photograph showing one single side view perspective of the connection between Unit 1 and its ESP. Collectively, they do not provide any details as to where the applicant assumed the one-SCR or two-SCR options would be located, the length of piping runs in the modified configuration, etc. In addition, the application does not discuss the potential for moving or re-configuring existing equipment (such as the ESPs) or piping runs that would render the retrofit less problematic.

9. In fact, all of these details outlined above regarding physical space configurations at the existing Plant and for inclusion of SCR are not actually issues associated with the technical feasibility of SCR, but rather issues of how much TransAlta is willing to spend to adequately control NOx emissions. Further, on the issue of cost effectiveness of SCR for the Plant, the cost assumptions in TransAlta's materials do not appear to be tied to the supposed retrofit difficulty,

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<sup>2</sup> Ecology notes in Section 4.1 of its January 9, 2009 document that "...the Flex Fuels project and SNCR are the only technically feasible controls...."

<sup>3</sup> Specifically, see question 14 in Ecology's April 25, 2008 letter to TransAlta. In response, on May 23, 2008, CH2M Hill notes that "the revised BART analysis will provide a more detailed explanation." The additional detail was apparently the three figures 3-3 through 3-5 in the revised July 2008 application, which figures are inadequate to support or assess the assertions regarding physical limitations.

since there is no supporting documentation for the costs. At a minimum, the assertions are unsupported and the connections are not transparent. Yet, Ecology seems to have accepted the applicant's initial and revised cost assessments without question, a failure of Ecology's obligations relative to BART determinations. Numerous questions remain that must be answered and examined in order for Ecology, the permitting entity, and importantly, the public, to assess TransAlta's claims that SCR control technology is not BART, including:

(i) what was the basis for the SCR cost estimates in the initial application, where the costs were ascribed to "vendor"?<sup>4</sup> Who or what vendors provided data? What type of data were provided by the vendors? Were the vendors provided with engineering drawings (as opposed to Figures 3-3 through 3-5) in order to develop costs estimates? Why was the capital cost of two SCRs double that of one SCR. Two SCRs would or could share several components such as the reagent storage system, etc., making a simple "doubling" highly unlikely (and demonstrating cursory analysis.) What is the basis of assuming that construction costs and balance of plant (items not defined) are each an additional 50% of the SCR capital cost?<sup>5</sup> What is the basis of the 16% surcharge?<sup>6</sup> Finally, what was the basis for assuming that the NO<sub>x</sub> level with SCR would be 0.07 lb/MMBtu. Even with the current (or pre-Flex Fuel) NO<sub>x</sub> level of 0.30 lb/MMBtu and an SCR efficiency of 90%, the outlet NO<sub>x</sub> level would be 0.03 lb/MMBtu. Just dropping the NO<sub>x</sub> level from 0.07 lb/MMBtu to 0.03 lb/MMBtu would lower the calculated cost effectiveness, potentially bringing it down to the range of acceptable cost-effectiveness, all other factors kept constant. Therefore, the SCR NO<sub>x</sub> level not examined critically by Ecology. Ecology or the permitting entity should also clarify what the acceptable cost-effectiveness limit is for NO<sub>x</sub>.

(ii) Why did the "vendor" basis change in the revised July 2008 application to CH2M Hill? How did the consultant CH2M Hill obtain its base cost estimates for SCR? Why are the form of the costs different than how costs were presented in the January 2008 analysis? Why are the SCR costs higher in the July 2008 analysis? What was or what were the retrofit factors that

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<sup>4</sup> January 2008 BART Analysis for Centralia Power Plant, pp 43/80 (.pdf version). The SCR capital cost is noted as 204 million dollars and the Factor/Source is listed as 'Vendor.'

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

may have been applied to inflate the base costs for SCR? What was the basis for the retrofit factors? How were they supported by actual field conditions? What was the geometry and location for the single SCR (on one boiler) and two SCR configurations? Also, all of the questions posed earlier regarding the level of NO<sub>x</sub> after SCR (i.e., 0.07 lb/MMBtu) are also applicable.

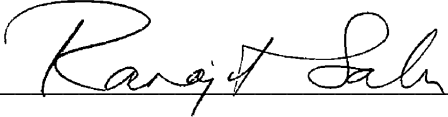
(iii) What was the size or sizes of the SCRs assumed in the analysis? How many catalyst layers were assumed to be present? What are the details regarding the reagent and reagent processing or handling? Answers to these and related types of questions affect the physical layout, the degree of retrofit ease, and the costs of the project.

10 There seems to have been much confusion regarding the choice of baseline periods. Even though it initially accepted 2006-2007 as the proper baseline for cost effectiveness, in its December 2008 submittal, the applicant seems to have backtracked. While noting that the 2006-2007 period was “not representative” because “...emissions....were lower on average...than more representative periods...” and that there was “...emissions variability...” the applicant provides nothing factual or specific. It simply selects 0.30 lb/MMBtu as the baseline. While the actual impact of this may be small, Ecology should provide a thorough discussion regarding baseline it is Determination Document. The January 9, 2009 document does not seem to discuss this issue in any great detail.

11. Without answers to the above and related questions, it is simply impossible to verify the applicant’s cost (and resulting cost-effectiveness) assumptions, and it appears that Ecology did not verify TransAlta’s’s assumptions. As a result, without much greater detail in the record, it is premature to reject SCR as the BART choice for these two units. In combination with the expected 0.24 lb/MMBtu that would result from the existing controls and Flex Fuel, SCR at even 90% efficiency would imply a NO<sub>x</sub> emission rate of 0.024 lb/MMBtu. Clearly, these vastly reduced emissions would significantly lessen the adverse visibility impacts of the plant on numerous Class I areas, a key component of BART. From my analysis of the file, it is my opinion that SCR cannot be ruled out as BART for the Plant. Given the current impacts by the

Plant, Ecology's review and acceptance of the applicant's meager and unsupported analysis regarding SCR is puzzling, and not in keeping with BART and visibility requirements.

Dated: \_\_\_July 1, 2009\_\_\_\_\_



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Ranajit Sahu, Ph.D.