

## Appendix G: Thermal Renewable Energy Certificate (TREC)

### Applicable Definitions

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**British Thermal Unit (BTU)** is the quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit). BTU or MMBTU (one million BTUs) is the standard unit of measurement for thermal energy.

**Cogeneration** is the production of electricity from steam, heat, or other forms of energy produced as a by-product of another process.

**Secondary Purpose** is an end use for thermal energy that may be additionally eligible by a participating renewable energy program.

**Thermal Energy** is the energy made available in a combined-heat-and-power system for use in any industrial or commercial process, heating or cooling application, or delivered to other end users, i.e., total thermal energy made available for processes and applications other than electrical generation.

**Thermal Renewable Energy Certificate (TREC)** is a renewable energy certificate that has specifically been issued for thermal energy.

### Governing Rules

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These rules govern the manner in which Thermal Renewable Energy Certificates (TREC) are issued for thermal energy. They apply to a facility that generates both electricity and thermal energy that is used for a secondary purpose. The facility and its thermal energy must be recognized as renewable and eligible by one or more state, provincial, or voluntary program located in the WECC footprint.

### Classifications

Thermal facilities fit in to two different classifications:

1. K – Thermal
  - Capacity to generate one or more TRECs per hour of operation (3.412 million Btu/hr)
2. L – Thermal
  - Capacity to generate less than one TREC per hour of operation (3.412 million Btu/hr)

### Data Verification

Thermal facilities are required to meet the same verification standards that are currently used to register electric generating units (Section 5.3.1). Additional registration paperwork, however, may be required for the thermal portion of the registration to confirm the metering practices and to establish the secondary purpose(s).

## Data Conversion

WREGIS converts reported thermal energy to a single WREGIS certificate using the following BTU/MMBTU-to-MWh equivalency standard:

$$3,412,000 \text{ BTUs}/3.412 \text{ MMBTUs} = \text{one WREGIS Certificate (1 MWh equivalent)}$$

The total reported BTU/MMBTUs and MWhs is displayed on the data reporting screen at the time the data is uploaded.

A max annual energy amount is used by the system to “gut check” the amount of energy reported and is determined by the WREGIS Administrator at the time of registration. If the reported energy exceeds the estimated amount, the WREGIS Administrator will follow up with the QRE and/or the Account Holder to resolve.

## Reporting Energy Data

Thermal energy data must be reported monthly and may only be reported by the following types of Account Holders:

1. QRE – Non-Balancing Authority – Thermal
2. Self-Reporting Account Holder (AH) – Class L

Consequently, a Cogeneration Electricity/Thermal registration can have data reported from two separate sources:

1. Electrical meter data reported by:
  - a. QRE (Balancing Authority or Non-Balancing Authority)
  - b. Self-Reporting AH (Classes I and J)
2. Thermal data as identified above.

Similar to the electric generation reporting process, thermal energy data is uploaded via the file upload function of the system in which the Account Holder may indicate either BTUs or MMBTUs. Upon upload, the system converts the thermal data to MWhs and displays the reported amounts on a summary screen as mentioned above.

## Metering Standards

Similar to the electric generator revenue metering standards (Section 9.3), all thermal facilities are required to meet a specific set of standards as determined by their class and as indicated below:

1. **Large facilities** - For facilities with the capacity to generate one or more TREC per hour of operation (3.412 million Btu/hr), the generator representative must have installed a thermal energy measurement system to continually measure thermal energy. The thermal energy delivered to the secondary purpose must be metered. All parameters needed to determine thermal energy to the secondary purpose must be directly measured.

2. **Small facilities** - For facilities with the capacity to generate less than one TREC per hour of operation (3.412 million Btu/hr), the generator representative must have installed a thermal energy measurement system to measure thermal energy delivered to the secondary purpose. Calculation parameters such as heat capacity, and directly measured parameters such as temperature and pressure, that do not vary more than +/-2 percent for the full range of expected operating conditions, may be evaluated on an annual basis and used in the calculation methodology as a constant.

These parameters may be based on such sources as manufacturers' published ratings or one-time measurements, but must be clearly defined and explained in a thermal energy measurement plan. All other parameters used to determine the amount of thermal energy must be continually measured.

Both on-site load and station service are handled in the same manner as electric generation (Section 9.6).

### **Certificate Creation**

Thermal certificate creation is handled in the same manner as electric generation. Separate batches of certificates are issued for each type of renewable energy:

1. Electric – “renewable” fuel type and/or aggregated meter
2. Thermal – “renewable” thermal type

Certificates are created for one or both if reported data has been reviewed and approved by either the Account Holder or the WREGIS Administrator. This means that certificate creation of one type is not dependent upon the reporting or approval of the other type.