



Oregon

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To: Oregon Department of Energy

From: Tom Jackman

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Subject: Review and potential revision of Fuel-Chargeable-to-Power Heat Rate Values under ORS 469.320(2)(c)(B)

Executive Summary

- The purpose of EFSC's exemption (referred to as an "exception" in statute) process is to incentivize specifically identified types of EFSC jurisdictional facilities to be designed and constructed in a way that creates benefits for the State of Oregon. Qualifying facilities are not required to go through EFSC's full review process to obtain a site certificate, although these facilities still need to meet other Oregon regulations.
- The benefits of a high efficiency industrial cogeneration facility, also known as a combined heat and power (CHP) facility, is that it uses waste heat from the generation unit for an adjacent industrial purpose, which reduces or eliminates the need to pull electricity from the grid.
- Oregon law requires EFSC to keep Fuel-Chargeable-to-Power (FCP) heat-rate thresholds (a measure of efficiency for a thermal plant) that qualify for this exemption "significantly lower" than the heat rate of the best available, commercially viable thermal power plant technology.
- Current qualifying thresholds (6,000 and 5,500 Btu/kWh, depending on plant size) are no longer significantly lower than modern thermal plants. General Electric's best unit combined cycle gas turbine (CCGT) achieves 5,331 Btu/kWh (note: lower values are more efficient).
- Legislative intent (1993 and updated in 2009) shows the exemption is meant only for CHP, not utility-scale CCGTs.
- Without revision, EFSC would effectively grant exemptions to average-performing CHP plants rather than high efficiency CHP systems.
- Recommended new thresholds:
 - < 50 MW: 5,000 Btu/kWh (\approx 68% efficiency)
 - \geq 50 MW: 4,800 Btu/kWh (\approx 71% efficiency)
- These levels restore a meaningful performance margin and align with both legislative intent and modern CHP capability.

Background

Energy facilities in Oregon are the jurisdiction of the Energy Facility Siting Council. The Oregon legislature passed SB 1016 in 1993 and created an exemption for the need to obtain a site certificate for certain high efficiency cogeneration facilities.¹ This language was updated in 2009,

¹ See ORS 469.320(2)(c)(B).

removing an easier pathway for obtaining this exemption and creating a stricter standard for larger plants, which can more easily hit higher efficiency levels. The exemption was designed solely for high efficiency cogeneration plants, which is clear from the plain text of the statute directing EFSC to periodically update the efficiency levels (emphasis added):

*[T]he council shall ensure that the fuel chargeable to power heat rate value for facilities set forth in subsection (2)(c)(B) of this section remains **significantly lower than** the fuel chargeable to power heat rate value for the **best available, commercially viable thermal power plant technology at the time of the revision.**²*

The 1993 legislative history further clarifies this point, which is important as there is a possibility some would-be facility operators may seek to use this exemption to build and operate combined cycle gas turbine (CCGT) facilities under the guise that because they recapture heat, they are “cogeneration” plants that qualify under this exemption. CCGTs were emerging in 1993, but the workgroup responsible for this bill confirmed these types of facilities were not the target of this exemption.³

260 **REP. MARKHAM:** Are steam producers included who produce steam as a result of normal industrial processes?

263 **ACHTERMAN:** In order to qualify for the exemption, you must meet an efficiency standard. The qualification for the exemption is that you have to use the steam for two purposes: electric generation and an industrial process.

Statutory language reinforces this distinction. ORS 469.320 refers to cogeneration output as “useful thermal energy,” a term of art meaning heat or steam that displaces fuel or electricity consumption in an industrial or commercial application. This aligns with federal PURPA terminology:

“Cogeneration facility means equipment used to produce electric energy and forms of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes, through the sequential use of energy;”

In 2009, the legislature updated the statute to establish two FCP thresholds—adding a more stringent one for facilities ≥50 MW—reflecting that larger cogeneration plants can more easily achieve higher efficiency:

- Plants smaller than 50 MW: 6,000 Btu/kWh
- Plants greater than 50 MW: 5,500 Btu/kWh

At the time these were adopted (2009), advanced CCGTs averaged around 7,100 Btu/kWh, with the best units reaching roughly 6,500 Btu/kWh. Thus, Oregon’s thresholds provided about a 15–20% performance margin below best-available electric-only technology. Since 2009, CCGT performance has improved by ~1700 Btu/kWh, due primarily to higher turbine firing temperatures and improved heat recovery.

² ORS 469.320(3).

³ House Committee on Natural Resources held on June 29, 1993 (Note that Gail Achterman was an attorney for Stoel, Rives, ET AL, who represented many of those involved in the working group on this bill).

Current Technology Benchmarking for Natural Gas Production (2025)

Year	Heat rate (Btu/kWh)	Approx. Equivalent Electric Efficiency
Average of New Units Built 2006-2015 ⁴	7,029	48.5%
Best Available in 2015 ⁵	6,600	51.7%
Best Available in 2025 ⁶	5,331	64%

Analysis

The statutory requirement is explicit: FCP heat-rate thresholds must remain “significantly lower” than best available thermal power plant technology. As of 2025, both existing Oregon thresholds (6,000 and 5,500 Btu/kWh) are higher than the current benchmark of 5,331 Btu/kWh. This means that the existing statutory values are no longer “significantly lower than . . . the best-available technology.” CHP systems routinely achieve 65–80% total system efficiency, which corresponds to substantially lower FCP values than even the most efficient CCGTs.⁷

Recommended New FCP Thresholds

Facility Size	2009 Rule	Approx. Equivalent Electric Efficiency	Proposed 2025 Update	Approx. Equivalent Electric Efficiency
< 50 MW	6,000 Btu/kWh	~57%	5,000 Btu/kWh	~68%
≥ 50 MW	5,500 Btu/kWh	~62%	4,800 Btu/kWh	~71%

These proposed thresholds restore the performance gap mandated by statute and remain readily achievable for high-efficiency industrial CHP systems.

Conclusion

The Council should revise the FCP heat-rate thresholds downward to maintain statutory compliance. Current values are comparable to typical modern CCGTs and no longer ensure that exempted facilities are distinctly high-efficiency CHP systems.

⁴ <https://www.eia.gov/todayinenergy/detail.php?id=32572&utm>

⁵ <https://www.power-eng.com/operations-maintenance/power-plant-performance-in-2015/>

⁶ <https://www.gevernova.com/gas-power/products/gas-turbines/7ha>

⁷ <https://www.epa.gov/chp/chps-role-decarbonization>