



Rob McKenna

# ATTORNEY GENERAL OF WASHINGTON

Utilities and Transportation Division

1400 S Evergreen Park Drive SW • PO Box 40128 • Olympia WA 98504-0128 • (360) 664-1183

October 26, 2012

David W. Danner, Executive Director and Secretary  
Washington Utilities and Transportation Commission  
1300 S. Evergreen Park Dr. SW  
P.O. Box 47250  
Olympia, Washington 98504-7250

RE: *In the Matter of the Petition of PUGET SOUND ENERGY, INC. for a Determination  
of Emissions Compliance*  
Docket UE-121594

Dear Mr. Danner:

Enclosed for filing in the above-referenced docket are an original and nine copies of  
Commission Staff's Report on Greenhouse Gas Emissions Performance Standard in the  
Context of PSE's Acquisition of the Ferndale Generation Station, and Certificate of Service.

Sincerely,

DONALD T. TROTTER  
Assistant Attorney General

DTT:klg  
Enclosures  
cc: Parties

**BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**In the Matter of the Petition of  
PUGET SOUND ENERGY, INC.  
for a Determination of Emissions  
Compliance**

**DOCKET UE-121594**

**UTILITIES AND TRANSPORTATION COMMISSION STAFF REPORT ON  
GREENHOUSE GAS EMISSIONS PERFORMANCE STANDARD  
IN THE CONTEXT OF  
PSE'S ACQUISITION OF THE FERNDALE GENERATION STATION**

**October 26, 2012**

**ROBERT M. MCKENNA  
Attorney General**

**DONALD T. TROTTER  
Assistant Attorney General  
Office of the Attorney General  
Utilities & Transportation Division**

**1400 S Evergreen Park Drive SW  
P.O. Box 40128  
Olympia, WA 98504-0128  
(360) 664-1189**

This report summarizes Utilities and Transportation Commission Staff's (Staff) analysis of the greenhouse gas (GHG) emissions performance standard found in RCW 80.80.040 as it relates to Puget Sound Energy, Inc.'s (PSE) acquisition of the Ferndale Generation Station. Staff concludes the commission should grant PSE's Petition with three conditions.

**1. The GHG Emissions Performance Standard and its applicability to PSE's acquisition of the Ferndale Generation Station**

As it applies in this case, the GHG performance standard is "one thousand one hundred pounds of greenhouse gases per megawatt-hour."<sup>1</sup> The GHG emissions performance standard must be met by an [1] "electrical company" that acquires [2] "baseload electric generation" via a [3] "long-term financial commitment" [4] "after June 30, 2008."<sup>2</sup> As RCW 80.80.060(1) states: "No electrical company may enter into a long-term financial commitment unless the baseload electric generation supplied under such a long-term financial commitment complies with the greenhouse gases emissions performance standard."

PSE qualifies as an "electrical company" because that term means "a company owned by investors that meets the definition of RCW 80.04.010,"<sup>3</sup> which in turn defines electric companies subject to Commission regulation.

PSE's acquisition of the plant will be a "long-term financial commitment" because that term includes a "new ownership interest".<sup>4</sup> PSE will have a new ownership interest in Tenaska's Ferndale Generation Station (Ferndale Generation Station) as shown in the Final

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<sup>1</sup> RCW 80.80.040(1)(a). According to the statute, this is the applicable standard until the Washington Department of Commerce (formerly the Department of Community, Trade and Economic Development) develops a different standard. RCW 80.80.040(1)(b) and 80.80.050.

<sup>2</sup> RCW 80.80.040(1).

<sup>3</sup> RCW 80.80.010(12).

<sup>4</sup> RCW 80.80.010(16).

Asset Acquisition Agreement PSE filed on October 16, 2012, in this docket. The transaction will be completed this year.

The Ferndale Generation Station is “baseload electric generation”. “Baseload electric generation” is defined as a power plant “designed and intended to provide electricity at an annualized plant capacity factor of at least sixty percent.”<sup>5</sup> The initial air quality permitting documents requested approval to operate continuously as a cogeneration plant, i.e. producing electricity and steam with a capacity factor well over 60%.

**2. The GHG emissions performance standard, as it relates to the Ferndale Generation Station**

The Ferndale Generation Station is a cogeneration plant. A cogeneration plant is designed to generate power as well as supply steam, typically to industrial customers for process heat. In a combined-cycle combustion turbine (CCCT) there are two stages of electricity generation: the combustion turbine generator and the steam turbine generator. Inside the steam turbine part of the plant, the pressure and temperature of the steam is reduced as energy is transferred from the steam to the rotating turbine. In a cogeneration plant, some of the steam may be diverted from the steam turbine to be used for its heat value, measured in British Thermal Units, BTUs, instead of being used to generate electricity, measured in megawatt-hours (MWh). An alternative approach for a CCCT cogeneration plant would be for all of the steam produced to be used in industrial processes and electricity produced only from the combustion turbine.

The GHG emissions performance standard is stated in the units of pounds of greenhouse gases per MWh of electricity. In the cogeneration scenario, where steam is removed for an industrial process, there are standard methods to calculate the equivalent

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<sup>5</sup> RCW 80.80.010(4).

MWh from the quantity and condition (quality) of the steam provided to the industrial or other user. This is accounted for in the Department of Ecology (Ecology) rule on GHG where a definition of a  $MWh_{eq}$  (Megawatt hour equivalent) for converting the thermal energy back to the equivalent electrical energy is included.<sup>6</sup>

Ecology also defines “baseload electric cogeneration facility” to accommodate the need to account for the correct equivalent energy calculation of the GHG standard for cogeneration facilities.<sup>7</sup> To meet the definition of a baseload electric cogeneration facility, the cogeneration plant must be a PURPA (Public Utility Regulatory Policies Act) “qualifying facility” (QF).<sup>8</sup>

As operated by Tenaska ownership, the Ferndale Generation Station is a QF, as shown in PSE’s response to Commission Staff Data Request 16. If the facility continues to be a QF, this allows the GHG emissions calculation to account for the energy value of the steam as equivalent to electrical generation for this plant. However, PSE has indicated it will not operate the plant as a QF.<sup>9</sup>

### **3. Whether the Ferndale Generation Station meets the GHG emissions performance standard depends on how it is operated**

Under its air quality permit, the Ferndale Generation Station is not required to meet the current GHG emissions limits. The plant is a dual fuel plant, able to use both natural gas and fuel oil in the combustion turbine. If the plant were run extensively with fuel oil, it would exceed the GHG emissions performance standard. We recognize it is not currently

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<sup>6</sup> WAC 173-407-110. Where,  $1MWh_{eq} = 3.413$  million BTUs of thermal energy. The Commission’s GHG rule directly references the Ecology rule, 173-407, in the definition of “Greenhouse gas emissions performance standard” at WAC 480-100-405(2)(c). This energy conversion approach is also contained in the FERC regulations on cogeneration and Qualified Facilities.

<sup>7</sup> WAC 173-407-110.

<sup>8</sup> See definition of a “cogeneration facility” at WAC 173-407-110 and WAC 173-407-150(1).

<sup>9</sup> PSE Response to Commission Staff Data Request 17.

economic to run the plant with extensive use of fuel oil, but the economics can change, as can the plant's ability to access natural gas (e.g., pipeline disruption).

PSE has submitted an Excel spreadsheet (in PSE Petition Exhibit B) containing emission calculations, electrical generation, and steam output information for the facility for the years 2000 through 2012. The information contained in these calculations indicate that if operated as it has during this time period, the plant has the capability to operate and meet the GHG emission standard, whether it was a QF or not. (The Ferndale Generation Station was grandfathered into compliance<sup>10</sup> with the GHG emission standard and has not been required to meet the current GHG emission limits).

To further analyze this issue (and other issues), Commission Staff consulted with Mr. Alan Newman of the Department of Ecology's Air Quality Program. Mr. Newman agrees with PSE that based on historical operation, the Ferndale Generation Station has demonstrated it can meet the GHG emission standard.

However, using the information in the 1991 air quality permit application for the plant, the plant's current air quality permit, as well as the plant's operating capabilities and history, Mr. Newman concluded that the plant can be operated in a manner that would exceed the 1,100 lb./MWh standard.<sup>11</sup>

On the other hand, the design and historical operation of the Ferndale Generation Station indicate that PSE can operate the plant in a manner that would comply with that GHG performance standard. Historically, the plant has emitted less than 1,100 pounds of GHG emissions per megawatt hour on an annual basis. Moreover, the values shown in the

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<sup>10</sup> RCW 80.80.040(3)(a) and (5)

<sup>11</sup> Current air quality permits (i.e. PSD 91-04) allows up to 1500 hours per year operating the turbines on #2 distillate fuel oil. This much fuel oil usage will cause the power plant to exceed the GHG emission performance standard by a significant amount.

PSE Petition Exhibit B demonstrate that this facility can meet the current GHG standard. These results indicate that if the facility is operated in a manner similar to how it has operated since 2000, that the facility can meet the GHG emissions performance standard.

Mr. Newman confirmed the results of PSE's calculations through his own independent calculations. He concludes that the values shown in the PSE Petition Exhibit B were based on acceptable emission calculation methods for greenhouse gas emissions.

PSE has committed to installing continuous parametric monitoring equipment in compliance with 40 C.F.R., Part 75, Appendix G. This equipment will allow the Company to demonstrate going forward with standard methods that it will not exceed the current annual GHG emissions performance standard.<sup>12</sup>

#### **4. Commission Staff's conclusions and recommended conditions**

Based on PSE's Petition, a review of requested data, and consultation with Ecology, Staff concludes that the Ferndale Generation Station can continue to be operated in compliance with the current GHG emissions performance standard. The Commission should grant PSE's Petition, subject to three conditions:

1. Within 90 days after the date PSE acquires ownership of the Ferndale Generation Station, PSE shall install continuous parametric monitoring equipment in compliance with 40 C.F.R. Part 75, Appendix G at the Ferndale Generation Station to assure future compliance with the applicable GHG performance standard.
2. PSE shall operate the Ferndale Generation Station so that it does not exceed the applicable GHG emissions performance standard.
3. PSE must report measured GHG emissions at least annually to the local air authority and Department of Ecology Air Quality Program.

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<sup>12</sup> PSE response to Commission Staff Data Request 18.