

# **Oregon Energy Facility Siting Council**

## **Guidelines for Requesting an Exemption for High Efficiency Cogeneration**

### **Introduction**

Electric generating plants in Oregon must obtain a site certificate from the Oregon Energy Facility Siting Council (“Council”) if their capacity exceeds 25 MWe. The normal site certificate process takes about two years from start to finish.

However, for some high efficiency plants, the statute provides an exemption from the site certificate requirement. The exemption was created to encourage very efficient use of fuel through cogeneration.

### **Permits Needed**

A facility with this exemption does not require a site certificate, but all other permit requirements still apply. The developer must still obtain any necessary water rights, DEQ permits for air and water quality, hazardous materials or stormwater discharge, any necessary wetland permits from the State Lands Division or the U.S. Army Corps, and other applicable permits. Local land use requirements apply and the developer must obtain land use approval from the local government. If the facility is subject to federal Environmental Impact Statement (EIS) requirements, those requirements still apply.

### **Qualifying Facilities**

Many cogeneration plants are qualifying facilities (QF) under PURPA. This qualification is different from the Council’s high efficiency exemption. A facility that is a QF is likely to meet the Council exemption criteria, but QF status does not automatically guarantee the Council exemption. While the fuel efficiency calculations for a QF are similar to those for the Council exemption, the definitions are different and must be calculated separately.

### **Gas and Transmission Lines**

Council rules apply not only to power plants but to gas and electric transmission lines (“linear facilities”) as well. A gas pipeline 16-inches or more in diameter and 5 miles or more in length is an energy facility and requires a site certificate under ORS 469. Similarly, an electric transmission line at least 245 kV and at least 10 miles long requires a site certificate. If a proposed cogeneration facility includes Council jurisdictional power lines or gas pipelines, then the facility requires a site certificate regardless of its fuel efficiency.

### **Steam Host**

A cogeneration facility needs a steam host to achieve the efficiencies required for the exemption. A facility that loses its steam host or experiences a substantial reduction in demand for process heat may no longer qualify. In this case, Oregon statute requires you to either cease operations or obtain a site certificate. It is up to the facility owner to comply with this requirement.

## Applicable Statutes and Regulations

The basic exemption is created in ORS 469.320(2)(c), which states that no site certificate is required for an energy facility that:

- (A) Sequentially produces electrical energy and useful thermal energy from the same fuel source; and
- (B) Under normal operating conditions, has a useful thermal energy output no less than 33 percent of the total energy output or the fuel chargeable to power heat rate value is not greater than 6,000 BTU/kilowatt-hour

Oregon Administrative Rule OAR 345-001-0010(22) defines the fuel chargeable to power (FCP) heat rate as follows:

(22) "Fuel chargeable to power heat rate" means the net heat rate of electric power production during the first twelve months of commercial operation. A fuel chargeable to power heat rate is calculated with all factors adjusted to the average temperature, barometric pressure and relative humidity at the site during the times of the year when the facility is intended to operate using the formula,  $FCP = (FI - FD) / P$ , where:

- (a) FCP = Fuel chargeable to power heat rate.
- (b) FI = Annual fuel input to the facility applicable to the cogeneration process in British thermal units (higher heating value).
- (c) FD = Annual fuel displaced in any industrial or commercial process, heating, or cooling application by supplying useful thermal energy from a cogeneration facility instead of from an alternate source, in British thermal units (higher heating value).
- (d) P = Annual net electric output of the cogeneration facility in kilowatt hours.

The Useful Thermal Energy (UTE) criterion is simply the thermal energy output (process heat delivered to the steam host) divided by the sum of thermal energy plus electrical energy.

A facility can qualify based on either the FCP heat rate or the 33% Useful Thermal Energy (UTE) energy as a percentage of total energy. It need not meet both.

Note: ORS 469.320(3) authorizes the Council to review and revise the FCP heat rate criterion as technology improves. As of January 2001, Oregon Administrative Rule (OAR) 345-01-0010(25) sets the FCP heat rate required for the exemption at 5500 BTU/kWh if the electric capacity is 50 MW or more. For plants smaller than 50 MW the criteria remains 6000 BTU/kWh.

Requestors should also be aware of other subsections of this statute.

ORS 469.320(6) addresses loss of steam host, and states that:

If a substantial loss of steam host causes a facility exempt under subsection (2)(c) of this section to substantially fail to meet the exemption requirements under subsection (2)(c) of this section, the electric generating facility shall cease to operate one year after the substantial loss of the steam host unless an application for a site certificate has been filed in accordance with the provisions of ORS 469.300 to 469.563.

ORS 469.320(7) defines "total energy output" as the sum of useful thermal energy output and useful electrical energy output. It defines "useful thermal energy" as the verifiable thermal energy used in any viable industrial or commercial process, heating or cooling application.

### **Council Rules regarding the exemption**

The Council's rules at OAR Chapter 345 Division 15 implement the statute and provide more detail. The Council's rules for applying for the exemption, reviewing the exemption, and addressing a loss of steam host are:

#### **345-015-0350**

#### **Council Determination of Exemption**

The Council shall, upon request, determine whether a proposed facility or proposed expansion of a facility is exempt from the requirement to obtain a site certificate. A site certificate is not required for:

(1) A facility for which no site certificate has been issued that, on August 2, 1993, had operable electric generating equipment for a modification that uses the same fuel type and increases electric generating capacity, if the site is not enlarged and:

(a) The ability of the facility to use fuel for electricity production under peak steady state operating conditions is not more than 200 million Btu per hour greater than it was on August 2, 1993; or

(b) The facility expansion is called for in the short-term plan of action of an energy resource plan that has been acknowledged by the Public Utility Commission of Oregon.

(2) Construction or expansion of any interstate natural gas pipeline or associated underground natural gas storage facility authorized by and subject to the continuing regulation of the Federal Energy Regulatory commission or successor agency.

(3) A high efficiency cogeneration facility, as defined in OAR 345-001-0010.

(4) A small generating plant or an expansion to a small generating plant, as defined in OAR 345-001-0210, if the Council finds that the accumulated effects do not have a magnitude similar to a single generating plant of 25 megawatts or more, as described in OAR 345-001-0210(3).

(5) An energy facility as defined in ORS 469.300(9)(a)(G), if the facility:

(a) Uses biomass exclusively from grain, whey or potatoes as the source of material for conversion to a liquid fuel;

(b) Has received local land use approval under the applicable acknowledged comprehensive plan and land use regulations of the affected local government and the facility complies with any statewide planning goals or rules of the Land Conservation and Development Commission that are directly applicable to the facility under ORS 197.646(3);

(c) Requires no new electric transmission lines or gas or petroleum product pipelines that would require a site certificate; and

(d) Produces synthetic fuel, at least 90 percent of which is used in an industrial or refueling facility located within one mile of the facility or is transported from the facility by rail or barge.

Stat. Authority: ORS 469.470

Stat. Implemented: ORS 469.320

### **345-015-0360**

#### **Contents of Request for Exemption**

(1) Any person wishing to construct and operate a facility exempt from Council jurisdiction shall submit a request for exemption to the Office of Energy before beginning construction. A person shall not construct or expand a facility as defined in OAR 345-001-0010 unless the Council has granted an exemption as described in OAR 345-015-0370 or has issued a site certificate or an amendment to an existing site certificate.

(2) In a request for an exemption under OAR 345-015-0350(1)(a) for a modification of a facility for which no site certificate has been issued that will not increase the ability of the facility to use fuel for electricity production under peak steady state operating conditions to more than 200 million Btu per hour greater than it was on August 2, 1993, the person shall provide the following information in support of the request:

- (a) A detailed description of the proposed upgrade or expansion;
- (b) The proposed and current facility fuel use;
- (c) The proposed and current nominal electric generating capacity;
- (d) The proposed and current related or supporting facilities and site boundary;
- (e) The proposed and current heat rate; and
- (f) Verification that the facility had operable electric generating equipment on August 2, 1993.

(3) In a request for an exemption under OAR 345-015-0350(1)(b) for modification of a facility for which no site certificate has been issued that is called for in the short-term plan of action of an energy resource plan that has been acknowledged by the Public Utility Commission of Oregon, the person shall provide the following information in support of the request:

- (a) The information described in subsections (2)(a) through (f) of this rule;
- (b) Identification and discussion of the portion of the short-term plan of action of an energy resource plan that calls for the facility expansion; and
- (c) The Public Utility Commission of Oregon Order acknowledging the plan described in subsection (b).

(4) In a request for an exemption under OAR 345-015-0350(2) for construction or expansion of an interstate natural gas pipeline or associated underground natural gas storage facility authorized by and subject to the continuing regulation of the Federal Energy Regulatory Commission, the person

shall provide a certificate of public convenience and necessity issued by the Federal Energy Regulatory Commission for the proposed pipeline or associated underground natural gas storage facility, or other comparable evidence that the proposed pipeline or storage facility is within that agency's jurisdiction.

(5) In a request for an exemption based on a very efficient use of fuel (high efficiency cogeneration) under OAR 345-015-0350(3), the person shall provide the following information in support of the request:

(a) Detailed information on proposed fuel use, power plant design, steam or heat output to the thermal host and proposed electric output;

(b) Detailed information on the current facility, including fuel to be displaced, current steam or heat use and current electric output if any;

(c) A detailed engineering assessment of fuel efficiency, showing that the proposed facility is a high efficiency cogeneration facility under the definition in OAR 345-001-0010. The person shall provide calculations in sufficient detail to facilitate independent review by the Office. The person shall state the underlying assumptions necessary to support the calculation including assumptions concerning the energy content of fuel displaced; and

(d) A description of the facility, including the thermal host, the proposed energy facility, the location by address as well as township and range and any associated linear equipment needed.

(6) In a request for an exemption of a small generating plant or expansion of a small generating plant, as defined in OAR 345-001-0210, the person shall include the following information:

(a) A description of the proposed small generating plant or proposed expansion to a small generating plant and a description of related or supporting facilities;

(b) Identification of the person or persons who will construct, operate and own the plant;

(c) An analysis of the factors described in OAR 345-001-0210(3); and

(d) Any other information the Office of Energy determines the Council needs to make the finding described in OAR 345-001-0210(3).

(7) In a request for an exemption under OAR 345-015-0350(5) for a plant that converts biomass to a liquid fuel, the person shall include the following information:

(a) A description of the proposed plant, including, but not limited to, the location, acreage and annual production capacity of the proposed plant and the type of liquid fuel the plant will produce;

(b) A statement verifying that the facility will use biomass exclusively from grain, whey or potatoes as the source of material for conversion to a liquid fuel;

(c) The identity of the affected local government that has given land use approval under the applicable acknowledged comprehensive plan and land use regulations and copies of all land use approval documents the local government has issued;

(d) The statewide planning goals or rules of the Land Conservation and Development Commission that are directly applicable to the facility and evidence to support a finding by the Council that the facility complies with those goals and rules;

(e) A description of the expected electrical loads and fuel needs of the facility and a statement verifying that the facility requires no new electric transmission lines or gas or petroleum product pipelines that would require a site certificate; and

(f) A statement verifying that the plant will produce synthetic fuel, at least 90 percent of which will be used in an industrial or refueling facility located within one mile of the facility or will be transported from the facility by rail or barge and evidence that adequate rail and barge facilities are available to serve the proposed site.

Stat. Authority: ORS 469.470

Stat. Implemented: ORS 469.320

### **345-015-0370**

#### **Consideration of Request for Exemption**

(1) The Council shall act on a request for exemption as described in OAR 345-011-0035.

(2) Within 45 days after receipt of a request for exemption, the Office of Energy shall review the request for exemption for completeness and provide the requestor with either a notice of filing of the request for exemption or a request for additional information. When the Office finds the submitted request for exemption is complete, the Office shall issue a notice of filing. Within 60 days after issuing the notice of filing, the Office shall review the request, prepare a proposed order for Council action and bring the matter before the Council for action.

(3) When submitting a request for exemption, the requestor shall submit the fee established by the Council as described in ORS 469.441. The requestor is liable for reimbursement of any review expenses beyond the initial fee that are incurred by the Office of Energy and Council relating to the review and decision by the Council.

Stat. Authority: ORS 469.470

Stat. Implemented: ORS 469.320, ORS 469.421, ORS 469.441

### **345-015-0380**

#### **Loss of Exemption**

(1) In accordance with ORS 469.320(6), any person operating a facility for which the Council previously granted an exemption under ORS 469.320(2)(c) and that has experienced a substantial loss of steam host resulting in a substantial loss

in fuel use efficiency must submit an application for a site certificate within 12 months of the loss.

(2) Any person proposing to enlarge the site of a facility previously determined to be exempt under 469.320(2)(a) must submit an application for a site certificate.

(3) Any person submitting an application for a site certificate under section (1) or (2) may request expedited review as described in OAR 345-015-0300 if the nominal electric generating capacity of the energy facility is less than 100 megawatts.

(4) Any person operating a plant that the Council has determined exempt under OAR 345-015-0350(5) must apply for a site certificate before making any change in the operation of the plant such that the plant would no longer meet the criteria of that rule, including, but not limited to, use of feedstock other than grain, whey or potatoes, construction of a new transmission line or gas or petroleum product pipeline that would require a site certificate, or reduction below 90 percent in the use of the fuel product in an industrial or refueling facility located within one mile of the facility or transportation from the facility by rail or barge.

Stat. Authority: ORS 469.470  
Stat. Implemented: ORS 469.320

## **Office of Energy Recommendations for the Exemption Request**

There is no prescribed format for an exemption request, as long as it provides the information listed in OAR 345-015-0360(5). However, the Office of Energy (OOE) offers the following suggestions.

### **Power Plant Design (OAR 345-015-0360(5)(a)):**

The request should describe the power generation equipment proposed, including any combustion turbines, any heat recovery steam generators, duct firing capability, steam turbine generators, and any existing steam turbine generators that will remain in service. It is useful to provide manufacturer's specification sheets.

### **Fuel use information**

Fuel input includes all types of fuel, including any hog fuel, black liquor or other waste products that will be used as fuel. The fuel input to combustion turbines should be based on manufacturer's specifications for the actual site elevation and average annual meteorological conditions. If the design includes a heat recovery steam generator with duct firing, state the capacity for duct firing and the expected actual duct firing under average annual conditions. If fuel consumption is stated in lb/hr, the request should include the assumed value for BTU/lb, in higher heating value.

### **Thermal output**

If the useful thermal energy is steam, the request should state the heat content of feedwater or condensate return from the steam host. The request should state quantity of steam delivered to the steam host and should include the temperature and pressure.

### Electric Output

State the net electric output based on actual site elevation and average annual temperature, and whether the power will be used by the industrial facility or sold on the market. However, for purposes of the exemption, the Council makes no distinction between power used by the industrial facility and power sold on the market

### Energy and Mass Balance diagram

The heart of the request is an energy and mass balance diagram for the proposed cogeneration facility. The diagram should enable OOE to match energy inputs with outputs and to account for the flow of energy through the facility. The diagram should also enable OOE to account for mass flow (normally water and steam) through the facility. Steam flows should show pressure and temperature. Many requestors provide the data in diagram and table form. The two should match! Energy balance information should also be included for the current facility. OOE will use this to determine the proper value for fuel displaced.

The energy and mass balance information should enable OOE to calculate FCP heat rate and UTE percentage and arrive at the same answer as the applicant.

### **Information on the Current Facility (OAR 345-015-0360(5)(b)):**

The request should describe the industrial facility's current steam use and current electrical generation, if any.

### Historical information on fuel use and steam or process heat use

The request should include at least a year of historical steam or process heat information for the existing steam host, so OOE can verify that the assumptions regarding process heat demand are reliable. If the steam host is currently using boilers for process heat, the request should include information on the type of fuel, fuel consumption and efficiency of those boilers. OOE needs this information to give credit for displaced fuel. If the steam host currently uses steam turbine generators that will continue to be used, the request should include historic efficiency or heat rate information on them.

### Fuel Displaced

By "fuel displaced", OOE means the useful thermal energy of process heat or steam supplied by the cogen facility, divided by the efficiency of the existing boilers currently in use. In other words, the fuel displaced is the amount of energy that would be needed to deliver the process steam if the cogen facility were not built.

### **Calculation of Useful Thermal Energy and FCP heat rate (OAR 345-015-0360(5)(c)):**

The request should include a calculation of Useful Thermal Energy and FCP heat rate. OOE should be able to duplicate that calculation using information supplied in the energy and mass balance diagrams or tables.

Many applications submit calculations on spreadsheet programs. This is acceptable, but the review will be done more quickly if we can see all your arithmetic. The calculation will be based on assumptions and input values. These should be clearly spelled out, sufficient for OOE to see where all the input values came from.

**Facility Description** (OAR 345-015-0360(5)(d)):

Information on Steam Host

The request should include enough information on the steam host for the Council to be assured that the steam host is viable.

Information on linear facilities

The request should include information on fuel supply, the size and length of gas pipelines needed to supply fuel, and the size and length of electric transmission lines that will be used. The information should be sufficient to determine if the facility requires linear facilities that are under Council jurisdiction.

**For More Information**

The easiest way to submit a successful exemption request is to schedule a preliminary meeting with OOE before writing the request. OOE will normally conduct at least one site visit as well. Contact David Stewart Smith by telephone at (503) 378-6269 or by e-mail at [david.stewart-smith@state.or.us](mailto:david.stewart-smith@state.or.us).