

## NPS Comments on ORCAA's Permit Evaluation for PNWRE Wood Pellet Plant Construction

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on behalf of

PWR Regional Director, NPS <PWR\_Regional\_Director@nps.gov>

Wed 1/17/2024 3:19 PM

To: Lauren Whybrew <lauren.whybrew@orcaa.org>

Cc: OLYM Superintendent, NPS <OLYM\_Superintendent@nps.gov>; Jacobs, Sula <Sula\_Jacobs@nps.gov>; Weaver, Jerald L <Jerald\_Weaver@nps.gov>; MORA Superintendent, NPS <MORA\_Superintendent@NPS.gov>; Dudgeon, Gregory <Greg\_Dudgeon@nps.gov>; Beavers, Sallie C <Sallie\_Beavers@nps.gov>; Louie, Denise A <Denise\_Louie@nps.gov>; King, Kirsten L <kirsten\_king@nps.gov>

 3 attachments (569 KB)

PWR\_Letter to Olympic Region Clean Air Agency\_Jan2024.pdf; Attachment 1\_NPS Technical Review.pdf; 20240110-1073 (PWNR - Natural Resources)-Attachment 2\_2022 IPM for PNWRE hog-fuel dryer based on 2021 costs.xlsm;

1.A.2 (PW-NR)

*January 17, 2024*

Lauren Whybrew, Engineer II  
Olympic Region Clean Air Agency  
2940 Limited Lane NW  
Olympia, WA 98502

Dear Ms. Whybrew:

The National Park Service (NPS) appreciates the opportunity to comment on the Olympic Region Clean Air Agency (ORCAA) preliminary determination on the Notice of Construction permit for the proposal by Pacific Northwest Renewables Energy (PNWRE) to construct the Port of Grays Harbor Wood Pellet Plant in Hoquiam, WA. The NPS recommends evaluating the addition of Selective Catalytic Reduction (SCR) to the drying line as part of the Best Available Control Technology (BACT) review for this permit. SCR could reduce nitrogen oxide (NO<sub>x</sub>) emissions from the proposed facility by 220 tons per year, protecting air quality in nearby national parks.

The NPS safeguards 428 special places for their unique natural and cultural resources and outstanding scenic beauty. Washington is home to 16 national park units and one affiliated area including Olympic National Park, about 50 km north of the proposed wood pellet manufacturing site, and Mount Rainier, about 150 km to the east of the proposed facility. Both national parks are federally designated Class I areas, receiving some of the highest levels of air quality protection under the law. These parks are known for protecting vast wilderness, rugged mountain scenery, high alpine lakes, and an impressive diversity of plants and animal life. In 2022, Olympic and Mount Rainier National Parks hosted more than 4 million park visitors to who spent an estimated \$295 million in local Washington communities, supporting over 3,100 jobs and generating \$400 million in economic output.

Total air pollutant emissions of particulate matter (10-micron diameter), NO<sub>x</sub>, and sulfur dioxide from the proposed wood pellet manufacturing facility are expected to be about 346 tons per year. Of these

emissions, 249.7 tons per year would be NO<sub>x</sub>, known to contribute to harmful ozone formation, nitrogen deposition, and visibility impairment.

The NPS evaluation of the PNWRE application and ORCAA's preliminary determination finds that the proposed facility would be well-controlled for all pollutants except NO<sub>x</sub>. As mentioned above, the NPS recommends evaluating the addition of SCR to the drying line as part of the BACT review for this permit. SCR is a well-established and widely available control technology that may be applicable to, and economically feasible for, reducing NO<sub>x</sub> emissions from this facility. High-level analysis suggests that installation of SCR following the wet electrostatic precipitator could reduce NO<sub>x</sub> emissions by about 220 tons per year at a cost-effectiveness of less than \$7,000/ton. See attachments 1 and 2 for technical review details.

The NPS appreciates the opportunity to comment on this preliminary permit determination and commends ORCAA for its commitment to clean air in Washington. Current nitrogen deposition levels at Olympic and Mount Rainier National Parks exceed good condition benchmarks for lichen, alpine ecosystems, and aquatic eutrophication. Limiting nearby NO<sub>x</sub> emissions will help to protect these sensitive park resources from additional damage.

If there are any questions, please contact Holly S. Salazer, NPS Air Resources Division Branch Lead for Policy, Planning and Permit Review at (814) 321-3309 or [Holly\\_Salazer@nps.gov](mailto:Holly_Salazer@nps.gov).

Sincerely,

*/s/ Katariina Tuovinen*

Katariina Tuovinen  
Associate Regional Director

cc:

Superintendent, Olympic National Park  
Division Lead, Natural and Cultural Resources, Olympic National Park  
Superintendent, Mount Rainier National Park  
Division Lead, Natural and Cultural Resources, Mount Rainier National Park  
Regional Natural Resources & Science Lead, Interior Regions 8, 9, 10, and 12  
Air Resources Division Lead, National Park Service

Attachments (2)  
NPS Technical Review  
NPS SCR Cost Estimate Calculations

**Regional Directorate**  
Interior Regions 8, 9, 10, and 12

National Park Service  
555 Battery Street, Suite 122  
San Francisco, CA 94111  
RD's office: 415.623.2102

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# United States Department of the Interior



NATIONAL PARK SERVICE  
Interior Regions 8, 9, 10, and 12  
555 Battery Street, Suite 122  
San Francisco, CA 94111

IN REPLY REFER TO:  
1.A.2 (PW-NR)

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INTERIOR REGION 8 • LOWER COLORADO BASIN\*  
INTERIOR REGION 9 • COLUMBIA—PACIFIC NORTHWEST\*  
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AMERICAN SAMOA, ARIZONA\*, CALIFORNIA, GUAM, HAWAII, IDAHO, MONTANA\*,  
NEVADA, NORTHERN MARIANA ISLANDS, OREGON, WASHINGTON

\*PARTIAL

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Katariina Tuovinen  
Associate Regional Director

cc: Superintendent, Olympic National Park  
Division Lead, Natural and Cultural Resources, Olympic National Park  
Superintendent, Mount Rainier National Park  
Division Lead, Natural and Cultural Resources, Mount Rainier National Park  
Regional Natural Resources & Science Lead, Interior Regions 8, 9, 10, and 12  
Air Resources Division Lead, National Park Service

Attachments (2)  
NPS Technical Review  
NPS SCR Cost Estimate Calculations

## Attachment 1: NPS Technical Review

The NPS has evaluated the PNWRE application and ORCAA's Preliminary Determination and recommends evaluating addition of SCR to the drying line as part of the BACT review. Installing SCR following the WESP could reduce emissions of NO<sub>x</sub> by about 220 tons per year (tpy) at a cost-effectiveness of less than \$7,000/ton (2022\$).

Location of the SCR downstream of the WESP would reduce the potential of SCR catalyst "poisoning" due to impurities (e.g., alkali metals) in the exhaust from the biomass furnace and drum dryer. As the process gases are heated from approximately 100 °F exiting the WESP to the Regenerative Catalytic Oxidizer (RCO) operating temperature, it may be feasible to locate the SCR in a temperature zone that is desirable for SCR effectiveness. Alternatively, an auxiliary burner could be added to pre-heat the gas entering the SCR.

The online Control Cost Manual (CCM) version of EPA's SCR cost model workbook<sup>1</sup> is based upon an Integrated planning Model (IPM) methodology developed by Sargent & Lundy (S&L) for EPA. That S&L IPM methodology<sup>2</sup> was based upon 2016 costs. In its recently-finalized Good Neighbor Plan (GNP), EPA used an updated version of its IPM SCR model<sup>3</sup> to reflect the updated IPM model cost algorithms based upon 2021\$.

NPS review adapts the old online CCM version of EPA's SCR cost workbook to reflect the updated IPM SCR capital cost algorithms. Instead of being based upon 2016 costs, the attachment 2 version is based upon the 2021 SCR costs that EPA used in its GNP; results are shown below. (See attachment 2 for calculations)

*Table 1. Estimated SCR Cost-Effectiveness for Pacific Northwest Renewables Energy (PNWRE)*

Grays Harbor Wood Pellet Plant	Data Inputs/Outputs	Units
Maximum Heat Input Rate*	170.61	mmBtu/hour
Uncontrolled NO <sub>x</sub> Emissions**	0.334	lb/mmBtu
Uncontrolled NO <sub>x</sub> Emissions**	249.7	ton/yr
Outlet NO <sub>x</sub> Emissions***	0.04	lb/mmBtu
NO <sub>x</sub> Removal Efficiency***	88	%
Total Capital Investment	\$11,932,537	2022\$
Total Annual Cost	\$1,470,215	2022\$
NO <sub>x</sub> removed	220	ton/yr
Remaining NO <sub>x</sub> Emissions	30	ton/yr
Average Cost Effectiveness	\$6,690	/ton removed

\* includes 5.8 mmBtu/hr design natural gas consumption

\*\* calculated from permit application

\*\*\* based upon the CCM SCR chapter cited above

<sup>1</sup> [sccostmanualspreadsheet\\_june-2019vf.xlsm \(live.com\)](#) Other cost estimation methods such as EPA's Control Strategy Tool (CoST) and IPM may include Allowance for Funds Utilized During Construction (AFUDC) and Owner's Cost which are typically not allowed by EPA's CCM methodology.

<sup>2</sup> IPM Model – Updates to Cost and Performance for APC Technologies SCR Cost Development Methodology Final January 2017 [SCR Cost Development Methodology \(epa.gov\)](#)

<sup>3</sup> IPM Model—Updates to Cost and Performance for APC Technologies, SCR Cost Development Methodology for Coal-fired Boilers, FINAL, February 2022 [Electrical information: \(epa.gov\)](#)