



STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

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**GRAY HARBOR ENERGY PROJECT
PROPOSED EXPANSION: UNITS 3 & 4**

JULY 14, 2010

WATER RESOURCES SUMMARY SHEET

The information below was provided at the request of EFSEC by the Department of Ecology (Ecology) and the Department of Fish and Wildlife (DFW). Ecology and DFW, under contract to EFSEC, provide consulting services and technical support to assist EFSEC in performing its regulatory oversight of the Grays Harbor Energy Project. Information in this summary sheet is for discussion purposes only and does not necessarily reflect the views of EFSEC on matters related to water resources.

Background

On October 30, 2009, the Energy Facility Site Evaluation Council (EFSEC or Council) received a request from Grays Harbor Energy, LLC (GHE) to amend the existing Site Certification Agreement (SCA) for its Grays Harbor Energy Project (Project). (The Grays Harbor Energy Project was formally known as the Satsop Combustion Turbine Project.) The existing Project is a 650 megawatt natural gas-fired turbine power plant, which consists of two combustion turbine generators (Units 1 & 2), a steam turbine generator, and associated power generating equipment. GHE is seeking approval from EFSEC to expand the Project by adding two more combustion turbine generators (Units 3&4), another steam turbine generator, and associated power generating equipment.

This summary sheet addresses water supply and water discharge issues for the existing and proposed Project. The existing and proposed Project withdraws water from the Chehalis River that is used primarily for cooling water. Water discharges to the environment consist of cooling water to the Chehalis River and stormwater to the ground or river.

This summary sheet describes:

1. The anticipated impacts of the expansion to the Chehalis River and ground water.
2. Mitigation measures proposed by state regulatory agencies to minimize or eliminate the anticipated impacts, based on mitigation measures listed in the Mitigated Determination of Nonsignificance (MDNS) issued by EFSEC on February 12, 2010.
3. The rationale and justification for the mitigation measures proposed by state agencies.

Characteristics of the existing and proposed Projects are described in GHE's summary sheets. Detailed information can be accessed at EFSEC's website listed at the end of this document.

Water Supply

- 1. What are the potential impacts of the proposed expansion project to water supply?**

At some dry periods (which may or may not be in the dry summer-early fall season), Chehalis River flow may be below the minimum base flow established in WAC 173-522 (Table 1). At such time the project will need to use the senior water right purchased from the Grays Harbor Public Development Authority (PDA). There are several conditions that address flow depletion when Chehalis River flow is less than the minimum base flow.

- The water withdrawal will occur about 3 miles downstream at river mile 16.7 and will be about 6.8 cfs.
- The return flow (used water going back to the Chehalis) will be about 1.5 cfs and will thus increase the Chehalis River flow between the diversion and the return flow 3 miles upstream after being cooled.
- The Chehalis River in the affected reach is tidal, so the greatest ecological impact of slightly reduced depth and velocity will be masked by tidal fluctuation. At the low September flow of 600 cfs the new diversion will be about 1% of the river flow.
- The Chehalis River flow receives the Wynoochee River flow about 3.7 miles downstream of the withdrawal point, further increasing the Chehalis River flow a minimum of 200 to 300 cfs.
- The amount of flow in the Chehalis River is measured upstream from the mouth of the Satsop River, so actual flow in the Chehalis River will be greater than the gauged flow.

The net effect of these conditions will be that the use of the senior water right in place of the newer water right will be negligible.

When actual flow is less than the regulatory minimum base flow, the new Satsop Project must not withdraw water under its EFSEC water authorization. However, at such times the Satsop Project would purchase water from the PDA’s water right which is senior to the regulatory minimum base flow requirement. For comparison to instream flows, mean monthly flows at the gage are also shown. Instream flows highlighted in yellow are higher than mean monthly flows, suggesting that use of the purchased senior right may be needed in that time period.

Table 1. Instream flows for lower Chehalis River

Dates	Regulatory minimum base flow (cfs) ^a	Historical mean monthly flow (cfs)
Jan	3800	16000
Feb	3800	10300
Mar	3800	9330
Apr	3800	6200
May 1	2910	3030
May 15	2300	3030
Jun 1	1750	1840
Jun 15	1360	1840
Jul 1	1085	1040
Jul 15	860	1040
Aug 1	680	822
Aug 15	550	822
Sep	550	926
Oct 1	640	2740
Oct 15	750	2740

Nov 1	1305	8850
Nov 15	2220	8850
Dec	3800	13400

a-cfs means cubic feet per second

Regulatory minimum base flows are established to protect a number of beneficial uses of water, including fish and wildlife. The affected reach of the Chehalis River is used by various fish species for migration and some rearing (living, feeding, growing); it is little used for spawning by salmon and trout. Instream habitat is affected by flow in several ways:

- Current speed is important to fish habitat – certain current speeds (water velocities) are preferred by certain types and sizes of fish;
- Water depth is important to fish habitat – certain depths are preferred and others are avoided by certain types and sized of fish;
- Wetted width is important to fish, provided it has suitable depths and current speeds.

As discussed above, the amount of change in each of these is minimal. All three of these attributes change constantly with the tide. The net effect is that the habitat impacts of the water use will be minimal when the senior water is exercised.

2. What mitigation measures is the state proposing to minimize the potential impacts?

DFW normally encourages water right applicants to withdraw water as low in a river as possible, preferably within tidal influence (although this is usually not an option). In the case of the proposed expansion, water withdrawal will be within the tidal influence zone, thus providing a major degree of mitigation. The Department of Fish and Wildlife also requires screening as mitigation to protect fish, but the withdrawal structure is buried and requires no screening. No additional mitigation beyond those measures proposed in the MDNS are needed nor recommended by the WDFW.

The Department of Ecology recommends that all existing mitigation continue, such as cooling and returning surplus flow 3 miles upstream of the wells, but does not see the need for any additional mitigation due to the purchase and use of 6.8 cfs of PDA water.

3. What is the justification/rationale of your proposed mitigation measures?

WDFW does not propose any mitigation measures beyond those proposed in the February 2010 MDNS. In addition, use of the senior water right is consistent with Washington water law that gives the senior right priority over the instream flow.

The Water Supply portion of this document was written by Brad Caldwell of Ecology and Hal Beecher of DFW. Brad and Hal are the instream specialists for their respective agencies.

Water Discharge

Water discharges from the existing and proposed Project will be regulated by the existing National Pollutant Discharge Elimination System (NPDES) Permit. The existing permit was issued by EFSEC on May 25, 2008 and is currently under revision to correct technical errors and

update some permit requirements. The current permit and the proposed revised permit contain a schedule of compliance is to allow GHE the opportunity to carry out the necessary studies to determine compliance with all applicable water quality standards.

The current permit requires GHE to submit an NPDES Permit renewal application no later than December 13, 2012, or, no later than 180 days before Units 3 & 4 commence operations, whichever occurs first.

1. What are the potential impacts of the proposed expansion project to the Chehalis River and ground water?

Discharge to the Chehalis River

GHE characterized its wastewater discharge from Units 1 & 2 to the Chehalis River in July-August 2009. The characterization consisted of two samples that were analyzed for approximately 149 chemical and physical constituents. Pollutants of concern in the discharge were identified as a result of the analysis. At this time there is insufficient data to determine whether the discharge from the Project is in compliance with the state's surface water quality standards. Impacts of the discharge from the existing and proposed Project to the Chehalis River will be determined in the engineering report and water quality evaluation required by the revised NPDES Permit.

Stormwater from the permittee's site is collected in a series of ditches and culverts and conveyed through a pipe beneath Keys Road and discharged to the one-acre C-1 pond.

Discharge to ground water

Stormwater that is not captured by the stormwater collection system infiltrates into the ground.

2. What mitigation measures are EFSEC proposing to minimize the potential impacts?

State and federal law require GHE to comply with all applicable water quality standards. The current permit contains a schedule of compliance that requires GHE to conduct a water quality evaluation and engineering study to verify compliance and submit these documents to EFSEC for review and approval.

The required water quality evaluation and engineering report will determine whether the process wastewater and stormwater discharges are in compliance with the applicable state water quality standards. If the discharges comply with the standards, the Project will be required to comply with numeric effluent limits and ongoing monitoring requirements.

If the engineering report and water quality evaluation determine the Project is not in compliance with the relevant standards, the permit requires GHE to propose treatment or other approaches to achieve long term compliance.

Additional Information

More specific information about the Project is available on EFSEC's Internet site at: http://www.efsec.wa.gov/Satsop_Amend%205.shtml, or you can call Jim LaSpina, EFSEC Siting Specialist at (360) 956-2047, or email: jim.laspina@commerce.wa.gov.