

## EXPLANATORY STATEMENT

### **Determination under regulation 19B(1) of the Renewable Energy Electricity Regulations.**

#### **Authority for instrument**

This legislative instrument is made under regulation 19B(1) of the *Renewable Energy (Electricity) Regulations 2001*.

#### **Purpose and operation of the instrument**

This determination is to be used to determine how many Small-scale Technology Certificates (STCs) can be created for the installation of particular models of solar water heaters (SWHs) and heat pump water heaters (HPWHs) so that those models may be included in the Register of solar water heaters established by regulation 19C of the *Renewable Energy (Electricity) Regulations 2001*.

The Register of solar water heaters contains, among other things, the brand name and the model name of each SWH / HPWH for which STCs may be created and the number of certificates that may be created for each eligible SWH / HPWH in each zone (<http://www.orer.gov.au/Hot-Water-Systems/Eligible-Solar-Water-Heaters/eligible-swhs>).

Pursuant to regulation 19B, the Regulator's determination must provide that the number of certificates that may be created for a particular model of SWH / HPWH is to be worked out by reference to the difference over 10 years between the energy (other than solar energy or energy collected from the latent and sensible heat of the atmosphere) to be used by the SWH/HPWH and the electrical energy that would be used by an equivalent electric water heater.

The instrument contains two methodologies. The first (contained in Part 2) is for SWHs with a volumetric capacity up to and including 700 litres and HPWHs with a volumetric capacity up to and including 425 litres. The second (contained in Part 3) is for SWHs with a volumetric capacity over 700 litres. (Certificates may not be created for HPWHs with a volumetric water storage capacity over 425 litres, pursuant to s 21(4) of the *Renewable Energy (Electricity) Act 2000*). In each case the methodology involves (in very simple terms) the use of a computer program (the TRNSYS computer modelling package) to calculate the energy usage of the total annual auxiliary energy for the SWH / HPWH, and then subtracting this amount from the energy use of a reference electric hot water system. This figure multiplied by 10 is rounded down to the nearest lower integer is the number of STCs that can be created for the installation of the SWH / HPWH. (Different results are obtained depending on the climatic zone in which the SWH is to be installed.)

Part 1 of the instrument contains definitions of terms used in the instrument.

Part 4 of the instrument contains instructions that are to be followed in setting up the computer modelling package used in Parts 2 and 3.

### *How the determination will be used*

Regulation 19BA of the Regulations provides that if a determination under regulation 19B(1) is in effect, the Regulator must determine the number of certificates that may be created for a particular model of SWH / HPWH in accordance with the determination. It follows that, from the commencement of this instrument, the Regulator will determine the number of certificates to be created for particular models of SWH / HPWH in accordance with this instrument.

In practice, the Regulator will request persons make submissions to include SWHs / HPWHs on the Register of solar water heaters under reg 19C. Based on the submissions provided to the Regulator a determination will be made under reg 19B. The regulations require requests to be made in writing, in the format specified and during the timeframe set out by the Regulator. Persons seeking to list models on the Register of solar water heaters apply the methodology contained in this instrument themselves and provide the Regulator with the results and the calculations used in their submission.

### **Matters to which the Regulator must have regard in making the instrument**

#### *Regulation 19(4) - Schedule 4 of the Regulations*

Regulation 19(4) provides that in making the legislative instrument, the Regulator must have regard to the method set out in the Australian Standard, set out in Schedule 4, as in force at the time the determination is made that applies to the SWH.

At the time of making this determination, there are three Australian Standards set out in Schedule 4 of the Regulations. They are:

- 1 AS/NZS 2535.1.2007, 'Test methods for solar collectors-- Thermal performance of glazed liquid heating collectors including pressure drop'
2. AS/NZS 4232:2008, Heated Water systems --Calculation of energy consumption
3. AS/NZS 4692.1:2005, 'Electrical water heaters -- Energy consumption, performance and general requirements'.

The Regulator has had regard to these Standards in making this instrument.

#### *Regulation 19(5) - Existing Guidelines*

Regulation 19(5) provides that, in making the first determination under regulation 19(1), the Regulator must have regard to

- (a) the guidelines known as *REC calculation methodology for solar water heaters and heat pump water heaters with a volumetric capacity up to and including 700 litres*, published by the Regulator on its website as in force at the time the determination is made; and
- (b) the guidelines known as *REC calculation methodology for solar water heaters and heat pump water heaters with a volumetric capacity over 700 litres*, published by the Regulator on its website as in force at the time the determination is made.

This is the first determination the Regulator has made under regulation 19(1). The Regulator has had regard to these Guidelines in making this instrument.

## Documents incorporated by reference

The determination refers to a number of Australian Standards, as listed below:

Standard No.	Name
AS/NZS 2535.1: 2007	Test methods for solar collectors — Part1: Thermal performance of glazed liquid heating collectors including pressure drop
AS/NZS 2712: 2007	Solar and heat pump water heaters – design and construction
AS/NZS 3498: 2009	Authorization requirements for plumbing products – Water heaters and hot-water storage tanks
AS/NZS 4234: 2008	Heated water systems – Calculation of energy consumption
AS/NZS4234: 2008 Amendment 1	Heated water systems – Calculation of energy consumption Amendment 1/ 2011
AS/NZS4234: 2008 Amendment 2	Heated water systems – Calculation of energy consumption Amendment 2/ 2011
AS/NZS 4552: 2005	Gas Water Heaters for hot water supply and/or central heating
AS/NZS 4692.1: 2005	Electric water heaters – Part 1: Energy consumption performance and general requirements
AS/NZS 5125.1: 2010	Heat pump water heaters – performance assessment

Computer programs referred to in the instrument:

Transient Energy System Simulation Tool (TRNSYS) computer modelling package. This package was produced by the Solar Energy Laboratory at the University of Wisconsin-Madison, The Centre Scientifique et Technique du Batiment in Sophia Antipolis, France, Transsolar Energietechnik GmbH in Stuttgart, Germany and Thermal Energy Systems Specialists in Madison, Wisconsin.

TRNSYS Extensions for Australian Solar Products (TRNAUS). Solar Thermal Energy Laboratory, School of Mechanical & Manufacturing Engineering, University of NSW. (<http://www.solar1.mech.unsw.edu.au/glm/trnaus/trnaus.pdf>)

## Consultation on the legislative instrument

A draft of the Legislative Instrument was made available for public consultation by the Regulator between 12 January 2012 and 10 February 2012. Stakeholders were invited to provide, in writing, their views on the methodology as set out in the draft Legislative Instrument (LI).

The public consultation process was advertised on the Office of the Renewable Energy Regulator (ORER) website. In addition, the ORER maintains a contact list of manufacturers

with models listed on the Register of solar water heaters as well as stakeholders in the industry – such as modelling consultants and conformity assessment bodies. This list also includes potential stakeholder who request to be on our email communication list. The contact list represents the majority of persons likely to be affected by this LI and persons who have expertise in this field. All persons listed on the ORER contact list were notified via email of the public consultation.

During the entire public consultation process ORER received seven written responses. All comments were evaluated and as consequence, some changes to the draft LI were identified.

The Legislative Instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.