

Calculating Victorian Renewable Energy Certificates (VRECs) For Small Hydroelectric Systems

Version 1 - Released in June 2007¹

Introduction

The *Victorian Renewable Energy Act 2006* (the Act) and the *Victorian Renewable Energy Target Scheme Rules 2007* (the Rules) allow owners of small generation units (SGUs) to create and sell VRECs. VRECs are purchased by relevant entities, such as electricity retailers, seeking to offset their liability under the Act in order to meet their renewable power percentage (RPP) targets. One VREC represents one Mega Watt hour (MWh) of renewable energy generation.

In order to be eligible to create VRECs, a SGU must be installed on or after 1 January 2007 in Victoria. Owners of SGUs can either create VRECs themselves, or assign their right to create VRECs to a registered agent in return for a financial benefit. A Register of Agents can be found on the ESC website (www.esc.vic.gov.au).

The VREC calculation method provided below applies to systems with a rated output of not more than 6.4 kilowatts (kW) or a total annual output less than 25 MWh. If a system has an output greater than 6.4 kW, or annual output of 25 MWh or more, the owner must apply to the Essential Services Commission (ESC) for the system to become an accredited power station.

Calculating VRECs

The number of VRECs that you are eligible to create for your small hydroelectric system is determined by the rated capacity of the system and the number of hours the hydroelectric system can operate at that capacity (hydro resource availability).

¹ The information provided in this document may be subject to change with amendments to the *Victorian Renewable Energy Act 2006* and the *Victorian Renewable Energy Target Scheme Rules 2007* (the Rules), and the administrative processes adopted by the Essential Services Commission.

To establish how many VRECs you may be eligible to create from your hydroelectric system, you should undertake the following steps:-

1. Establish your hydro resource availability in terms of hours per year. If you do not know the actual resource availability, then you must claim the default amount which is 4,000 hours/year.

If you claim for hydro resource availability above the default amount, then you must provide and retain copies of site-specific audit reports and advise the ESC of the name and contact details of the person of company that conducted the audit.

2. Establish the rated kilowatt output of your hydroelectric system. You can find the rated power output of your system in the specifications provided by the system manufacturer. Please ensure that you use the exact figure that applies to your particular make and model.
3. To calculate the annual number of VRECs your system is eligible for, you multiply the rated power output (in kW) of your system by 0.00095, multiplied by the hydro resource availability of your system (e.g. 8 kW x 0.00095 x 4,000 hours/year).

$$\boxed{0.00095} \times \boxed{\text{The rated power output (in kW) of your hydro electric system}} \times \boxed{\text{Hydro resource availability of the system (hours per annum)}} = \boxed{\text{Annual number of eligible VRECs}}$$

4. If you calculate that you are entitled to more than 25 VRECs per year your system is classified as a potential hydroelectric power station and you must apply to the ESC to become an accredited power station. If you are a power station, you cannot assign your VREC rights to an agent.
5. You have the option of claiming VRECs in regular one-year or five-year periods. Multiply the annual number of eligible VRECs by one year or five years depending on the period over which you wish to create VRECs.
6. If your calculated number of eligible VRECs over a one-year or five-year period is:-
 - o greater than 1 MWh, you must round down the calculated number to the nearest whole number of VRECs.
 - o between 0.5 MWh and 1 MWh, you are allowed to round up the calculated decimal number to 1 VREC.

Example 1

If you wish to create VRECs on a five-year basis for a system that has a rating of 2.3kW and a hydro resource availability of 5,000 hours, you must:

- (i) Multiply 0.00095 by the kW capacity and the hydro resource availability:

$$0.00095 \times 2.3 \text{ kW} \times 5,000 = \mathbf{10.925 \text{ MWh}}$$

- (ii) Multiply the annual amount of electricity taken to be generated (10.925 MWh) by five years:

$$10.925 \text{ MWh} \times 5 = \mathbf{54.625 \text{ MWh}}$$

- (iii) Then round down the total amount of electricity taken to be generated to the last whole MWh to determine the number of VRECs you are eligible to create:

$$54.625 \text{ MWh} = \mathbf{54 \text{ VRECs}}$$

- (iv) As a hydro resource availability in excess of the default amount has been claimed (4,000 hours/year), you must provide and retain copies of a site-specific audit report to support your claim. If you cannot provide such a report then you may only claim for the default amount.
- (v) This small hydroelectric system has a total annual output of less than 25 MWh. It does not need to be accredited as a power station.

Example 2

If you wish to create VRECs on an annual basis for a system that has a rating of 2.3kW and a hydro resource availability of 5,000 hours, you must:

- (i) Multiply 0.00095 by the kW capacity and the hydro resource availability:

$$0.00095 \times 2.3 \text{ kW} \times 5,000 = \mathbf{10.925 \text{ MWh}}$$

- (ii) Multiply the annual amount of electricity taken to be generated (10.925 MWh) by one year:

$$10.925 \text{ MWh} \times 1 = \mathbf{10.925 \text{ MWh}}$$

- (iii) Then round down the total amount of electricity taken to be generated to the last whole MWh to determine the number of VRECs you are eligible to create:

$$10.925 \text{ MWh} = \mathbf{10 \text{ VRECs}}$$

- (iv) As a hydro resource availability in excess of the default amount has been claimed (4,000 hours/year), you must provide and retain copies of a site-specific audit report to support your claim. If you cannot provide such a report then you may only claim for the default amount.
- (v) This small hydroelectric system has a total annual output of less than 25 MWh. It does not need to be accredited as a power station.