Australian Government

Clean Energy Regulator

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Renewable Energy Target 2013 Administrative Report

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Photo acknowledgements

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Australian Government
Clean Energy Regulator
Office of the Chair

The Hon Greg Hunt MP
Minister for the Environment
Parliament House
CANBERRA ACT 2600

Dear Minister

I am pleased to submit the Renewable Energy Target 2013 Administrative Report.

The report covers the operations of the *Renewable Energy (Electricity) Act 2000* for the 2013 calendar year.

The report is submitted for presentation to the Parliament in accordance with Section 105 of the *Renewable Energy (Electricity) Act 2000.*

Yours sincerely

Chloe Munro
Chair, Clean Energy Regulator

16 April 2014

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Executive summary

The Renewable Energy Target comprises two schemes, the Large-scale Renewable Energy Target and the Small-scale Renewable Energy Scheme. Together they provide market-based financial incentives to increase the contribution of electricity generated from renewable sources to Australia's energy market. The Clean Energy Regulator is responsible for administering the schemes in accordance with the *Renewable Energy (Electricity) Act 2000* (the Act).

There is clear evidence that the Renewable Energy Target is meeting the objectives of the Act: additional generation of electricity from renewable sources, reduced emissions of greenhouse gases in the electricity sector, and generation of electricity from ecologically sustainable renewable energy sources.

The number of accredited renewable energy power stations has increased each year since the Renewable Energy Target began in 2001. Twenty-six were accredited in 2013, leading to a total of 394.

The number of small-scale systems installed under the Small-scale Renewable Energy Scheme also continues to grow strongly. There were 238,769 validated small-scale systems installed during 2013 and Australia now has more than two million small-scale system installations.

The increased role of renewable energy generation is helping to reduce greenhouse gas emissions. Estimates recently cited by the Climate Change Authority show that the Renewable Energy Target reduced Australia's emissions by approximately 20 million tonnes of carbon dioxide equivalent between 2001 and 2012.

The criteria for participation in the Renewable Energy Target ensure that renewable energy generators use energy sources that are ecologically sustainable. Recent years have seen substantial growth in emerging sectors that use energy sources such as landfill gas, as well as in more established sectors that use sources such as solar panels.

The administration of the Renewable Energy Target has achieved an extremely high level of voluntary compliance by liable entities. In 2013, compliance rates for 2012 liabilities were 99.98 per cent under the Large-scale Renewable Energy Target and 99.97 per cent under the Small-scale Renewable Energy Scheme.

The highlights section on the following page summarises some of the significant results for the year.

I am pleased to present the Renewable Energy Target 2013 Administrative Report. The structure and style of the report have been refreshed for 2013, to make information easily accessible and harmonise with the Clean Energy Regulator's annual report. Technical terms are conveniently explained in a glossary and references are provided in the endnotes. I trust you will find the report enjoyable and informative.

Chloe Munro
Chair, Clean Energy Regulator

Administrative highlights of 2013

During 2013 the Clean Energy Regulator:

- accepted 16,434,437 large-scale generation certificates surrendered by liable entities to acquit their 2012 liabilities, achieving a compliance rate of 99.98 per cent
- accepted 43,083,048 small-scale technology certificates surrendered by liable entities to acquit their 2012 liabilities, achieving a compliance rate of 99.97 per cent
- received 173 partial exemption certificate applications, spanning 49 of the 51 eligible emissions-intensive trade-exposed activities, and issued 165 partial exemption certificates
- updated its large-scale generation certificate validation procedure to require power stations to submit a standing notice confirming compliance with planning and approval requirements
- approved two requests for variations to the eligible renewable power baselines of hydro power stations for 2012 and 2013
- agreed to eight enforceable undertakings arising from the outcomes of investigations and administrative actions.

Table 1: Summary of administrative activity in 2013

Number of	Details
Registered person applications approved	225
Renewable energy power stations accredited	26
Small-scale systems with validated small-scale technology certificates	238,769
Large-scale generation certificates validly created	14,649,036
Small-scale technology certificates validly created	20,457,324
Small-scale technology certificates converted to large-scale generation certificates	60,000
Entities liable under the legislation	90
Small generation units inspected	3,909

1 The Renewable Energy Target's performance against legislative objectives

The Renewable Energy Target was introduced in 2001 under the *Renewable Energy (Electricity) Act 2000* (the Act). The Act has three objectives:

- to encourage the additional generation of electricity from renewable sources
- to reduce emissions of greenhouse gases in the electricity sector
- to ensure that renewable energy sources are ecologically sustainable.

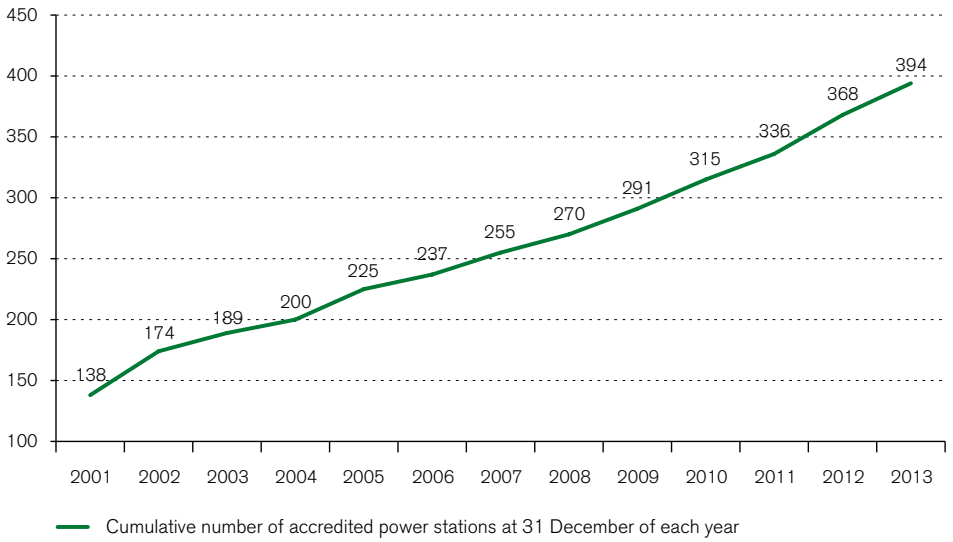
This chapter discusses the performance of the Renewable Energy Target against those objectives.

Additional generation of electricity from renewable sources

The Renewable Energy Target assists the energy sector to meet the Australian Government's commitment to the delivery of at least 20 per cent of Australia's electricity supply from renewable sources by 2020.

The number of renewable energy power stations accredited under the Large-scale Renewable Energy Target has increased each year since 2001. As at 31 December 2013 there were 394 accredited power stations. The growth in the number of accredited power stations since the scheme commenced is illustrated in Graph 1.

Graph 1: Growth in the number of accredited renewable energy power stations since 2001



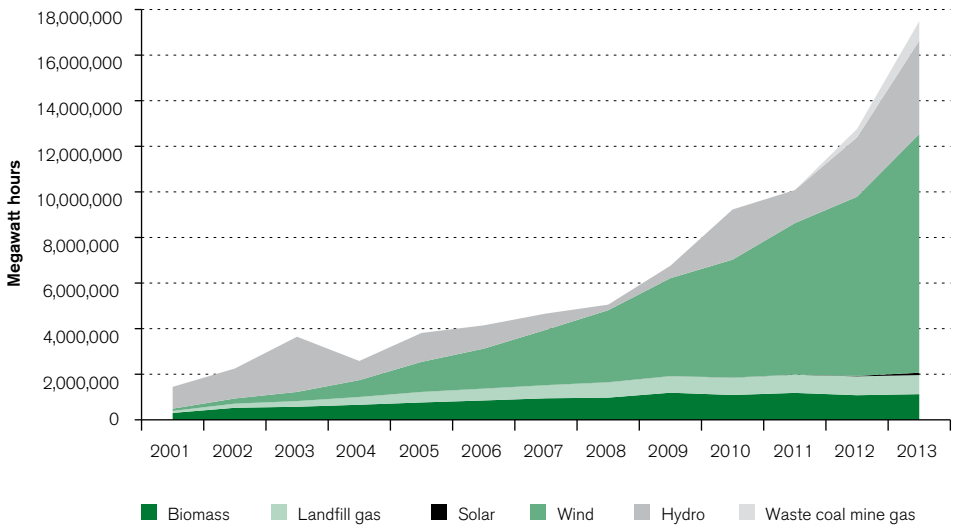
Power stations may generate electricity from multiple sources. The Clean Energy Regulator categorises accredited power stations according to the renewable energy source used to create the majority of large-scale generation certificates for that power station. The 394 accredited power stations fall into 10 categories and include 101 hydro, 78 wind, 68 solar, and 62 landfill gas power stations, while the remaining 85 use other renewable energy sources. Details are shown in Table 4 in Chapter 3.

The current capacity of accredited renewable energy power stations is approximately 18,600 megawatts. These power stations are able to generate around 16,000 gigawatt hours of renewable electricity in a typical year. This approximate annual generating capacity takes into consideration a number of variables, such as rainfall in catchments that feed into hydro power station storage dams and other weather events that may impact generating capacity.

To meet the annual targets specified in the Act, the supply of renewable electricity generated by accredited power stations is required to increase in line with the legislated demand imposed upon liable entities. The determination of annual targets is explained in Chapter 3.

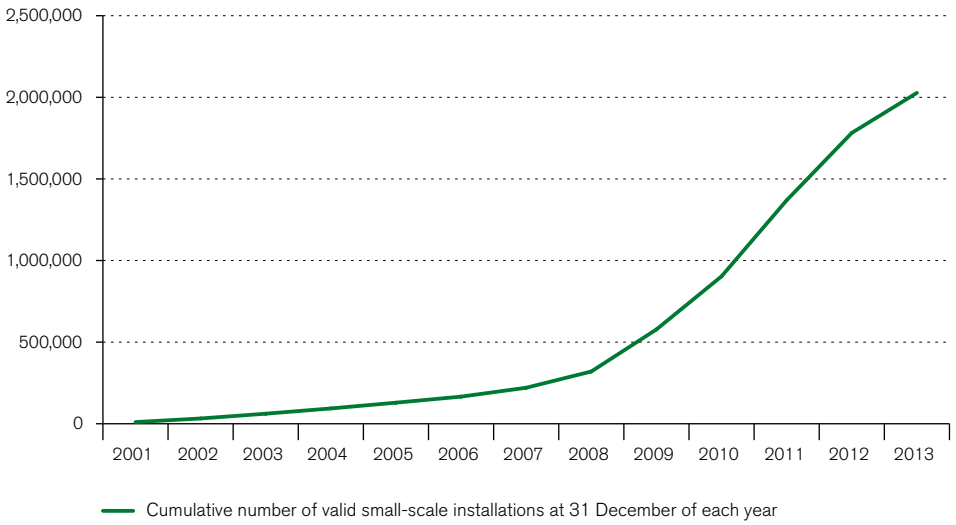
Graph 2 shows large-scale renewable electricity generation increasing since the commencement of the schemes. The level of supply is the actual amount of renewable electricity generated above accredited power stations' baselines. Baselines are discussed in Chapter 3.

Graph 2: Supply of large-scale renewable electricity generation, 2001 to 2013



Under the Small-scale Renewable Energy Scheme, there are over two million small-scale installations in Australia. Graph 3 illustrates the growth in small-scale installations since 2001.

Graph 3: Growth in the number of valid small-scale installations since 2001



Case study: Powering industry with sugar mill residue

Each year, around 4,400 Australian farms supply an average of 31 million tonnes of sugar cane to 24 sugar mills.[1] Sugar cane is crushed to produce raw sugar, and bagasse, the fibrous residue of the milling process, is used as a fuel to produce steam for electricity generation. Sugar mills use the electricity to power their operations and supply the surplus to the electricity grid.

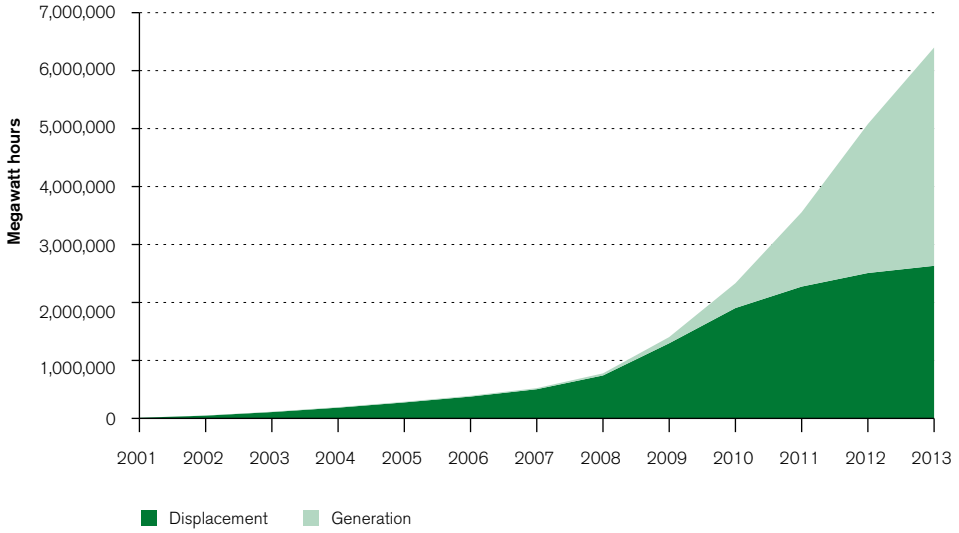
Bagasse is an ecologically sustainable energy source. All of the 24 sugar mills currently operating in Australia have been accredited as power stations under the Renewable Energy Target. This means they can create large-scale generation certificates for the electricity produced from bagasse. Certificates can be sold in the renewable energy certificate market, providing a financial benefit to sugar mills.

Since the commencement of the Renewable Energy Target, sugar mill power stations have registered 6.3 million large-scale generation certificates for renewable electricity produced from bagasse, with an estimated value of over $225 million.[2] That represents approximately 8 per cent of the additional renewable electricity generated since 2001. More than 955,000 certificates were registered in 2013.

Cane growing and sugar production are important industries in many regional communities in Queensland and New South Wales. By enabling sugar mills to participate in the renewable energy certificate market, the Renewable Energy Target contributes to the financial viability of the sugar industry.

The estimated generation and displacement capacities of small-scale system installations have increased steadily since the commencement of the Renewable Energy Target in 2001. 'Displacement' refers to the estimated reduction in demand for electricity from the grid that results from the installation of a solar water heater (a solar hot water system or an air source heat pump). Graph 4 illustrates the estimated increases in the two main contributors to overall small-scale capacity: generation from small-scale solar panel systems and displacement from solar water heaters.

Graph 4: Estimated generation by small-scale solar panel systems and displacement of otherwise required generation by solar hot water systems and air source heat pumps, 2001 to 2013



Generation from small-scale solar panel systems has increased significantly since 2009. The Clean Energy Regulator estimates that small-scale solar panel systems contributed 1,283 gigawatt hours of renewable electricity generation in 2011, 2,570 gigawatt hours in 2012, and 3,766 gigawatt hours in 2013. The 2020 target for small-scale generation is 4,000 gigawatt hours.

In total, small-scale installations have the capacity to generate or displace approximately 6,882 gigawatt hours of electricity annually. Of this, approximately 4,182 gigawatt hours is generated from small generation units (small-scale solar, wind or hydro installations), and a further 2,700 gigawatt hours of otherwise required generation is displaced by solar water heaters.

Reduced emissions of greenhouse gases in the electricity sector

In its 2012 review of the Renewable Energy Target, the Climate Change Authority cited recent estimates that the Renewable Energy Target had reduced Australia's emissions by approximately 20 million tonnes of carbon dioxide equivalent between 2001 and 2012, an achievement that contributed to Australia meeting its emissions reduction target under the Kyoto Protocol.[3] The Climate Change Authority modelling estimated a total decrease in emissions from the stationary energy sector for the period from 2012–13 to 2020–21 of around 100 million tonnes of carbon dioxide equivalent. This is in comparison to a scenario where the Renewable Energy Target is not in operation.[4]

In its report *State of the Energy Market 2013*, the Australian Energy Regulator observed a decline in electricity demand from the National Energy Market over recent years, driven to a significant extent by the growth in small-scale solar panel installations and the improved competitiveness of large-scale wind generation under the Renewable Energy Target, among other factors.[5] The decline in demand has contributed to a decline in emissions. At the end of 2013, electricity emissions from the National Electricity Market were approximately 17 per cent lower than at the end of 2008.[6]

Case study: Achieving utility-scale solar electricity generation

The Greenough River Solar Farm in Geraldton, Western Australia, is currently the largest accredited solar photovoltaic power station in Australia. Commissioned in 2012, the solar farm was developed as a joint venture between Synergy and GE Energy Financial.

The solar farm consists of 150,000 solar photovoltaic panels that cover 50 hectares of land. The power station has an installed capacity of 10 megawatts, which is the first stage of a proposed 40 megawatt solar farm.

The electricity generated by the solar farm is purchased by the Water Corporation of Western Australia to meet the electricity requirements of the Southern Seawater Desalination Plant[7], making it the first utility-scale solar farm in Australia. The construction of the power station has generated regional employment opportunities and contributed to the development of the local economy.

The solar farm was accredited as a renewable energy power station under the Renewable Energy Target, as it uses an ecologically sustainable energy source to generate electricity. Since its accreditation, the power station has validly created approximately 34,000 large-scale generation certificates for renewable electricity generation, valued at approximately $1.2 million.[8]

Ecologically sustainable renewable energy sources

For a renewable energy source to be eligible for the creation of certificates it must meet several criteria, including that the source is 'ecologically sustainable'. An ecologically sustainable source is one that is generated in a manner consistent with the principles of ecologically sustainable development. The *National Strategy for Ecologically Sustainable Development* summarises the principles as taking action in order to 'meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations'.[9]

Section 17 of the Act lists 19 renewable energy sources that are considered to be ecologically sustainable and therefore eligible for the creation of renewable energy certificates. The main types are:

- biomass sources that use vegetable and animal-derived organic material such as wood waste, agricultural waste, food processing waste or bagasse (a residue from sugar cane milling) to fuel engines or steam turbines, excluding fossilised biomass
- landfill gas sources that harness methane emitted from landfills (mainly solid wastes and industrial wastes) to fuel engines or steam turbines
- solar power sources that use sunlight to heat air, water or other fluids to drive turbines or convert solar radiation into electricity through photovoltaic cells
- wind sources that harness wind currents to drive turbines
- hydroelectric sources that harness kinetic energy from reservoirs, rivers, streams or waterfalls to drive turbines.

In addition, the Renewable Energy (Electricity) Regulations 2001 set out specific eligibility requirements for other sources, such as waste coal mine gas, which are considered ecologically sustainable under certain conditions.

When seeking accreditation of a power station under the Renewable Energy Target, applicants must provide evidence that the power station uses an ecologically sustainable power source and conforms to relevant planning and environmental laws.

Case study: Harvesting energy from landfill emissions

In 2009–10, the most recent year for which data are available, the Australian economy generated an estimated 53.7 million tonnes of waste, of which 24.9 million tonnes was disposed of in landfill.[10] Decomposing waste generates landfill gas, which typically contains between 45 per cent and 60 per cent methane—a greenhouse gas with a global warming potential 21 times greater than that of carbon dioxide over a 100-year span.[11] The landfill gas power generation industry is now capturing much of these emissions and many landfill operators are converting the gas to electricity.

The landfill gas power generation industry has invested more than $500 million throughout Australia in generating capacity of more than 185 megawatts. Landfill gas power stations generate approximately 850 gigawatt hours of renewable electricity annually, enough to power more than 133,000 average Australian households.[12] The industry employs more than 300 people directly and a further several hundred indirectly, providing 'green jobs' in regional and urban Australia.[13]

Since 2001, 62 landfill gas power stations have been accredited under the Large-scale Renewable Energy Target, and the Clean Energy Regulator has accredited new landfill gas power stations every year. More than 6.9 million large-scale generation certificates, valued at approximately $250 million[14], have been registered by landfill gas power stations.

The creation and sale of landfill gas large-scale generation certificates allows the power stations and their associated markets, such as local councils and landfill site operators, to offset operational costs.

2 How the Renewable Energy Target works

The Renewable Energy Target seeks to meet the objectives of the *Renewable Energy (Electricity) Act 2000* (the Act) by providing a financial incentive for investment in renewable energy sources, through the operation of a market in renewable energy certificates.

The role of the Clean Energy Regulator is to enable the operation of the Renewable Energy Target by:

- ensuring the integrity of renewable energy certificates created (the supply side of the market)
- ensuring the integrity of renewable energy certificates surrendered to acquit liability (the demand side of the market)
- providing the registry that facilitates administration of renewable energy certificates by market participants.

This chapter describes how the Renewable Energy Target schemes allow accredited renewable energy power stations and the owners or agents of small-scale systems to create and sell certificates that are used by electricity retailers to acquit liabilities determined under the Act.

Renewable Energy Target schemes

The Act places a legal liability on wholesale purchasers of electricity to proportionately contribute to the generation of additional renewable electricity. Those purchasers, defined as 'liable entities', are required to surrender a specified number of 'renewable energy certificates' to offset the energy they acquire each year.

The market for renewable energy certificates is facilitated by the Clean Energy Regulator through two schemes: the Large-scale Renewable Energy Target and the Small-scale Renewable Energy Scheme.

Under the Large-scale Renewable Energy Target, large-scale generation certificates are created by renewable energy power stations. One large-scale generation certificate is equivalent to one megawatt hour of eligible renewable electricity generated above the power station's 'baseline'. The baseline for each power station is determined by the Clean Energy Regulator under the Renewable Energy (Electricity) Regulations 2001. For example, the baseline for a power station that generated electricity before 1997 will be determined by the average amount of electricity generated by the power station in 1994, 1995 and 1996, while a power station that first generated electricity after 1997 will have a baseline of zero.

Under the Small-scale Renewable Energy Scheme, small-scale technology certificates are created for correctly installed small-scale systems. There are two categories of small-scale system:

- solar water heaters, including solar hot water systems and air source heat pumps (water heaters that draw heat from the air), which displace the use of electricity to heat water
- small generation units, including solar panels, small wind turbines, and hydro systems, which generate electricity.

Small-scale technology certificates can be created in advance for electricity generated by a small generation unit or the electricity displaced by a solar water heater. The number of small-scale technology certificates a small-scale system is eligible for is based on the operating life of the system, known as the 'deeming period'.

Table 2 outlines the core legislation that underpins the schemes.

Table 2: Legislation underpinning the Renewable Energy Target schemes

Legislation	Overview
Renewable Energy (Electricity) Act 2000	Sets out the aims of the schemes including the annual targets, creates liabilities, provides for registration of persons and accreditation of power stations, and establishes the market for renewable energy certificates.
Renewable Energy (Electricity) (Large-scale Generation Shortfall Charge) Act 2000	Provides the rate of charge for the applicable renewable energy shortfall charge for the Large-scale Renewable Energy Target.
Renewable Energy (Electricity) (Small-scale Technology Shortfall Charge) Act 2010	Provides the rate of charge for the applicable renewable energy shortfall charge for the Small-scale Renewable Energy Scheme.
Renewable Energy (Electricity) Regulations 2001	Provide details on a number of issues, including eligibility criteria for renewable energy sources and criteria for accreditation of power stations and small-scale systems.

Renewable energy certificate market

The Act effectively establishes a competitive market for registered renewable energy certificates. Electricity retailers' liability under the Act provides the demand side of the market. The supply side is the creation of large-scale generation certificates and small-scale technology certificates.

'Eligible parties' create and sell certificates to liable entities and other buyers for a negotiated price. Eligible parties include:

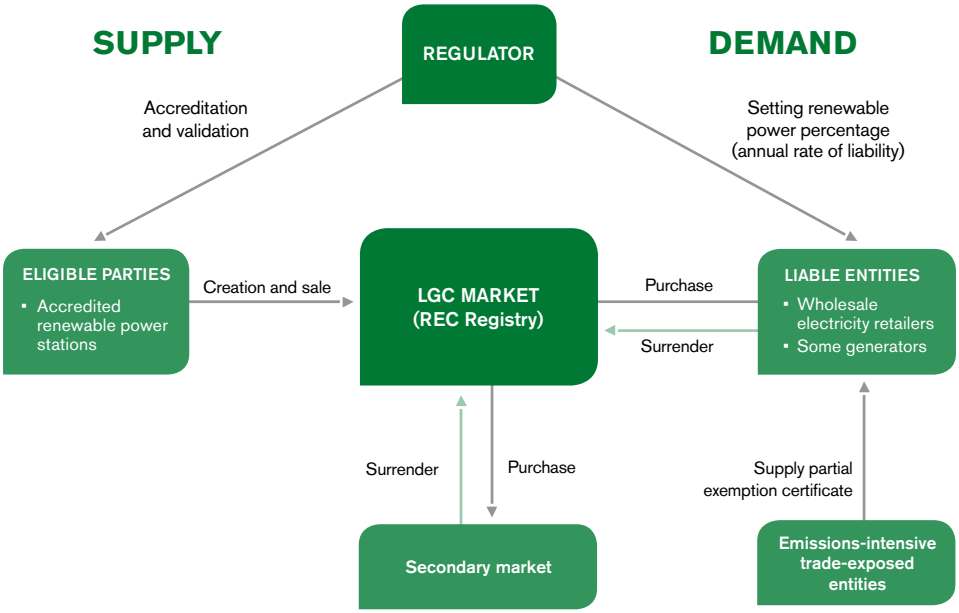
- large-scale power stations using ecologically sustainable renewable energy sources such as wind, hydro, landfill gas, solar or biomass
- owners or 'agents' of small-scale systems, including small generation units and solar water heaters.

Large-scale generation certificates are created for eligible electricity generated above the accredited renewable energy power station's baseline. Small-scale technology certificates are created for electricity generated or displaced by small-scale systems.

Figures 1 and 2 illustrate the main elements of the operation of the market for large-scale generation certificates and small-scale technology certificates.

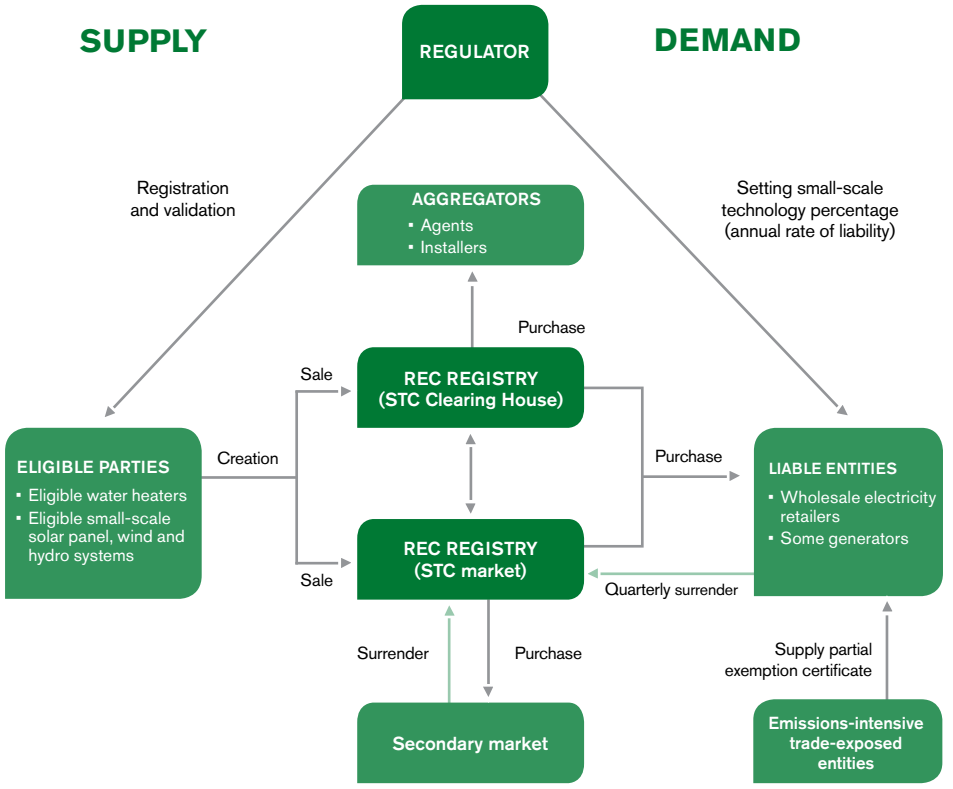
The figures illustrate the role of the secondary market, which is the market for renewable energy certificates that occurs between two entities not including the Clean Energy Regulator. Secondary market participants include financial institutions, traders, and aggregators such as agents and installers. The secondary market has matured since 2001 and is quoted on a range of trading platforms.

Figure 1: Large-scale generation certificate market



LGC = large-scale generation certificate; REC = renewable energy certificate

Figure 2: Small-scale technology certificate market



REC = renewable energy certificate; STC = small-scale technology certificate

Administration of renewable energy certificates

Market participants manage large-scale generation certificates and small-scale technology certificates through the Renewable Energy Certificate Registry (REC Registry). The REC Registry is a secure online application that facilitates the creation, registration, sale, trade and surrender of certificates and maintains public registers as set out under the Act.

The Clean Energy Regulator provides the REC Registry to enable the operation of the market for renewable energy certificates.

The Act allows for large-scale generation certificates and small-scale technology certificates to be electronically transferred between REC Registry account holders (typically, between eligible parties and liable entities). Transfers are reported automatically to the Clean Energy Regulator in the REC Registry under section 28 of the Act.

Registered certificates can be:

- transferred between parties who have accounts in the REC Registry
- mandatorily surrendered by liable entities to acquit their liability, under Subdivision A of Division 1 of Part 5 or section 95 of the Act, or
- voluntarily surrendered under section 28A of the Act. Any registered owner of certificates can choose to make voluntary certificate surrender offers for any reason, including meeting obligations under GreenPower, a voluntary government accreditation program that supports investment in the renewable energy sector.

Certificates accepted for mandatory or voluntary surrender are marked 'invalid due to surrender' in the REC Registry and permanently removed from the market, under section 29 of the Act.

The Clean Energy Regulator does not have oversight of transfer or payment arrangements for certificates transferred through the REC Registry. This is negotiated directly between buyers and sellers and managed as per the business contracts they sign.

This process is market driven, with the price of certificates determined by a number of factors, including supply and demand. Certificate prices are not regulated by the Clean Energy Regulator.

The Small-scale Technology Certificate Clearing House (STC Clearing House), a facility within the REC Registry, allows liable entities to purchase small-scale technology certificates at a fixed price of $40 (GST exclusive) when the supply from the open market does not meet their demand. Small-scale technology certificates lodged in the STC Clearing House are only sold when there is a buyer. There is no guarantee on how long certificates will take to sell.

3 Administration of the Renewable Energy Target in 2013

As required by the *Renewable Energy (Electricity) Act 2000* (the Act), the Renewable Energy Target operates on a calendar year basis. This chapter reports on the operation of the Renewable Energy Target between 1 January and 31 December 2013. In some areas, data from previous years are provided for comparison and trend purposes.

Registered persons and agents

Individuals or companies that wish to use the Renewable Energy Certificate Registry (REC Registry) must create an account. This enables them to own and trade (transfer) registered certificates or make mandatory or voluntary certificate surrender offers. If the individual or company wishes to sell small-scale technology certificates through the Small-scale Technology Certificate Clearing House (STC Clearing House), a facility available in the REC Registry, they must register with the STC Clearing House and provide proof of identity.

An individual or company that wishes to create certificates must also apply to become a 'registered person', as defined under the Act, and pay a $20 application fee.

A registered person may:

- seek accreditation of a renewable energy power station and, if the application is successful, thereby become the 'nominated person' for that power station
- create large-scale generation certificates for an accredited renewable energy power station, as the nominated person for that power station
- apply for registration as an 'agent'—an individual or company to whom the owner of an eligible small-scale system (solar water heater or small generation unit) has assigned the right to create certificates for that system
- create small-scale technology certificates for an eligible small-scale system, as the owner or agent for that system.

During 2013, the Clean Energy Regulator:

- approved 225 registered person applications, bringing the total number of registered persons to 7,283 as at 31 December 2013
- registered 89 agents, bringing the total number of registered agents to 1,435 as at 31 December 2013.

The registrations covered a range of individuals and companies seeking to create certificates for renewable energy power stations or small-scale systems.

Agents include retailers, installers and traders. Agents take responsibility for small-scale technology certificates and provide small-scale system owners with a financial benefit, such as a discount on the price of the installation. Small-scale system owners assign their certificates to the agent by signing an assignment form after the system has been installed and demonstrated to be working.

Renewable energy power stations

A power station that provides electricity from eligible renewable energy sources may be accredited under the Large-scale Renewable Energy Target and create large-scale generation certificates for the electricity that it generates above the 'baseline' determined by the Clean Energy Regulator under the Renewable Energy (Electricity) Regulations 2001 (the Regulations).

Accreditation

For the Clean Energy Regulator to assess an application for accreditation of a power station, the applicant must successfully complete and submit all sections of the application and supply sufficient supporting evidence to demonstrate that the renewable energy power station can be accredited under the Large-scale Renewable Energy Target.

A Clean Energy Regulator assessor will verify that all required information has been submitted and that the applicant is a registered person on the REC Registry. Once the initial assessment has been completed, the applicant is notified and asked to pay an accreditation fee through the REC Registry. After the fee has been paid, the applicant is notified that the application has been assessed as properly made under section 13 of the Act. Details of the renewable energy power station are then listed on the public register of applications for accredited power stations, which can be accessed via the REC Registry.

From the time the application is assessed as being properly made, the Clean Energy Regulator has six weeks to determine matters under section 14 of the Act and either approve or refuse the application under section 15 of the Act. If the application is approved, the accreditation start date is the date the application was assessed as being properly made under the Act, or the date the power station started generating electricity for the first time, whichever is later. The 'nominated person' (the applicant whose application has been approved) is then notified of the accreditation of the

power station and the power station is listed on the public register of accredited power stations. The nominated person is able to create large-scale generation certificates from the date of accreditation.

Of the 437 renewable energy power station applications listed in the REC Registry as at 31 December 2013:

- 394 renewable energy power stations were accredited and eligible to create large-scale generation certificates from renewable energy sources (this includes 26 renewable energy power stations that were accredited in 2013)
- 16 renewable energy power stations had been de-accredited (one renewable energy power station was de-accredited in 2013)
- one renewable energy power station application was pending registration
- 22 renewable energy power station applications had been withdrawn because applications had not been properly made by applicants (one renewable energy power station application was withdrawn in 2013)
- four renewable energy power station applications had not been approved.

Tables 3 to 5 provide a breakdown of the types and locations of accredited renewable energy power stations. In Table 4, power stations that are accredited for multiple renewable energy sources are reported according to the source for which they create the majority of their large-scale generation certificates.

Table 3: Comparative number of renewable energy power stations accredited in 2012 and 2013

Renewable energy source	Accredited in 2012	Accredited in 2013
Agricultural waste	2	2
Food waste	1	0
Hydro	0	1
Landfill gas	1	2
Sewage gas and biomass-based components of sewage	1	0
Solar	11	11
Waste coal mine gas	7	0
Wind	7	10
Wood waste	2	0
Total[1]	**32**	**26**

1 Certain power stations are accredited for multiple renewable energy sources.

Table 4: Comparative number of total accredited renewable energy power stations

Renewable energy source	Accredited up to 2011	Accredited up to 2012	Accredited up to 2013
Agriculture waste, food waste, waste from agriculture products	9	12	14
Bagasse	27	27	27
Black liquor	2	2	2
Hydro	100	100	101
Landfill gas	59	60	62
Sewage gas and biomass based components of sewage, municipal solid waste	17	19[1]	19
Solar	46	57	68
Waste coal mine gas	0	7	7
Wind	61	68	78
Wood waste	15	16	16
Total[2]	**336**	**368**	**394**

1 In the Renewable Energy Target 2012 Administrative Report, one power station that is accredited for multiple renewable energy sources was incorrectly reported as wood waste. This year it is correctly reported as 'sewage gas and biomass based components of sewage, municipal solid waste', which is the source used to create the majority of large-scale generation certificates for that power station.

2 Certain power stations are accredited for multiple renewable energy sources.

Note: In the Renewable Energy Target 2012 Administrative Report, an administrative error resulted in the incorrect reporting of data related to the numbers of hydro and landfill gas power stations. In Table 4 of that report, the numbers were published in reverse. The Clean Energy Regulator apologises for the error, which was corrected promptly in the online version of the report. For clarification, figures for 2011 have been included in this table.

Table 5: Number of accredited renewable energy power stations by state as at 31 December 2013

Renewable energy source	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Total
Agriculture waste, food waste, waste from agriculture products	0	6	1	2	0	1	2	2	14
Bagasse	0	3	0	23	0	0	0	1	27
Black liquor	0	1	0	0	0	0	1	0	2
Hydro	1	31	0	10	1	34	21	3	101
Landfill gas	2	16	1	14	4	3	13	9	62
Sewage gas and biomass based components of sewage, municipal solid waste	0	9	0	4	0	1	4	1	19
Solar	4	16	13	11	5	1	8	10	68
Waste coal mine gas	0	4	0	3	0	0	0	0	7
Wind	0	9	1	3	17	9	18	21	78
Wood waste	0	6	0	4	1	1	3	1	16
Total[1]	**7**	**101**	**16**	**74**	**28**	**50**	**70**	**48**	**394**

1 Certain power stations are accredited for multiple renewable energy sources.

To maintain its accreditation status, a power station must confirm its compliance with Commonwealth, state, territory and local government planning and approval requirements as stated in section 20 of the Act and regulation 18 of the Regulations.

Sections 30D and 30E of the Act set out the grounds for suspension of accreditation of a power station. No accredited power stations were suspended during 2013.

Baselines and baseline variations

Accredited power stations are eligible to create certificates from electricity generation above the baseline. The baseline for each power station is determined by the Clean Energy Regulator under the Regulations. The baseline for a pre-1997 renewable energy power station is determined by averaging the annual amount of electricity generated from eligible renewable energy sources by that power station over the 1994, 1995 and 1996 years. Power stations which generated electricity for the first time after 1 January 1997 have a baseline of zero.

The Clean Energy Regulator received two requests from a nominated person to vary their eligible renewable power baselines for the 2012 and 2013 generation years under section 30F of the Act. The nominated person, Snowy Hydro Limited, applied for the baseline variations as they had been required to release water for environmental flows into the Snowy Montane Rivers and the Snowy River in 2012 and 2013. The Clean Energy Regulator made decisions in January 2013 and October 2013 to vary the eligible renewable power baselines for 2012 and 2013 respectively under section 30F of the Act and regulation 20E of the Regulations.

Small-scale systems

From 1 April 2001 to 31 December 2013, 2,020,647 small-scale installations created valid certificates in the REC Registry.

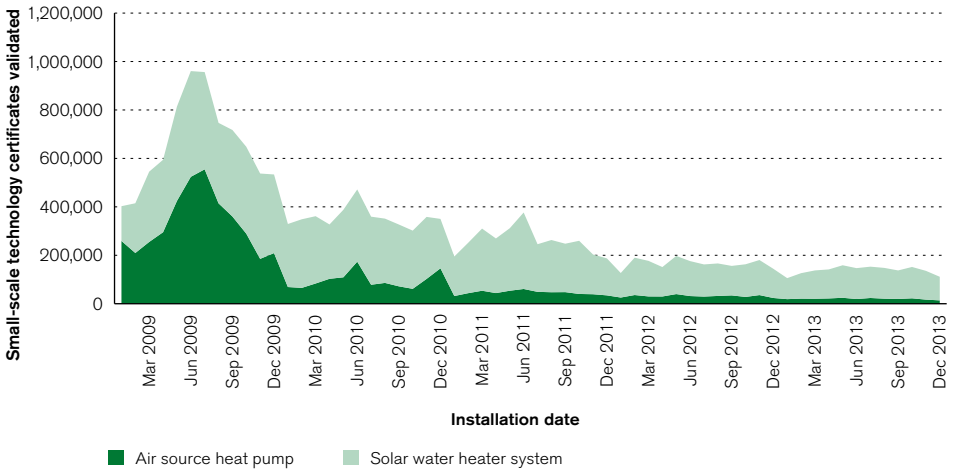
Of these, 61,376 solar water heaters (solar hot water systems and air source heat pumps) and 220,848 small generation units created valid certificates between 1 January 2013 and 31 December 2013. Of the small generation unit installations, solar panels made up 99.99 per cent, with relatively small contributions by wind and hydro comprising the remaining 0.01 per cent.

During 2013, approximately 4,250 solar water heaters and 15,650 small generation units were installed each month, a decrease compared to approximately 5,790 and 28,600 respectively per month in 2012.

The data presented in graphs 5, 6 and 7 are based on the date the system was installed and were current at 4 February 2014. The 2013 numbers are likely to increase because certificates can be created up to 12 months after the installation date.

Graph 5 represents valid certificates created by solar water heaters. Solar hot water systems accounted for 86 per cent of certificates validated in 2013, while air source heat pumps equated to 14 per cent.

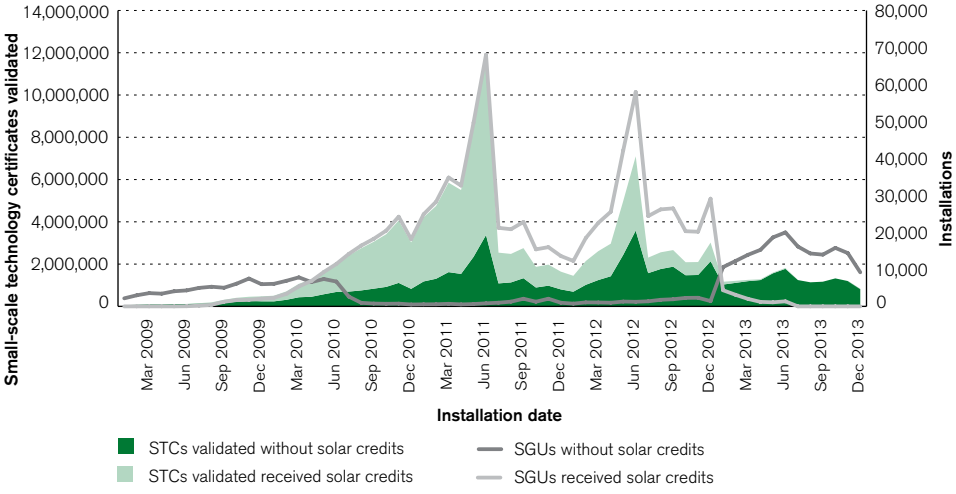
Graph 5: Certificates validated for solar hot water system and air source heat pump installations, 2009 to 2013



Graph 6 represents valid certificates created by small generation units. The total number of small generation units installed in 2013 was 187,837. Of these around 7 per cent, or 13,196 systems, received 'solar credits'.

The solar credits mechanism was introduced in 2009 to provide an additional financial incentive for solar panel installations by multiplying the number of certificates these systems could create. The mechanism ceased on 30 June 2013.

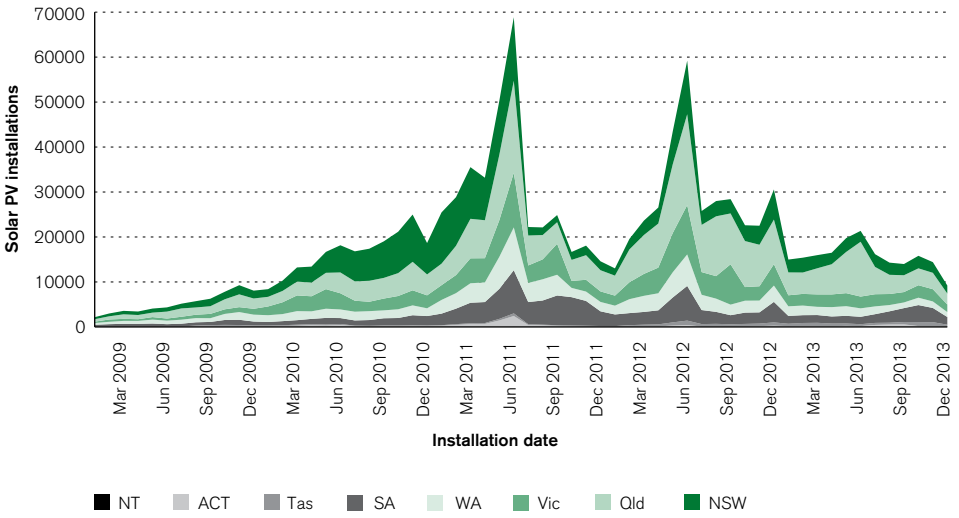
Graph 6: Small-scale generation units and solar credits, 2009 to 2013



SGUs = small generation units; STCs = small-scale technology certificates

Graph 7 represents the number of solar panel installations registered by state and territory. The greatest number of solar panel installations in 2013 was in Queensland (36 per cent) followed by New South Wales (17 per cent) and Victoria (16 per cent).

Graph 7: Solar panel installations by state, 2009 to 2013



Renewable energy certificates

Table 6 summarises activities in relation to large-scale generation certificates and small-scale technology certificates during 2013.

Table 6: Certificate activity summary for 2013

Certificate activity	Large-scale generation certificates	Small-scale technology certificates
Created	15,144,810	21,659,867
Failed validation audit	378,405	1,220,936
Passed validation audit	13,948,063	20,862,344
Registered[1]	14,153,623	21,185,451
Transferred successfully	44,426,662	107,998,944
Entered STC Clearing House	Not applicable	2,110,758
Transferred successfully in STC Clearing House	Not applicable	628,081

Certificate activity	Large-scale generation certificates	Small-scale technology certificates
Withdrawn from STC Clearing House	Not applicable	5,417,369
Bought from STC Clearing House	Not applicable	2
Converted from small-scale technology certificate	60,000	Not applicable
Accepted for 2012 surrender obligations	16,434,437	43,083,048
Accepted for voluntary surrender	2,006,682	37,692

1 Certificates can be registered for previous generation years if they are validly created.

Validation of certificates

Before a certificate is registered it must be checked and validated by the Clean Energy Regulator and the registered person must pay the applicable fee. Current fees are 8 cents per large-scale generation certificate for renewable energy power stations and 8 cents per small-scale technology certificate for solar water heaters. If the small-scale technology certificates for a small generation unit were created on or after 17 October 2011, the fee for each small-scale technology certificate is 47 cents.

As at 31 December 2013:

- 36,804,677 certificates had been created in the REC Registry in calendar year 2013. By comparison, 51,051,676 certificates were created in calendar year 2012.
- 34,810,407 certificates had been validated in the REC Registry in calendar year 2013. By comparison, 49,288,322 certificates were validated in calendar year 2012.

A number of factors contributed to the decrease in certificate creations and validations between 2012 and 2013. The phasing out of the solar credits multiplier had an effect on the number of small-scale system installations, as did changes to state and territory government solar feed-in tariff schemes. Other factors included foreign currency exchange rates and global production of solar photovoltaic systems.

As shown in graphs 8 and 9, a wide range of eligible renewable energy sources were used to create certificates in 2013. Not all accredited renewable energy power stations, agents or individuals created certificates in 2013.

Certificates created by power stations

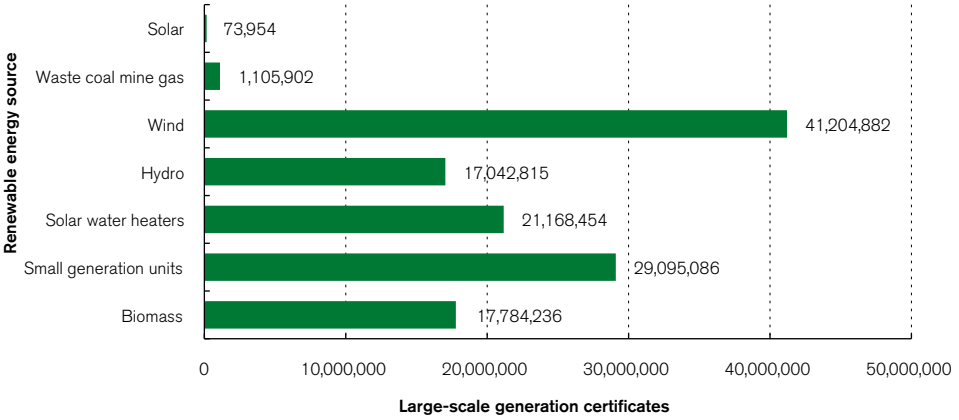
Under section 19 of the Act, accredited renewable energy power stations were able to create large-scale generation certificates for eligible renewable electricity generated above the power station's baseline for the 2012 generation year by the 31 December 2013 deadline. Renewable energy power stations that did not create certificates within the allowed timeframe are no longer eligible to create certificates for eligible renewable electricity generated in the 2012 generation year.

The Clean Energy Regulator's large-scale generation certificate validation procedure was updated in 2013 to require power stations to submit a standing notice each time large-scale generation certificates are created in the REC Registry. This notice confirms ongoing compliance with all relevant Commonwealth, state, territory and local government planning and approval requirements, and is a prerequisite for large-scale generation certificate validation. The standing notice replaces the previous requirement to provide an annual statement of compliance and is submitted more frequently than the annual statement.

Between 1 June 2013, when the requirement was introduced, and 31 December 2013, the Clean Energy Regulator received 682 standing notices from accredited power stations.

In 2013, a total of 14,649,036 large-scale generation certificates were validly created. Graph 8 shows valid large-scale generation certificates by renewable energy source since the commencement of the scheme. The graph includes certificates created by small-scale systems before the splitting of the schemes provided for small-scale technology certificates.

Graph 8: Large-scale generation certificates validly created from the commencement of the scheme until 31 December 2013



Certificates created by Small-scale systems

Section 21 of the Act states that certificates for eligible solar water heaters must be created within 12 months of the installation date.

Regulation 19D of the Regulations (under section 23A of the Act) states that certificates for eligible small generation units installed on or after 6 October 2007 may be created:

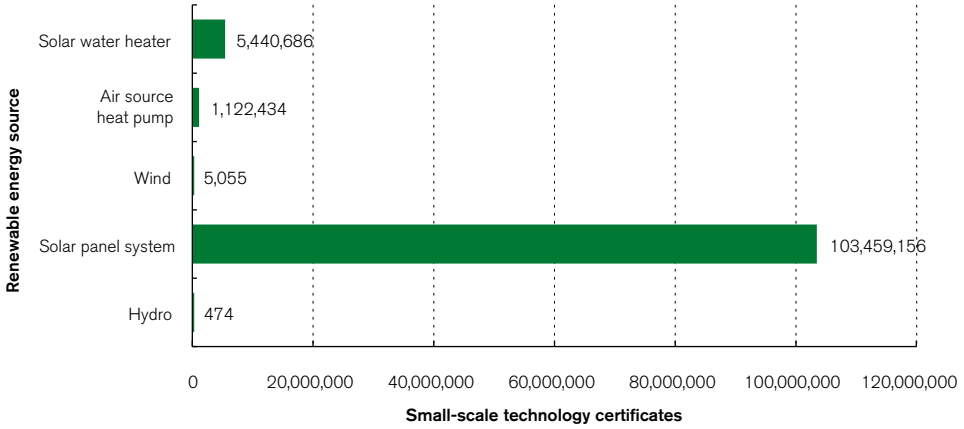
- within 12 months of the installation date, for a one-year or five-year period
- at the end of the period in which the right was exercised to create certificates (for example, if a person created certificates for an installation for one year, at the end of that period the person may create certificates for another year, until the end of the scheme), or
- within 12 months of the installation date for a 15-year period (if this option is chosen no further certificates can be created for the installation).

Small generation units installed between 1 April 2001 and 5 October 2007 are eligible to create certificates at any time for a one-year or five-year period. At the end of each period owners or agents can create certificates for the next 'deeming period'. The deeming period refers to the expected life of the system. Information about how deeming periods are determined is published on the Clean Energy Regulator website.[15]

If agents or individuals do not create certificates within the allowed timeframe they are no longer eligible to create certificates for their small-scale installation.

In 2013, a total of 20,457,324 small-scale technology certificates were validly created for 238,769 small-scale systems. Graph 9 shows valid small-scale technology certificates by renewable energy source since the commencement of the scheme.

Graph 9: Small-scale technology certificates validly created from the commencement of the scheme until 31 December 2013



Certificate transfer activity

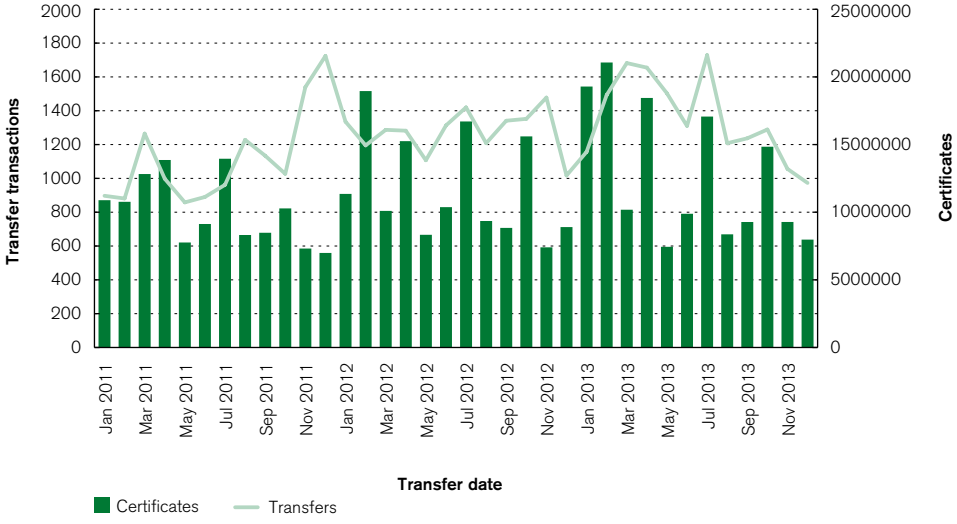
From 2001 to 31 December 2013, 67,420 successful certificate transfers took place in the REC Registry, representing a total of 556,190,429 certificates transferred.

Of these, during 2013, there were:

- 16,292 accepted transfers, representing a volume of 153,107,687 certificates
- 562 transfers cancelled by sellers, representing a volume of 6,783,728 certificates
- 38 transfers rejected by buyers, representing a volume of 250,222 certificates.

Graph 10 shows monthly trends in transfers over the past three years.

Graph 10: Number of certificate transfers by month in 2011, 2012 and 2013



STC Clearing House

The STC Clearing House is a facility within the REC Registry that allows liable entities to purchase small-scale technology certificates at a fixed price of $40 (GST exclusive) when the supply from the open market does not meet their demand.

This facility provides certainty to these entities by guaranteeing a supply of certificates to meet their liability and setting a maximum price that they will be required to pay, allowing them to protect their risk and pass through costs efficiently. Sellers may also use the facility and receive the fixed price. Large-scale generation certificates are not included in the STC Clearing House.

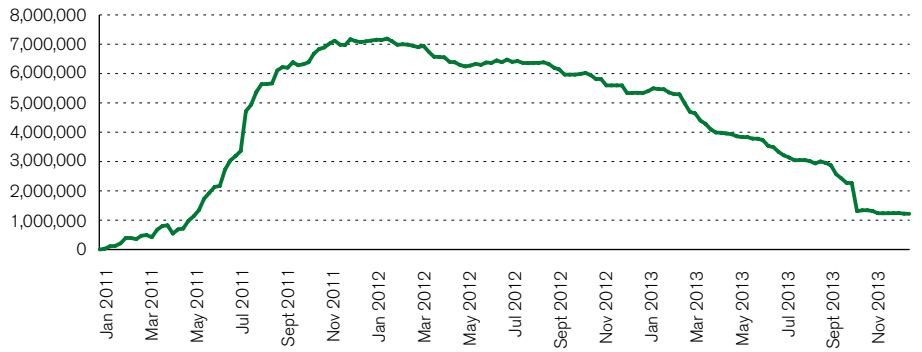
The Act allows free trading of small-scale technology certificates and a liquid and efficient secondary market has developed outside of the STC Clearing House. Since early 2011, the small-scale technology certificate market has been in oversupply and, as a result, the secondary market price of small-scale technology certificates has been below the fixed price. The vast majority of trades have been made in the secondary market.

It was originally thought that a large number of trades would go through the STC Clearing House and that those trades would set the market price. However, of the approximately 109 million small-scale technology certificates created between 1 January 2011 and 1 January 2014, only 138,486 small-scale technology certificates were traded in the STC Clearing House.

In 2013, there were no significant purchases in the STC Clearing House as the market remained in oversupply. Small-scale technology certificates traded efficiently in the open market via both spot and forward contracts.

A clear trend throughout 2013 was the steep decline in the number of small-scale technology certificates awaiting sale in the STC Clearing House, as shown in Graph 11. The Clean Energy Regulator attributes this decline to the market price for small-scale certificates, which trended toward the fixed price of $40 (GST exclusive). As the price increased, holders of certificates withdrew their holdings from the STC Clearing House for sale in the secondary market.

Graph 11: Small-scale technology certificates awaiting sale in the STC Clearing House



The price of small-scale technology certificates in the secondary market is shown in Graph 12. The Clean Energy Regulator sources wholesale market prices from NextGen.Net and Thomson Reuters.

Graph 12: Small-scale technology certificate secondary market spot price (GST exclusive), 2011–13

Voluntary surrender

Under section 28A of the Act, registered owners of certificates can choose to surrender certificates to the Clean Energy Regulator for any reason.

For example, individuals or companies may choose to surrender certificates to support additional generation of electricity from renewable energy sources and to meet their GreenPower obligations. If offers are made for this reason, or for similar reasons, they are considered to be 'voluntary surrender' offers.

Individuals or companies may also choose to make voluntary surrender certificate offers to offset the impacts of improper creation of certificates under the civil penalties and other remedies provisions of the legislation, or to meet enforceable undertaking obligations under section 154Q of the Act. If offers are made for these reasons they are considered to be 'non-compliance surrender' offers.

Any certificate accepted for voluntary surrender is permanently removed from the market and cannot be transferred to another party or used to acquit a mandatory surrender liability under the Act.

The Clean Energy Regulator will refuse a voluntary surrender where it is determined that the offer has been made in error. No offers were refused in 2013.

As at 31 December 2013, a total of 13,928,178 certificates, representing 931 offers, had been accepted for voluntary surrender in the REC Registry. Table 7 shows the number of certificates accepted for voluntary surrender.

Table 7: Certificates accepted for voluntary surrender from 2007 to 31 December 2013

Calendar year	LGC voluntary surrender	LGC non-compliance surrender	STC voluntary surrender[1]	STC non-compliance surrender	Total number of certificates and offers accepted for voluntary surrender
2013[2]	2,006,210	472	103	37,589	2,044,374 representing 142 offers
2007–12	11,797,492	71,106	348	14,858	11,883,804 representing 789 offers
Total	**13,803,702**	**71,578**	**451**	**52,447**	**13,928,178 representing 931 offers**

LGC = Large-scale generation certificate; STC = Small-scale technology certificate

1 STCs were created from 1 January 2011.

2 On 28 June 2010, civil penalty and other remedies, including enforceable undertaking provisions, were introduced into the legislation.

Volume weighted average market price for a large-scale generation certificate

Under regulation 22ZH, the Clean Energy Regulator was required to estimate and publish the volume weighted average market price for a large-scale generation certificate for 2014 by 31 October 2013.

The Clean Energy Regulator estimated the volume weighted average market price for a large-scale generation certificate for 2014 at $35.24 and published this, along with the methodology used to estimate the price, on the Clean Energy Regulator website on 25 October 2013.

The volume weighted average market price for a large-scale generation certificate for 2014 is factored into the calculation of the partial exemption assistance rate for the year.

Liable entities

The Act places a legal obligation on liable entities (entities that make wholesale acquisitions of electricity) to purchase and surrender certificates in proportion to the amount of liable electricity they acquire in a given year, or pay a shortfall charge for each certificate not surrendered. Liable entities have a full calendar year, known as an 'assessment year', to surrender the required amount of certificates.

For each assessment year, liable entities are required to report relevant acquisitions of electricity and partial exemptions in megawatt hours and to acquit their liabilities under the Renewable Energy Target by:

- lodging an energy acquisition statement, large-scale generation shortfall statement and small-scale technology shortfall statement on or before 14 February (for the previous assessment year)
- surrendering sufficient certificates to acquit their 'reduced acquisitions' (all relevant acquisitions of electricity less any partial exemption certificates passed on by their emissions-intensive trade-exposed customers), or paying a shortfall charge of $65 per certificate not surrendered. Certificates surrendered to acquit liability for a given assessment year must have been created in or before the assessment year.

Determination of annual targets

Section 40 of the Act specifies the amount of renewable energy in gigawatt hours to be generated by renewable energy power stations for every year up to 2030. Liable entities are required to purchase a set number of large-scale generation certificates each year, providing demand for the supply of certificates created by power stations. The number of large-scale generation certificates that liable entities must purchase is calculated by the 'renewable power percentage' set annually in the Regulations.

The renewable power percentage takes into account a number of factors, including the legislated annual target, the estimated amount of electricity that will be acquired by liable entities, the level of supply in the renewable energy certificate market, and partial exemption for emissions-intensive trade-exposed activities. As the legislated annual targets increase to reach 41,000 gigawatt hours by 2020, the renewable power percentage changes each year in proportion to the annual targets.[16]

The renewable power percentage for 2013 was 10.65 per cent, equivalent to 19.1 million large-scale generation certificates.

Liable entities are also required to purchase small-scale technology certificates. There are no specified annual targets under the Small-scale Renewable Energy Scheme. Instead, the number of small-scale technology certificates that liable entities must purchase is based on the expected supply of small-scale technology certificates.

The 'small-scale technology percentage' is calculated based on the estimated:

- value (in megawatt hours) of small-scale technology certificates that will be created for the year
- accumulated excess or shortfall from previous years
- amount of electricity that will be acquired for the year
- amount of all partial exemptions expected to be claimed for the year.

The small-scale technology percentage for 2013 was 19.70 per cent, equivalent to 35.7 million small-scale technology certificates.

Partial exemption certificates

The Act includes provisions to provide partial exemption from Large-scale Renewable Energy Target and Small-scale Renewable Energy Scheme liability for electricity used in defined emissions-intensive trade-exposed activities. Such activities include production of glass containers and bulk flat glass, integrated production of lead and zinc, manufacture of newsprint and cartonboard, and refining of petroleum. Emissions-intensive trade-exposed activities are specified in the Regulations and are listed in Table 8.

Under the Act, prescribed persons (usually entities that carry on emissions-intensive trade-exposed activities) may apply for partial exemption certificates. If a partial exemption certificate application is approved, the Clean Energy Regulator will issue the prescribed person with a certificate. The certificate states the amount of electricity in megawatt hours for which exemption can be provided to the liable entity named on the certificate (usually the retail electricity supplier) for electricity used in the emissions-intensive trade-exposed activity during the year specified in the certificate.

In 2013, the Clean Energy Regulator received 173 partial exemption certificate applications by the legislated deadlines. Applications from prescribed persons spanned 49 of the 51 eligible emissions-intensive trade-exposed activities.

As at 31 December 2013, 165 partial exemption certificates had been issued, totalling 31,608 gigawatt hours of partial exemption for 2013. Table 8 provides details of the partial exemption issued in 2013 for each emissions-intensive trade-exposed activity.

Table 8: Total amount of 2013 partial exemptions given for each emissions-intensive trade-exposed activity as at 31 December 2013

Activity	Partial exemption (MWh)
Alumina refining	916,727
Aluminium smelting	19,458,177
Cartonboard manufacturing	43,470
Dry pulp manufacturing	0
Integrated iron and steel manufacturing	577,533
Integrated production of lead and zinc	47,069
Manufacture of carbon steel from cold ferrous feed	486,650
Manufacture of newsprint	1,019,814
Manufacture of reconstituted wood based panels	181,168
Packaging and industrial paper manufacturing	755,513
Petroleum refining	3,118,145
Printing and writing paper manufacturing	98,790
Production of ammonia	86,490
Production of ammonium nitrate	78,023
Production of bulk flat glass	30,629
Production of carbamide (urea)	34,137
Production of carbon black	0
Production of ceramic floor and wall tiles	5,123
Production of chlorine gas and sodium hydroxide (caustic soda) solution	231,019
Production of clinker	339,966
Production of coal char	0
Production of coke oven coke	1,193
Production of copper	519,846
Production of dried distillers grains with solubles	6,894
Production of ethene (ethylene)	72,719
Production of fused alumina	34,983

Activity	Partial exemption (MWh)
Production of fused zirconia	7,738
Production of glass beads	974
Production of glass containers	154,271
Production of glass wool	0
Production of helium	11,256
Production of high purity ethanol	25,505
Production of hydrogen peroxide	8,031
Production of iron ore pellets	64,658
Production of lime	57,101
Production of liquefied natural gas	1,300
Production of magnesia	71,351
Production of magnetite concentrate	150,221
Production of manganese	209,952
Production of methanol	29,775
Production of nickel	185,151
Production of polyethylene	106,133
Production of polymer grade propene (polymer grade propylene)	7,019
Production of rolled aluminium	86,392
Production of silicon	389,682
Production of sodium carbonate (soda ash) and sodium bicarbonate	26,820
Production of sodium silicate glass	171
Production of synthetic rutile	86,454
Production of white titanium dioxide (TiO2) pigment	50,344
Smelting zinc	1,595,708
Tissue paper manufacturing	138,064
Total	**31,608,149**

Note: In accordance with regulation 22E(3) of the Regulations, the total amount of partial exemptions given for each emissions-intensive trade-exposed activity is published on the Clean Energy Regulator website by 1 October in the year to which the partial exemptions relate.[17]

Reporting of 2012 energy acquisitions

During 2013, the Clean Energy Regulator received and assessed energy acquisition statements and shortfall statements submitted by liable entities for the year ended 31 December 2012. Statements for 2013 were due to be submitted by 14 February 2014 and will be assessed in 2014.

Liable entities lodged their 2012 energy acquisition statements and shortfall statements by the due date of 14 February 2013. Ninety liable entities were required to report for the 2012 assessment year, four more than in 2011. Of the 89 entities that lodged a 2012 energy acquisition statement:

- two lodged large-scale generation shortfall statements
- seven lodged small-scale technology shortfall statements
- one was the subject of a default assessment by the Clean Energy Regulator.

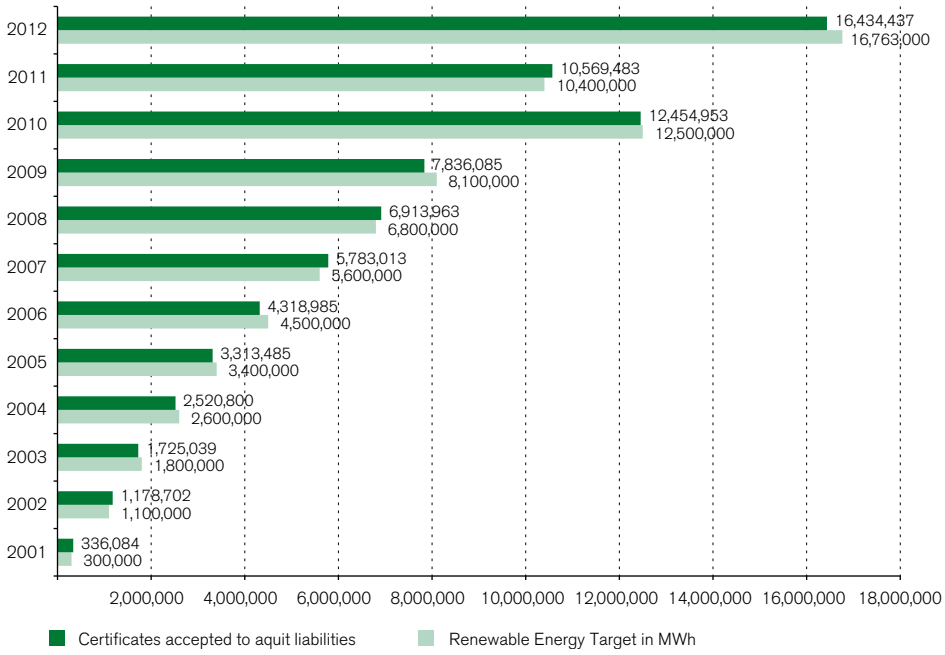
Liability is determined by deducting partial exemptions from the overall amount of relevant acquisitions of electricity. This is known as the liable entity's 'reduced acquisitions'. In total, liable entities reported 178,690 gigawatt hours of reduced acquisitions for 2012: 211,197 gigawatt hours of relevant acquisitions of electricity less 32,507 gigawatt hours of partial exemptions.

Reduced acquisitions for the Large-scale Renewable Energy Target in 2012 resulted in a liability of 16.35 million large-scale generation certificates. Liable entities had a 99.98 per cent compliance surrender rate. At the end of the 2012 assessment year, the Clean Energy Regulator assessed 51 liable entities with an accumulated carried forward surplus of 95,521 large-scale generation certificates (which can be used to acquit future large-scale generation certificate liabilities).

Two liable entities were found to have a total shortfall of 3,648 large-scale generation certificates, but as both shortfalls were within 10 per cent of those entities' total large-scale generation certificate liability, the large-scale generation certificate shortfalls were able to be carried forward and added to the entities' 2013 large-scale generation certificate liability.

Graph 13 shows the number of large-scale generation certificates that were accepted to acquit liabilities under the Act.

Graph 13: Large-scale generation certificates accepted to acquit a mandatory liability for the assessment years from 2001 to 2012



Under the Small-scale Renewable Energy Scheme, liable entities are required to surrender small-scale technology certificates each quarter, in February, April, July and October, to meet quarterly liabilities.

Reduced acquisitions for the Small-scale Renewable Energy Scheme in 2012 resulted in a liability of 42.8 million small-scale technology certificates. Liable entities had an average 99.97 per cent compliance surrender rate for quarters 1 to 4. At the end of the 2012 assessment year, the Clean Energy Regulator assessed 53 liable entities, with an accumulated carried forward surplus of 641,970 small-scale technology certificates (which can be used to acquit future quarterly small-scale technology certificate liabilities).

Seven liable entities were found to have a total shortfall of 12,876 small-scale technology certificates. All those entities were required to pay the shortfall charge, because there is no buffer for entities with small-scale technology certificate shortfalls. The shortfalls for each quarter were as follows:

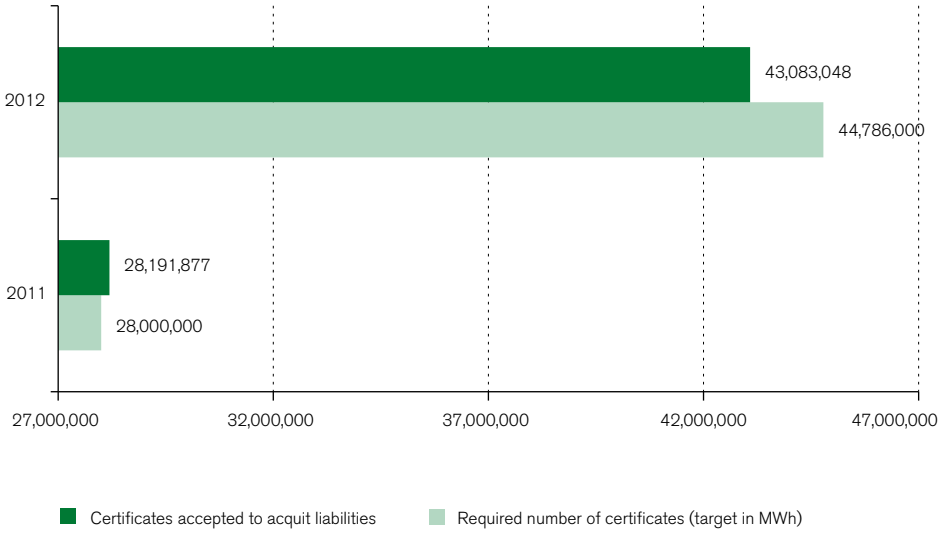
- quarter 1—three liable entities had a total shortfall of 6,315 small-scale technology certificates
- quarter 2—two liable entities had a total shortfall of 3,705 small-scale technology certificates

- quarter 3—three liable entities had a total shortfall of 2,855 small-scale technology certificates
- quarter 4—one liable entity had a total shortfall of one small-scale technology certificate.

As at 31 December 2013, six of the seven liable entities with shortfalls had paid their shortfall charges.

Graph 14 shows the number of small-scale technology certificates that were accepted to acquit liability against the legislated targets for 2011 and 2012.

Graph 14: Small-scale technology certificates accepted to acquit a mandatory liability for 2011 and 2012



Amendment of reduced acquisitions

The Act allows for reduced acquisitions of electricity to be amended in the 12 months following lodgement of statements. Two mechanisms enable this.

The first mechanism provides liable entities with flexibility in managing their liability. For instance, changes in metering data may impact the amount of electricity acquired by a liable entity, potentially leading to shortfall charges. Requesting amendments under section 45A of the Act enables liable entities to surrender additional certificates and avoid shortfall charges.

The Clean Energy Regulator received two requests for amendments under section 45A of the Act between 15 February 2013 and 14 February 2014. One request was approved and one was refused.

The second mechanism enables the Clean Energy Regulator to amend retrospectively a liable entity's reduced acquisition should information reported in the subsequent four years indicate that an amendment is required. As a result of such amendments, liable entities may be assessed with certificate surpluses or shortfalls.

Liable entities that are assessed with certificate shortfalls are required to pay shortfall charges or apply to surrender additional certificates. From 15 February 2013 to 14 February 2014, the Clean Energy Regulator received and approved eight applications to surrender additional certificates.

Amendment of required surrender amounts

In addition to allowing for amendments to reduced acquisitions of electricity, the Act provides flexibility by allowing liable entities to apply to amend the amount of small-scale technology certificates they are required to surrender for quarters 1 to 3. Liable entities typically apply to reduce the amount of small-scale technology certificates they are required to surrender if they have lost customers or are expecting lower amounts of electricity consumption from their customers. Failure to apply correctly can result in shortfall charges.

From 15 February 2013 to 1 October 2013 (the due date), the Clean Energy Regulator received and approved four applications to amend required surrender amounts for 2012.

Applications for required surrender amounts

Liable entities that did not lodge 2012 energy acquisition statements and shortfall statements were able to apply to surrender small-scale technology certificate amounts for the 2013 assessment year, quarters 1 to 3. Liable entities apply to surrender small-scale technology certificate amounts if their liability under the Renewable Energy Target started during the year or if they have inconsistent liabilities for assessment years. Failure to apply and to surrender small-scale technology certificates results in the issuance of shortfall charges.

From 1 January 2013 to 31 December 2013 (the due date), the Clean Energy Regulator received and approved eight applications for a required surrender amount.

Compliance activities

The Clean Energy Regulator's investigation and enforcement activities raise stakeholders' awareness of their compliance obligations. The updated compliance web page and publishing of compliance statistics and enforceable undertakings sends a clear message to stakeholders of the Clean Energy Regulator's commitment to ensuring compliance with the Act by all parties.

Investigations

The Clean Energy Regulator actively investigates allegations of breaches of the Act. In 2013, the Clean Energy Regulator received 123 matters related to possible breaches and had 49 matters open as at 31 December 2013. The open matters included 42 cases under investigation and four referrals and three information reports under assessment.

The majority of matters requiring further attention in 2013 related to the improper creation of certificates for solar panel installations.

A total of 124 matters relating to the Act were closed by the Clean Energy Regulator during 2013. While none of the closures were as a result of a finalised prosecution, investigations resulted in a range of administrative actions, including:

- sending of warning letters
- voluntary surrender and transfer of certificates
- voluntary rectification of installations.

In addition, eight enforceable undertakings, arising from the outcomes of investigations, were agreed by the Clean Energy Regulator and four enforceable undertakings were closed. As a result of the enforceable undertakings agreed in 2013, a total of 16,085 small-scale technology certificates either have been or will be surrendered.

Six REC Registry accounts were suspended while investigations were undertaken. Five of these accounts remained suspended as at 31 December 2013. In support of investigations, the Clean Energy Regulator executed one monitoring warrant.

While the aim of the Clean Energy Regulator's Compliance, Education and Enforcement Policy is to achieve voluntary compliance, civil and criminal prosecutions are pursued in the more serious matters. In January 2013, as a result of a civil prosecution, the Federal Court imposed a total financial penalty of $209,400 on five entities in relation to the improper creation of small-scale technology certificates. Injunctions were also placed on the entities, restricting them from undertaking certain activities, including providing false or misleading information to any person in relation to the creation of small-scale technology certificates.

Power station monitoring inspections

Part 11 of the Act authorises the Clean Energy Regulator to perform monitoring inspections of the affairs of a registered person for the purpose of substantiating information provided under the Act and determining whether the registered person has complied with the Act and Regulations. Monitoring inspections may be performed with the consent of the registered person or in accordance with a monitoring warrant issued under the Act.

In 2013, the Clean Energy Regulator performed two monitoring inspections of renewable energy power stations. Both power stations were found to be compliant with the Act and Regulations and no further action was taken by the Clean Energy Regulator.

Inspections of small generation units

In 2011 the government introduced a provision in the Act for a sample of installed systems to be inspected each year by the Clean Energy Regulator for compliance with Small-scale Renewable Energy Scheme eligibility criteria. The criteria include relevant Australian and New Zealand standards related to electrical safety.

Responsibility for electrical safety is a matter for state and territory electrical safety regulators. The Clean Energy Regulator works with these regulators in the design and implementation of the small generation unit inspection program which began in 2011.

The objective of the inspection program is to ensure that the increased installation demand resulting from Renewable Energy Target incentives does not lead to any reduction in installation standards.

Under section 23AAA of the Act, the Clean Energy Regulator inspects small generation units for their compliance with the eligibility criteria for claiming certificates. Small-scale solar panels on the rooftops of residential buildings are the most common small-scale generation units.

The Clean Energy Regulator has deeds of standing offer with four service providers to inspect small generation units installed in the states and territories. The service providers are Global Sustainable Energy Solutions, Master Electricians Australia, the Australian Solar Energy Council and Carbon Footie.

The Clean Energy Regulator selects systems randomly for inspection across Australia based on the number of installations for which the small-scale technology certificates were created and their geographical location. Table 9 provides details of the inspection reports received in 2013. Total cumulative inspections data is available on the Clean Energy Regulator website.[18]

Table 9: Number of final reports for inspections of small generation units received by the Clean Energy Regulator between 1 January and 31 December 2013

State	Number of systems inspected	Systems unsafe[1]	Systems substandard[1]
ACT	30	2	3
NSW	503	11	44
NT	19	0	0
Qld	1319	45	118
SA	663	10	89
Tas	33	2	5
Vic	811	34	59
WA	531	26	62
Total	**3,909**	**130 (3.3%)**	**380 (9.7%)**

1 As defined by the Clean Energy Regulator.

Liability assessment audits

The Clean Energy Regulator did not conduct liability assessment audits during 2013.

Glossary

Accreditation

A process of determining whether a power station is eligible to participate in the Large-scale Renewable Energy Target.

Act, the

Renewable Energy (Electricity) Act 2000.

Agent

A registered person who has been assigned the right to create certificates on behalf of owners of eligible small-scale system installations.

Air source heat pump

A system that draws heat from the air to heat water. Recognised as a solar water heater under the Small-scale Renewable Energy Scheme.

Assessment year

The period over which each annual target for the surrender of certificates by liable entities must be achieved, which, except for 2001, is a full calendar year.

Bagasse

Fibrous residue of the sugar cane milling process.

Baseline

The amount of electricity above which an accredited power station can begin to create renewable energy certificates for electricity generation, determined by the Clean Energy Regulator under the Regulations.

Biomass

Vegetable and animal-derived organic materials used in generating energy. The Act specifies types of biomass that are valid renewable energy sources under the Renewable Energy Target and excludes fossilised biomass.

Black liquor

The spent cooking liquor from the conversion of wood into wood pulp.

Deeming period

The expected life of a small-scale system, determined under the Regulations and used to calculate the number of small-scale technology certificates that can be created for the system.

Displacement

The estimated reduction in demand for electricity from the grid that results from the installation of a solar water heater.

Eligible parties

Parties that are eligible to create certificates for renewable electricity generated by accredited power stations or small-scale systems.

Enforceable undertaking

A written undertaking to take action to resolve breaches of legislation or take responsibility for conduct to improve compliance with legislative requirements. Breaches of such an undertaking may result in court action.

Generation year

The calendar year in which a unit of electricity was generated.

Gigawatt

One thousand megawatts.

GreenPower

A voluntary government accreditation program that supports investment in the renewable energy sector—greenpower.gov.au.

Kilowatt

One thousand watts.

kWh

Kilowatt hour—a measure of electricity generation or use (one thousand watt hours).

Kyoto Protocol

An international agreement on reducing greenhouse gas emissions, established under the United Nations Framework Convention on Climate Change.

Large-scale generation certificate

A renewable energy certificate that may be created by the nominated person for each megawatt hour of eligible renewable electricity generated above the baseline of a renewable energy power station.

Liability

The requirement to surrender renewable energy certificates or pay a renewable energy shortfall charge, based on a wholesaler's electricity acquisitions.

Liable entities

Entities that make wholesale acquisitions of electricity.

Megawatt

One thousand kilowatts.

MWh

Megawatt hour—a measure of electricity generation or use (one thousand kilowatt hours).

National Electricity Market

A wholesale exchange for electricity across the Australian Capital Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria.

Nominated person

A person who has successfully applied for accreditation of a power station under the Act, and may be the owner, operator or a stakeholder of the power station.

Partial exemption certificate

A partial exemption from liability for a specified amount of electricity that is issued to a prescribed person who carries out an eligible emissions-intensive trade-exposed activity.

REC Registry

The Renewable Energy Certificate Registry, an online registry system used to manage renewable energy certificates—www.rec-registry.gov.au.

Reduced acquisitions

The amount worked out by subtracting the amount of a liable entity's partial exemption (if any) from the total amount of electricity acquired during the assessment year by the liable entity under relevant acquisitions.

Registered person

A person registered under the Act and listed in the Register of Registered Persons. Only registered persons are able to create certificates.

Registration of certificates

The change in status that enables a certificate to be traded or surrendered, which results from providing sufficient information to support the validation of the certificate and paying a specified fee.

Regulations, the

Renewable Energy (Electricity) Regulations 2001.

Renewable energy certificate

A tradeable instrument for acquitting liability under the Renewable Energy Target; includes large-scale generation certificates and small-scale technology certificates.

Renewable power percentage

The basis, set out in the Regulations, for calculating the number of large-scale generation certificates that a liable entity must purchase in a given year.

Secondary market

The market for renewable energy certificates that occurs between two entities not including the Clean Energy Regulator.

Shortfall charge

The charge payable where certificates were not surrendered by the annual reporting date or quarterly surrender period. Calculated under the *Renewable Energy (Electricity) (Large-scale Generation Shortfall Charge) Act 2000* or the *Renewable Energy (Electricity) (Small-scale Technology Shortfall Charge) Act 2010*.

Small generation unit

A device that uses a hydro, wind or solar energy source to generate electricity within limits set out in the Regulations.

Small-scale system

A solar water heater or small generation unit that is potentially eligible for the creation of renewable energy certificates.

Small-scale technology certificate

A renewable energy certificate that may be created by the owner of a small-scale system, or their agent, for the generation of electricity by that system.

Small-scale technology percentage

The basis, set out in the Regulations, for calculating the number of small-scale technology certificates that a liable entity must purchase in a given year.

Solar credits

A mechanism that provided an additional financial incentive for solar panel installations by multiplying the number of certificates the systems could create. It operated between 9 June 2009 and 30 June 2013.

Solar water heater

A device that heats water using solar energy and satisfies the conditions set out in the Regulations. Includes solar hot water systems and air source heat pumps.

STC Clearing House

The Small-scale Technology Certificate Clearing House, a facility available in the REC Registry to allow the exchange of small-scale technology certificates at the fixed price of $40 (GST exclusive).

Surrender

The act of returning renewable energy certificates to the Clean Energy Regulator, at which point they are removed from the certificate market. May be 'mandatory' surrender to acquit liability or 'voluntary' surrender for any reason.

Notes

1 For a profile of the sugar industry see Sugar Research and Development Corporation, *SRDC Annual Report 2012–2013*, pp. 9–13, viewed 1 March 2014, <http://www.srdc.gov.au/page/News_and_Publications/Publications/SRDC_Annual_Reports/SRDC_Annual_Report_2012_-_2013/>.

2 Calculated by the Clean Energy Regulator based on an average volume weighted average price for large-scale generation certificates of $35.89 from 1 October 2010 (when the average price was first calculated) to 27 September 2013.

3 Climate Change Authority, *Renewable Energy Target Review*, December 2012, section 2.2, viewed 1 March 2014, <http://climatechangeauthority.gov.au/ret>.

4 Climate Change Authority, *Renewable Energy Target Review,* December 2012, section 4.3.2, viewed 4 April 2014, <http://climatechangeauthority.gov.au/ret>.

5 Australian Energy Regulator, *State of the Energy Market 2013*, pp. 6–7, viewed 1 March 2014, <http://www.aer.gov.au/sites/default/files/Complete%20report%20A4.pdf>.

6 Pitt and Sherry, 'CEDEX Electricity Update January 2014', viewed 1 March 2014, <http://www.pittsh.com.au/assets/files/Cedex/CEDEX%20Electricity%20Update%20January%202014.pdf>.

7 Greenough Solar Farm, 'About the project', viewed 14 February 2014, <http://www.greenoughsolarfarm.com.au/project/about-project>.

8 Calculated by the Clean Energy Regulator based on an average volume weighted average price for large-scale generation certificates of $35.24 from 1 October 2012 to 27 September 2013.

9 Ecologically Sustainable Development Steering Committee, *National Strategy for Ecologically Sustainable Development 1992*, viewed 1 March 2014, <http://www.environment.gov.au/node/13029>.

10 Australian Bureau of Statistics, 'Waste Account, Australia, Experimental Estimates, 2013', 19 February 2013, viewed 1 March 2014, <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4602.0.55.005Main%20Features12013?opendocument&tabname=Summary&prodno=4602.0.55.005&issue=2013&num=&view=>.

11 United Nations Framework Convention on Climate Change, 'Global Warming Potentials', viewed 1 March 2014, <http://unfccc.int/ghg_data/items/3825.php>.

12 Based on average household electricity consumption of 122.3 kWh per week. Australian Bureau of Statistics, 'Household Energy Consumption Survey, Australia: Summary of Results', viewed 1 March 2014, <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4670.0~2012~Main%20Features~Dwelling%20characteristics~10005>.

13 Green Energy Markets, *Base-load renewable energy from organics: Innovation in Australia's green electricity industry*, 2012, viewed 1 March 2014, <http://www.lms.com.au/assets/Media-Resources/Industry-Brochure.pdf>.

14 Calculated by the Clean Energy Regulator based on an average volume weighted average price for large-scale generation certificates of $35.89 from 1 October 2010 to 27 September 2013.

15 See Renewable Energy Target FAQs at <http://ret.cleanenergyregulator.gov.au/Frequently-Asked-Questions/How-do-I-determine-the-deemed-life-of-my-system>.

16 The target of 41,000 gigawatt hours does not include the additional 850 gigawatt hours annual amount for coal mine waste gas.

17 See PECs issued at <http://ret.cleanenergyregulator.gov.au/For-Industry/Emissions-Intensive-Trade-Exposed/issued-pecs>.

18 See Inspections at <http://ret.cleanenergyregulator.gov.au/Solar-Panels/RET-Inspections/ret-inspections>.