Australian Government
Clean Energy Regulator

RENEWABLE ENERGY TARGET

2014 Administrative Report

Encouraging investment in renewable energy

Accelerating carbon abatement for Australia

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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 2014 Administrative Report.

The report covers the operations of the *Renewable Energy (Electricity) Act 2000* for the 2014 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

28 April 2015

Contents

List of figures

List of tables

List of graphs

1 Executive summary

Renewable Energy Target at a glance

Objectives

The Renewable Energy Target encourages investment in renewable energy systems. The objectives are to:

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

How it works

The Renewable Energy Target creates an incentive for additional generation of electricity from renewable sources. Participants create renewable energy certificates for every megawatt hour of electricity they generate (the 'supply' side). Wholesale purchasers of electricity, mainly electricity retailers, buy these certificates to meet their renewable energy obligations (the 'demand' side). They then surrender these certificates to the Clean Energy Regulator in percentages set by regulation each year.

The Clean Energy Regulator administers the Renewable Energy Target's two schemes:

- the Large-scale Renewable Energy Target, which encourages investment in renewable power stations to achieve 41 000 gigawatt hours of additional renewable electricity generation by 2020[1], and
- the Small-scale Renewable Energy Scheme, which supports small-scale installations like household solar panels and solar hot water systems.

The Clean Energy Regulator regulates both the 'supply' and 'demand' to ensure scheme integrity, and provides an online registry to enable the market to operate.

Outcome

By creating a market-based financial incentive to generate more electricity from renewable sources, the Renewable Energy Target increases renewable energy and, in turn, helps accelerate carbon abatement for Australia.

1 The target of 41 000 gigawatt hours does not include the additional 850 gigawatt hours annual amount for waste coal mine gas, which is removed from the 2021–2030 targets.

2014 highlights

46 new accredited renewable energy power stations

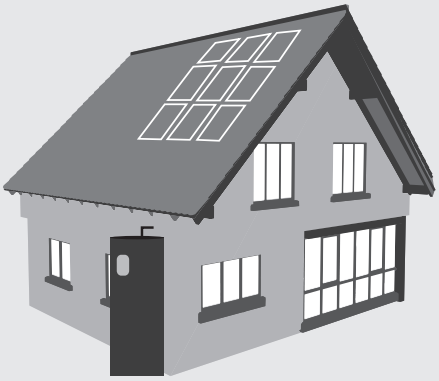
Total now **440** power stations

17 924 951 large-scale generation certificates and **18 839 856** small-scale technology certificates surrendered against RET liability

compliance rate

36.8 million new large-scale and small-scale renewable energy certificates validated

- **18.105** million large-scale renewable energy certificates
- **18.784** million small-scale technology certificates



4 gigawatt milestone passed for rooftop solar panel capacity

Enough to supply electricity for an average **755 000 households for a year**

252 843 new small-scale systems validated

Total now more than **2.2 million**

3 647 small generation units inspected

Redesigned REC Registry released 15 September 2014

143 more registered persons and **68** more registered agents

114 liable entities

164 partial exemption certificates issued

Totalling **25 861 gigawatt hours** of partial exemption for 2014 for emissions intensive trade exposed industries

4 liable entity workshops

held around the country

1 criminal prosecution for fraud

resulting in a custodial sentence

3 enforceable undertakings as a result of investigations

Chair's review

Year in the spotlight

The performance and impact of the Renewable Energy Target was in the spotlight throughout 2014. In February, the Government announced the terms of reference of an Expert Panel to review the Renewable Energy Target. The Panel received some 24 000 submissions and held 200 stakeholder meetings—an indication of the level of interest in the Renewable Energy Target and its policy settings. The Clean Energy Regulator contributed factual information on the operation of the scheme, much of which is also published in this annual administrative report.

The Panel's report, released in August 2014, found that the Renewable Energy Target has largely met its objectives and that consultations indicated 'the administration of the Renewable Energy Target scheme is generally efficient and meets the expectations of most stakeholders'. However, the Panel recommended reforming the Renewable Energy Target on other grounds. The Climate Change Authority published its second statutory review of the Renewable Energy Target in December, presenting another perspective. Options for amending the scheme remain under consideration.

Objectives achieved

Regardless of the policy debate during 2014, the Renewable Energy Target continued to operate according to its objectives. A total of 36.8 million renewable energy certificates were validly created in 2014, representing 36.8 million megawatt hours of additional electricity generated from ecologically sustainable sources or no longer required from the grid.

Improvements made

Administrative processes continued to operate smoothly and some significant improvements were made. For example, the redesigned Renewable Energy Certificate Registry (REC Registry), released in September 2014, provides a more streamlined and responsive facility for participants to create, trade and surrender renewable energy certificates. As a result the average time for validation of small-scale technology certificates reduced from 16 to five days.

Highlights and trends

The Large-scale Energy Target experienced a slow-down in investment—wind farm accreditations, which had been increasing since 2010, fell for the first time in 2014.

In contrast, there was an increase in accreditations of large-scale solar power plants, with technology developments improving solar's economic competitiveness at the utility scale.

The Small-scale Renewable Energy Scheme experienced greater stability during 2014, with fewer changes to state-based incentives than in past years. A year of steady growth saw small-scale installations surpass the 2.2 million milestone by the end of 2014.

In particular, there was strong growth in solar panel installations at the higher end of the Small-scale Renewable Energy Scheme as an increasing number of small to medium businesses joined householders in using solar panels to reduce their electricity costs.

Safety and compliance

Each year the Clean Energy Regulator is funded to inspect a sample of small generation units to verify their compliance with the requirements to receive small-scale technology certificates. More than 3 600 small-scale systems were able to be inspected in 2014. The overall percentage of unsafe or substandard installations has fallen since the start of the small-scale inspections program in 2011.

Four power stations were inspected in 2014 and found to be compliant with the legislation.

There was also a steady and diligent approach to liable entity compliance during the year, with liable entities recording a 99.9 per cent compliance rate for meeting their renewable energy obligations by surrendering renewable energy certificates.

Strong performance

The outcomes of the 2014 calendar year demonstrate the Renewable Energy Target continues to operate effectively as a market-based instrument to support investment in renewable energy systems.

Chloe Munro
Chair, Clean Energy Regulator

Complete data for 2013 Renewable Energy Target electricity generation

Renewable energy certificates can be created up to 12 months after small-scale systems are installed or by 31 December the year after the electricity was generated by power stations. As a result, the following complete 2013 generation year data is available to report this year.

Snapshot of 2013 generation:

- 3 753 078 megawatt hours generated by the Small-scale Renewable Energy Scheme
- 2 710 086 megawatt hours displaced (electricity no longer required from the grid) by the Small-scale Renewable Energy Scheme
- 16 135 712 megawatt hours of additional generation by the Large-scale Renewable Energy Target

22.6 MILLION MEGAWATT HOURS IN 2013

71% LARGE-SCALE

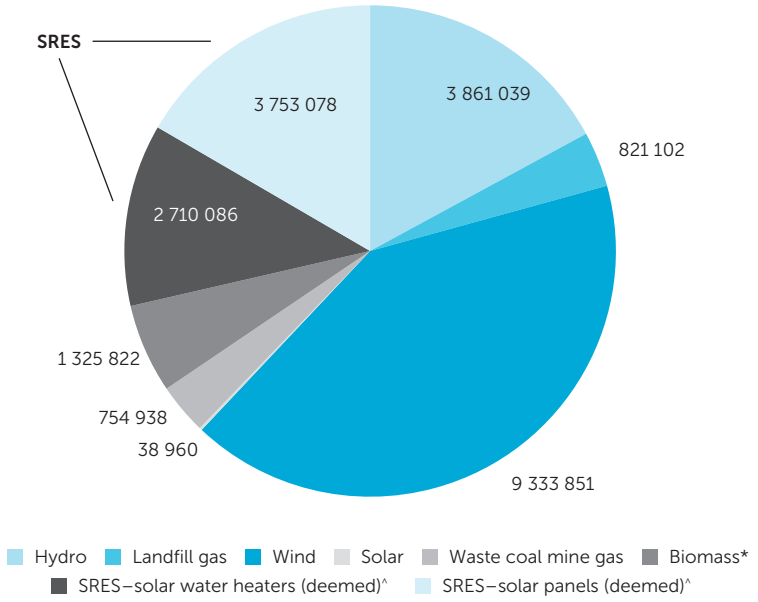
29% SMALL-SCALE

In 2013, the total new renewable electricity generated or displaced under the Renewable Energy Target was 22.6 million megawatt hours.

The Large-scale Renewable Energy Target contributed 71 per cent and the Small-scale Renewable Energy Scheme contributed 29 per cent.

There was a record level of additional electricity from hydro during the year.

Graph 1: Renewable Energy Target generation profile (megawatt hours) 2013



SRES = Small-scale Renewable Energy Scheme

* Biomass includes food waste, food processing waste, agricultural waste, wood waste, sewage gas and biomass based components of sewage, energy crops, waste from processing of agricultural products and biomass based components of municipal solid waste, bagasse, bagasse co-generation, biomass-based components of municipal solid waste, energy crops, wood waste and black liquor.

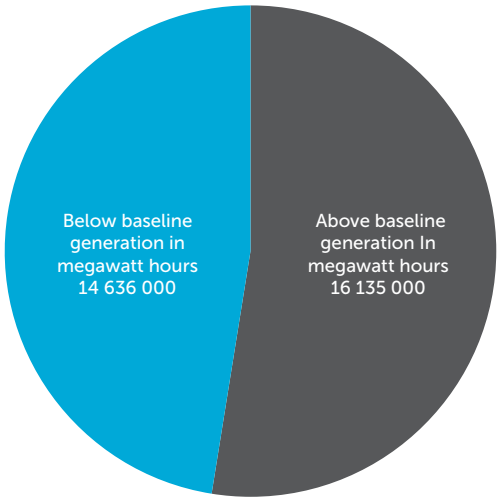
^ Denotes estimated generation/displacement from the Small-Scale Renewable Energy Scheme. Estimates are based on capacity, deeming methodology and postcode ratings by state.

Graph 1 shows the breakdown against different renewable energy sources.

In addition, below baseline (capacity in existence when the scheme started) generation in the Large-scale Renewable Energy Target was 14.6 million megawatt hours for 2013 (see Graph 2).

Accredited power stations can create certificates for electricity generated above their renewable power baselines (baselines are explained on page 40).

Graph 2: Above and below baseline generation for the Large-scale Renewable Energy Target in 2013

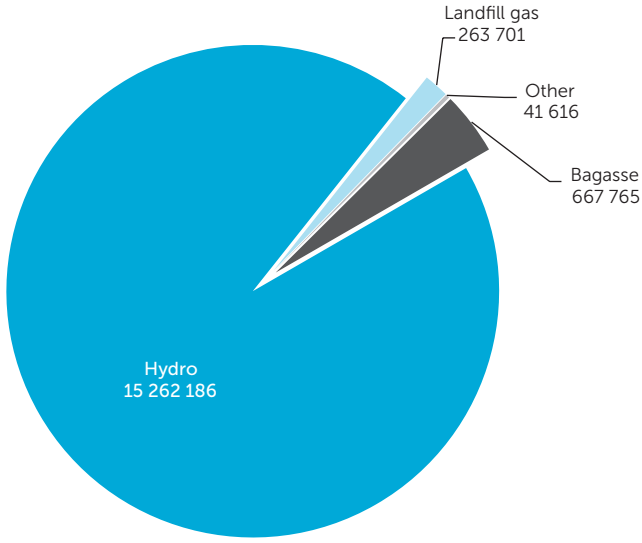


Note: This is for the 2013 calendar year, and not all power stations created large-scale generation certificates for all their eligible generation. Figures shown have been rounded.

Graph 2 shows the megawatt hours generated by power stations with baselines, both before they reached the baseline (below baseline) and after they reached the baseline (above baseline).

Total generation under the Large-scale Renewable Energy Target is approximately 31 million megawatt hours, including above and below baseline generation.

Graph 3: Baselines for 2013 generation year by renewable energy source



Total baseline: 16 235 268 megawatt hours

Note: This is the maximum theoretical baseline for the 2013 calendar year for accredited Renewable Energy Target power stations.

HYDRO ACCOUNTS FOR AROUND 94% OF THE BASELINE

Graph 3 shows the baselines by renewable energy source. Hydro accounts for almost 94 per cent of the baseline, as most of the hydro power stations were generating electricity before 1997 and were therefore accredited with a renewable energy power baseline.

2 Achieving the objectives

Context

Electricity generation accounts for around one-third of Australia's greenhouse gas emissions. Recognising the important role of renewable energy in reducing emissions, Australia introduced the Renewable Energy Target in 2001.

Originally the target was to source two per cent of the nation's electricity from renewable sources. In 2009, this increased to 41 000 gigawatt hours by 2020.

In January 2011 the Renewable Energy Target was split into two parts:

- Large-scale Renewable Energy Target—this scheme creates a financial incentive to establish and expand renewable power stations such as solar farms, wind farms and hydro-electric power stations. It delivers the majority of the 2020 target (see page 34).
- Small-scale Renewable Energy Scheme—this scheme creates a financial incentive to install small generation units (solar panels, wind or hydro systems) and solar water heaters (including air source heat pumps) (see page 43).

The Clean Energy Regulator manages these schemes as part of its purpose of accelerating carbon abatement for Australia.

Objectives

The objectives, as set out in the *Renewable Energy (Electricity) Act 2000,* are to:

- encourage the additional generation of electricity from renewable sources (see page 13)
- reduce emissions of greenhouse gases in the electricity sector (see page 20), and
- ensure that renewable energy sources are ecologically sustainable (see page 22).

The Renewable Energy Target is achieving these objectives by stimulating investment in renewable power stations and increasing the number of small-scale renewable energy systems such as rooftop solar panels and solar water heaters. To date, 440 power stations have been accredited and more than 2.2 million small-scale systems installed.

Based on current demand forecasts (which take into account a decline in electricity demand not anticipated when the target was set), the target of 41 000 gigawatt hours is likely to represent around 27 per cent of the Australian electricity market in 2020.

Renewable energy certificates

The Renewable Energy Target works by creating a market for renewable energy certificates.

Accredited renewable energy power stations can create large-scale generation certificates. One large-scale generation certificate is equivalent to one megawatt hour of eligible renewable electricity generated above the power station's renewable power baseline.

Owners of small-scale renewable energy systems can create (or assign their right to create) small-scale technology certificates for eligible solar water heaters, air source heat pumps, and small-scale solar panel, wind and hydro systems. One small-scale technology certificate is equivalent to one megawatt hour of renewable electricity generated by small-scale solar, wind or hydro systems, or electricity displaced (no longer required from the grid) by solar water heaters or air source heat pumps.

The market for certificates

The creation of large-scale and small-scale renewable energy certificates creates the 'supply' side of the market. The *Renewable Energy (Electricity) Act 2000* requires liable entities (usually electricity retailers) to source renewable energy certificates. This creates the 'demand' side of the market. To meet their obligation, liable entities purchase and surrender a certain number of renewable energy certificates to the Clean Energy Regulator each year, or pay a shortfall charge. More details about liable entities are on page 52.

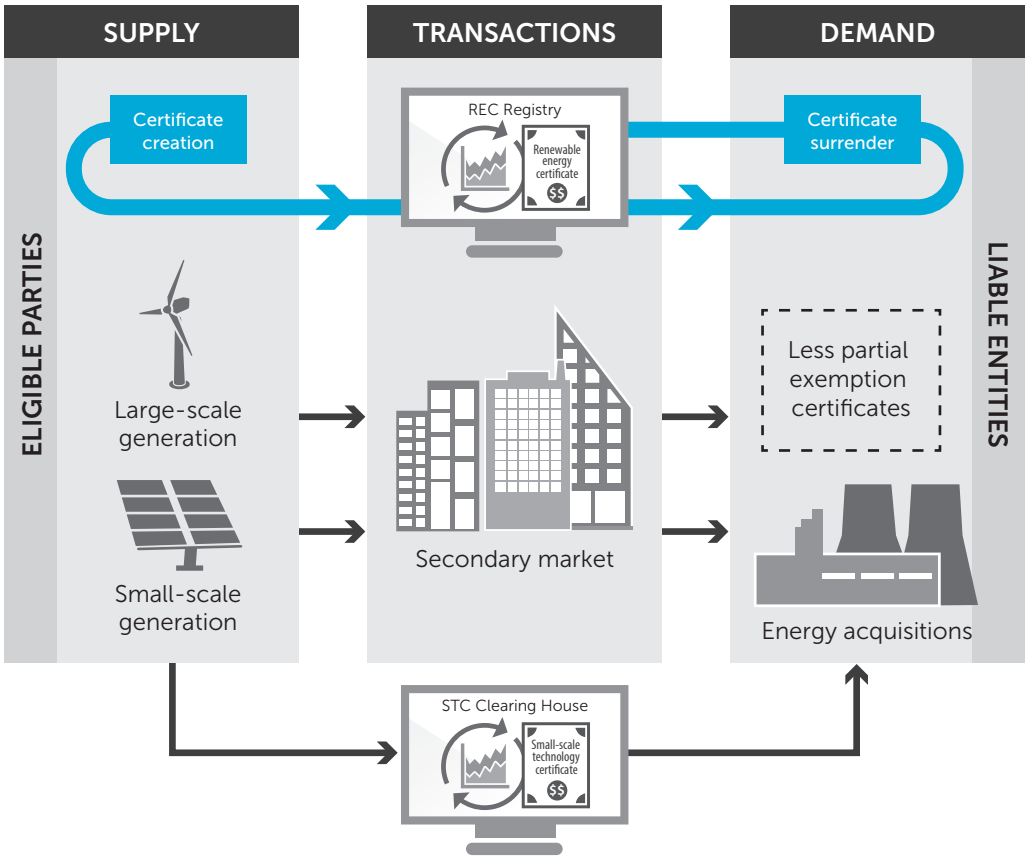
There is also a secondary market for certificates that does not involve the Clean Energy Regulator, and includes financial institutions, traders, agents and installers. This secondary market has matured since 2001 and is quoted on a range of trading platforms.

The Clean Energy Regulator liaises with market participants to help them understand the workings of the scheme and ensure an efficient market for renewable energy certificates. More details about stakeholder and client engagement are on page 33. More details about certificate activity in 2014 are on page 27.

Outcome

The Renewable Energy Target creates a market-based financial incentive to generate additional electricity from renewable sources, reduce greenhouse gas emissions, and ensures renewable energy sources are sustainable. In doing so, the Renewable Energy Target helps accelerate carbon abatement for Australia.

Figure 1: Renewable energy certificates supply, demand and outcome



REC Registry = an online system for Renewable Energy Target transactions including transfer of certificates

STC Clearing House = a facility in the REC Registry for the sale of small-scale technology certificates at a fixed price

Legislation

The Renewable Energy Target schemes are underpinned by legislation:

- The *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.
- The *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.
- The *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.

The 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.

OBJECTIVE 1

Encouraging additional generation of electricity from renewable sources

In 2014 the Renewable Energy Target achieved the objective of generating additional electricity from renewable sources with:

- **46 new accredited renewable power stations**
- **18.105 million large-scale generation certificates validly created**—reflecting 18.105 million megawatt hours of additional renewable electricity generated
- **227 807 new small-scale system installations**, and
- **18.784 million small-scale technology certificates validly created for 252 843 systems**—raising the capacity of small-scale systems to generate or displace around 7.6 million megawatt hours of renewable electricity annually.

Large-scale systems

Steady increase

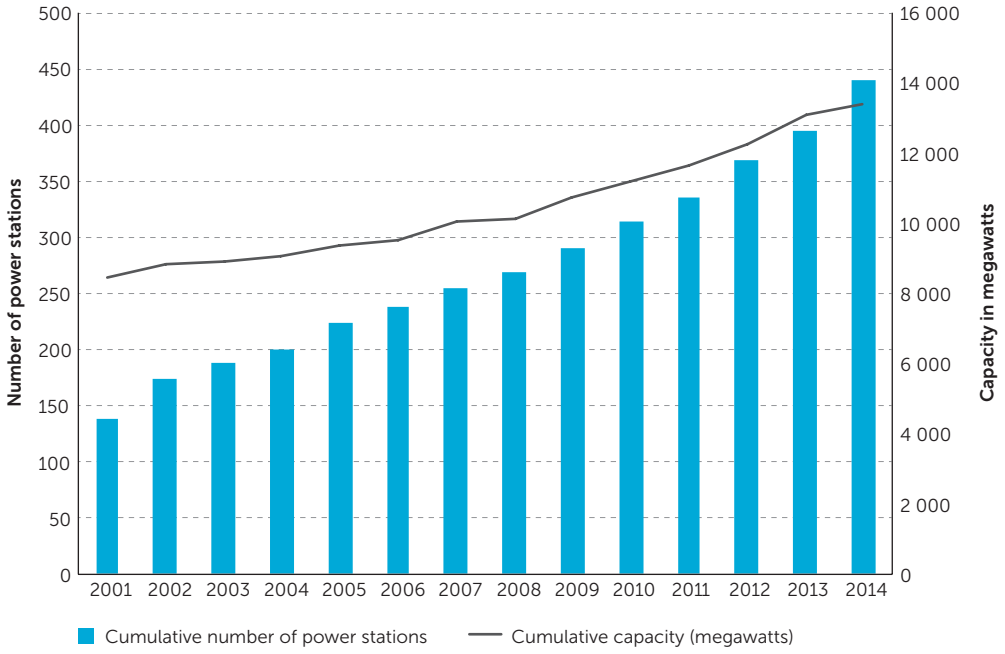
The number of renewable energy power stations accredited under the Large-scale Renewable Energy Target has increased each year since 2001.

46 NEW ACCREDITED RENEWABLE ENERGY POWER STATIONS IN 2014

In 2014 there were 46 new accredited power stations, bringing the total number of accredited power stations to 440 by 31 December 2014.

In recent years cumulative capacity has grown at a slower rate than accredited power stations, showing a trend towards a large number of smaller renewable power stations. This trend is more pronounced between 2013 and 2014.

Graph 4: Growth in the number of accredited renewable energy power stations and their capacity, 2001–2014



Note: Total capacity excludes seven co-firing power stations (combustion of fossil and renewable fuels in the same system).

Energy sources

The Clean Energy Regulator categorises accredited power stations according to the renewable energy source used to create most of the station's large-scale generation certificates.

The 440 accredited power stations fall into 12 out of 19 eligible categories and include 107 hydro, 99 solar, 82 wind and 62 landfill gas power stations. The remaining 90 stations use other renewable energy sources. Details are in Table 4 on page 36.

Large-scale capacity

In 2014 a total of 18.105 million large-scale renewable energy certificates were validly created—reflecting 18.105 million megawatt hours of additional renewable electricity generated. This is a 24 per cent increase from 2013 when 14.649 million large-scale renewable energy certificates were validly created.

At the time of writing, the capacity of accredited renewable energy power stations was approximately 13 300 megawatts.[2] These power stations can generate around 16 million megawatt hours of renewable electricity in a typical year. This is enough to power more than 2.5 million average Australian households.[3]

The calculation of 16 million megawatt hours of renewable electricity considers variables such as rainfall in catchments for hydro power station storage dams and other weather that may affect capacity to generate electricity.

Large-scale annual targets

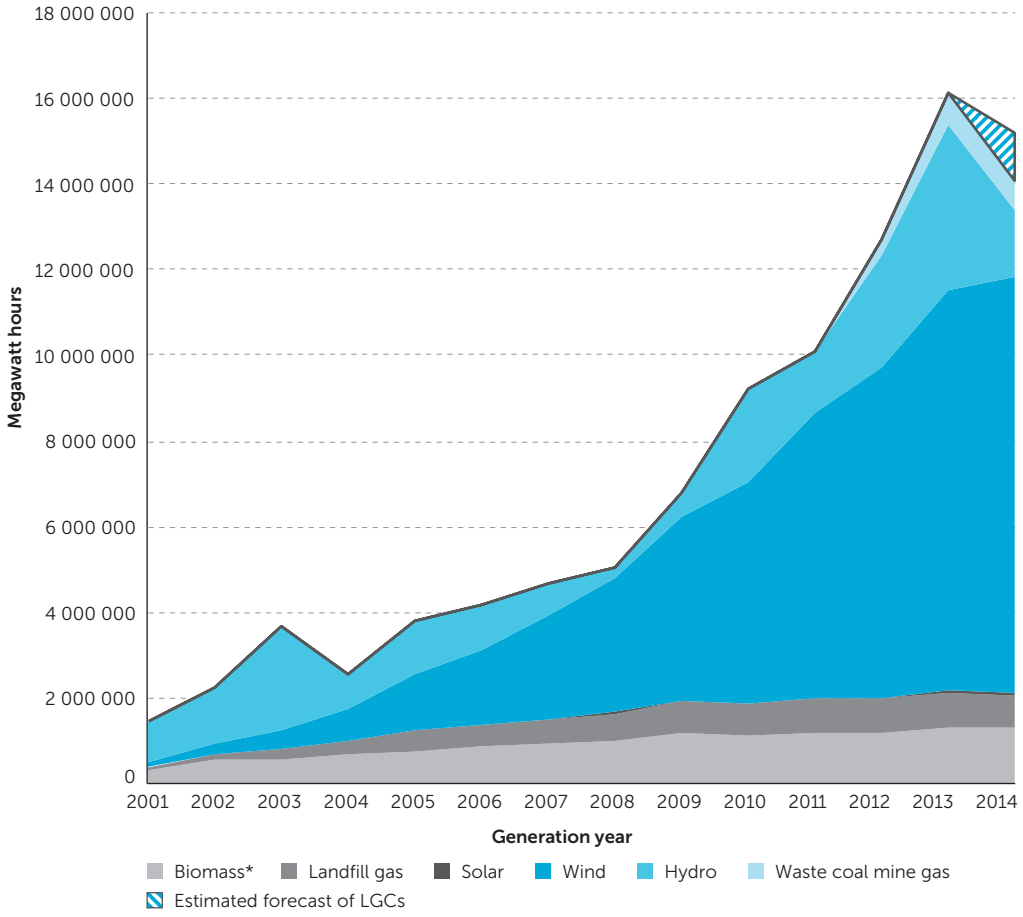
The *Renewable Energy (Electricity) Act 2000* specifies the amount of renewable energy that liable entities are required to source in the form of large-scale generation certificates each year up to 2030.

This renewable power percentage changes each year as the legislated annual targets increase to reach the target of 41 000 gigawatt hours by 2020. Power percentages are explained on page 52.

2 This is lower than the 18 600 megawatts reported in 2013 as the figure has been corrected to exclude co-firing power stations.

3 Based on average household electricity consumption of 122.3 kilowatt hours 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>.

Graph 5: Supply of large-scale renewable electricity generation, 2001–2014



LGCs = Large-scale generation certificates

Note: This graph is up to 31 December 2014. Certificates can be created up to 12 months after the year the electricity was generated by the power stations, and as such the 2014 data is an estimated forecast only.

* Biomass includes food waste, food processing waste, agricultural waste, wood waste, sewage gas and biomass based components of sewage, energy crops, waste from processing of agricultural products and biomass based components of municipal solid waste, bagasse, bagasse co-generation, biomass-based components of municipal solid waste, energy crops, wood waste and black liquor.

As illustrated in Graph 5, large-scale renewable electricity generation has increased since the introduction of the Renewable Energy Target in 2001. The graph shows the amount of renewable electricity generated above accredited power stations' renewable power baselines. Baselines are explained on page 40.

Small-scale systems

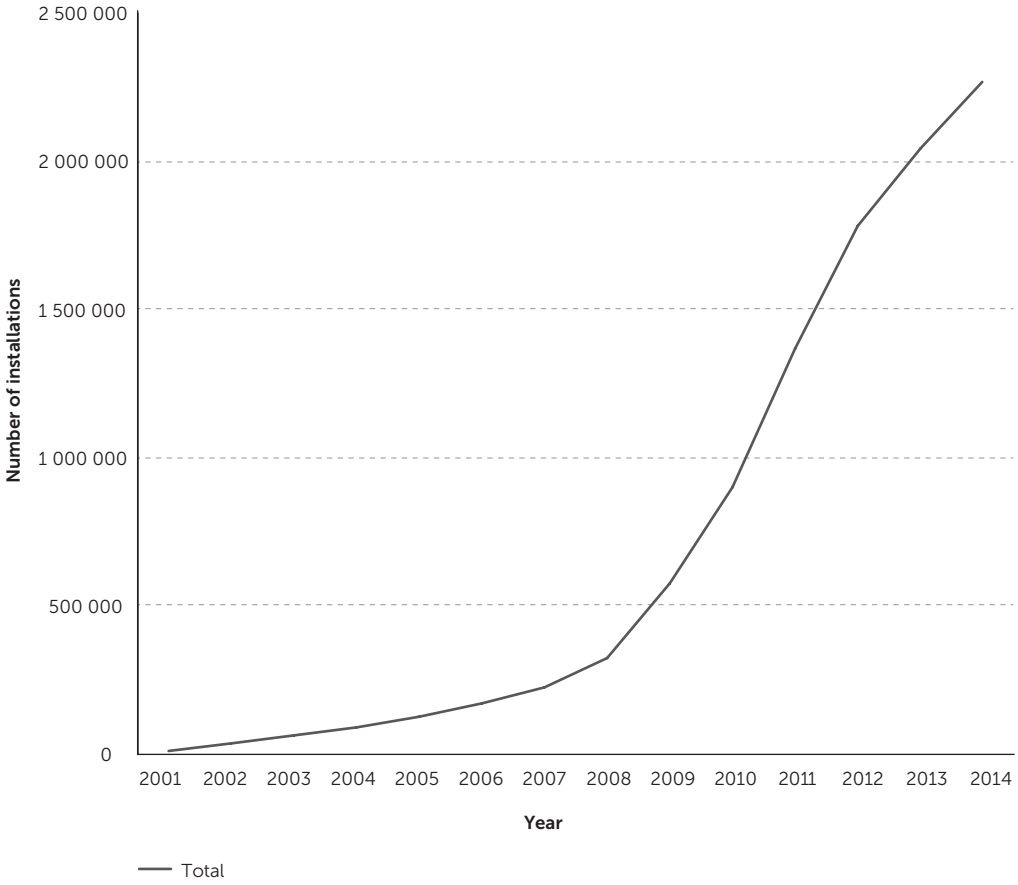
Steady increase

The number of small-scale installations under the Small-scale Renewable Energy Scheme has increased each year since 2001.

In 2014 a total of 227 807 small-scale systems were installed, bringing the overall number of installations to 2 268 398 by 31 December 2014.[4]

227 807 NEW SMALL-SCALE SYSTEMS INSTALLED IN 2014

Graph 6: Growth in the number of valid small-scale installations since 2001



Note: Certificates can be created up to 12 months after small-scale systems are installed, which means the complete 2014 year data will be available in next year's report.

4 The final figure for 2014 installations will be available in next year's report, as certificates can be created up to 12 months after installation.

Small-scale capacity

In 2014, a total of 18 784 182 small-scale technology certificates were validly created for 252 843 small-scale installations.[5]

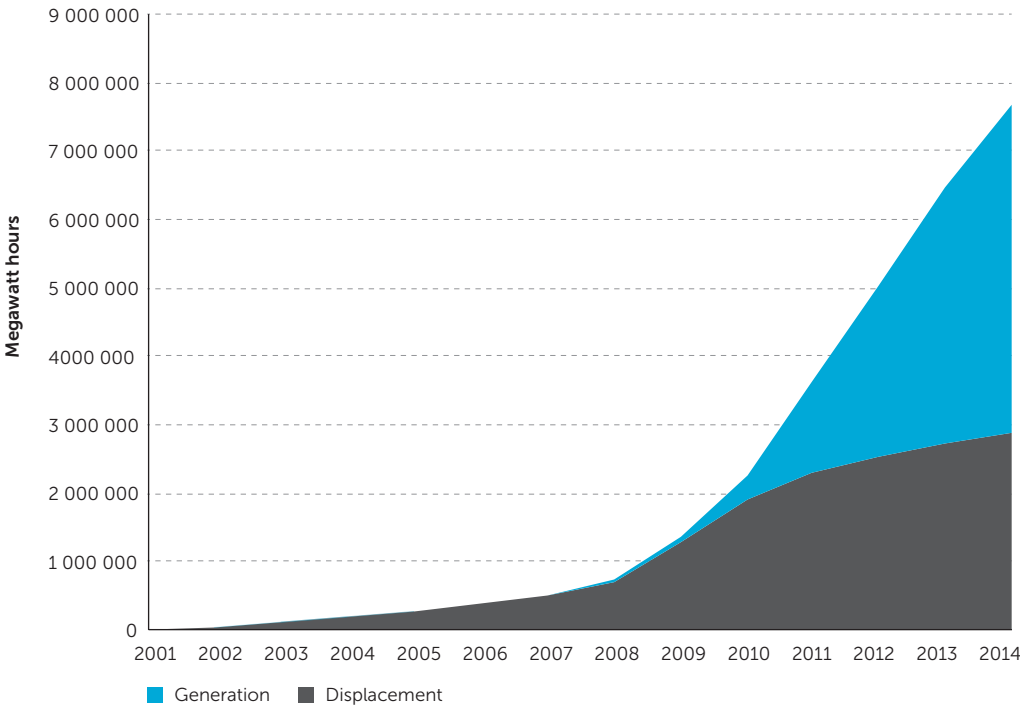
OVER 18.7 MILLION SMALL-SCALE TECHNOLOGY CERTIFICATES CREATED FOR 252 843 SYSTEMS

The estimated amount of renewable electricity generated or displaced by small-scale systems has increased steadily since 2001.

'Displaced' refers to the estimated reduced demand for electricity from the grid after solar water heaters are installed (that is, solar hot water systems or air source heat pumps).

Graph 7 illustrates the estimated increase in small-scale capacity from the three main contributors: generation from small-scale solar panel systems, and displacement from solar water heaters and air source heat pumps.

Graph 7: Estimated generation by small generation units and displacement by solar water heaters, 2001–2014



Note: Certificates can be created up to 12 months after small-scale systems are installed, which means the complete 2014 year data will be available in next year's report.

5 The final figure for 2014-related certificates will be available in next year's report, as certificates can be created up to 12 months after installation.

In total, small-scale installations have the capacity to generate or displace approximately 7.6 million megawatt hours of electricity annually. Of this, approximately 4.8 million megawatt hours are from small generation units (small-scale solar, wind or hydro installations), with solar water heaters displacing a further 2.8 million megawatt hours of otherwise-required generation. Generation and displacement for 2014 will continue to rise as certificates can be created up to 12 months after installation.

2014 review findings

The Government's 2014 review of the Renewable Energy Target by the Expert Panel, including ACIL Allen Modelling, found that:

> ...renewable generation accounts for an estimated 16.1 per cent of generation (at the end of calendar year 2014)... where the RET remains unchanged, renewable energy is projected to reach 26.3 per cent by 2020.[6]

The 2014 Expert Panel found that the Renewable Energy Target:

> ...has encouraged significant renewable electricity generation, which has almost doubled as a result of the scheme. Installations of small-scale systems have exceeded expectations, with output from these systems already exceeding levels anticipated for 2020.[7]

6 ACIL Allen Consulting, *RET Review Modelling: Market Modelling of various RET policy options*, August 2014, viewed 19 February 2015, <https://retreview.dpmc.gov.au/sites/default/files/files/ACIL_Report.pdf>.

7 Expert Panel, *Renewable Energy Target Scheme Report of the Expert Panel*, August 2014, viewed 18 February 2015, <https://retreview.dpmc.gov.au/ret-review-report-0>.

OBJECTIVE 2

Reducing emissions of greenhouse gases in the electricity sector

In 2014 the Renewable Energy Target was found to have achieved the objective of reducing greenhouse gases in the electricity sector:

- **the Expert Panel 2014 review of the Renewable Energy Target** found it had 'delivered a modest level of emissions reductions', and
- **the Climate Change Authority 2014 review found the Renewable Energy Target** 'was effective at reducing emissions'.

Expert Panel review

The Government's 2014 review of the Renewable Energy Target by the Expert Panel found that it 'has delivered a modest level of emissions reductions'.

To estimate the reduction in emissions out to 2030 as a result of the Renewable Energy Target, the Expert Panel drew on modelling analysis from ACIL Allen Consulting. The modelling compared annual carbon dioxide equivalent (CO_2-e) emissions in the modelled electricity grids with the Renewable Energy Target as it is currently legislated, and if it was repealed from 1 January 2015. The report stated:

> Repealing the RET is estimated to lead to an increase in annual emissions of about 24 Mt [million tonnes] CO_2-e from 2020 to 2030. Cumulative emissions would increase by 58 Mt CO_2-e over the period 2015 to 2020 and by 299 Mt CO_2-e over the period 2015 to 2030.[8]

Climate Change Authority review

The Climate Change Authority's legislated review of the Renewable Energy Target in 2014 drew on its own 2012 review and the ACIL Allen modelling undertaken as part of the 2014 Expert Panel review. It found that the Renewable Energy Target:

> ...arrangements were envisaged to deliver 'at least 20 per cent' of Australia's electricity from renewable sources by 2020 and are projected to reduce Australia's emissions by 58 million tonnes of carbon dioxide equivalent (Mt CO_2-e) over 2015–20, and by much larger amounts in later periods.[9]

8 Expert Panel, *Renewable Energy Target Scheme Report of the Expert Panel*, August 2014, p. 41 viewed 26 February 2015, <https://retreview.dpmc.gov.au/ret-review-report-0>.

9 Climate Change Authority, *Renewable Energy Target Review*, December 2014, Summary, viewed 18 February 2015, <http://www.climatechangeauthority.gov.au/reviews/2014-renewable-energy-target-review>.

It commented that the Renewable Energy Target arrangements:

> ...are not perfect but, in the Authority's view, they are effective in reducing emissions (at reasonable cost) in the centrally important electricity sector.[10]

Sinclair Knight Merz (SKM) estimated historical emissions reductions from 2001 to 2012 as a result of Renewable Energy Target, for the Clean Energy Council. SKM's report stated:

> The uptake of renewable energy generation over the last 10 years has reduced emissions by approximately 23 Mt CO_2-e [carbon dioxide equivalent]. The Renewable Energy Target itself is responsible for around 20 Mt CO_2-e or approximately 90% of this estimated electricity market emission reduction.[11]

Australian Energy Regulator report

Falling demand for electricity is one of several factors impacting emissions in the electricity sector. In its report *State of the Energy Market 2014*, the Australian Energy Regulator observed that electricity demand continued to decline in 2013–14. One of the reasons cited was:

> ...the continued rise in rooftop solar photovoltaic (PV) generation, which reduces consumption of electricity sourced from the grid. In 2013–14 solar PV generation reduced grid consumption by 2.9 per cent. This growth has been driven by small scale renewable energy certificates and lower cost systems.[12]

Changing the electricity generation mix

The Renewable Energy Target increases the amount of renewable electricity in Australia's electricity generation mix. This means less generation from coal and other fossil fuel based electricity generators, thereby lowering overall emissions from Australia's electricity sector. To meet Australia's target of reducing greenhouse gas emissions by five per cent by 2020 (to below 1990 levels), an extra 58 million tonnes of emissions abatement from other sectors[13] is needed from 2015 to 2020. Both the Government's 2014 review and the 2014 Climate Change Authority review forecast emission reductions of around 300 million tonnes owing to the Renewable Energy Target in the decade 2020 to 2030.

10 *ibid.*

11 Sinclair Knight Merz, *Benefit of the Renewable Energy Target to Australia's Energy Markets and Economy*, August 2012, viewed 5 March 2015, <https://www.cleanenergycouncil.org.au/policy-advocacy/reports.html>.

12 Australian Energy Regulator, *State of the Energy Market 2014*, December 2014, viewed 18 February 2015, <http://www.aer.gov.au/node/29358>.

13 Climate Change Authority, *Renewable Energy Target Review*, December 2014, Summary, viewed 18 February 2015, <http://www.climatechangeauthority.gov.au/reviews/2014-renewable-energy-target-review>.

OBJECTIVE 3

Ensuring ecologically sustainable renewable energy sources

In 2014 the Renewable Energy Target achieved the objective of ensuring ecologically sustainable renewable energy sources:

- **36.8 million renewable energy certificates were validated**—these must meet several criteria including ecologically sustainable sources, and
- **accredited power stations used 12 different types of renewable energy sources** including ecologically sustainable solar energy, wind, hydro, biomass (such as wood waste, agricultural waste and sugar cane waste, known as bagasse) and biogas (landfill gas, sewage gas and biomass-based components of sewage).

Commonwealth, state and territory environmental regulation provides a framework for ensuring the Renewable Energy Target promotes the use of ecologically sustainable renewable energy sources.[14]

For an energy source to be eligible for renewable energy certificates it must meet several criteria, including that it is 'ecologically sustainable'.

Section 17 of the *Renewable Energy (Electricity) Act 2000* lists 19 renewable energy sources 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 biomass boilers, 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, and
- 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 energy sources, such as waste coal mine gas, which are considered ecologically sustainable under certain conditions.

14 Expert Panel, *Renewable Energy Target Scheme Report of the Expert Panel*, August 2014, p. ii, viewed 26 February 2015, <https://retreview.dpmc.gov.au/ret-review-report-0>.

3 Administering the Act

Role of the Clean Energy Regulator

The Clean Energy Regulator administers the Renewable Energy Target in line with its objectives: efficient and effective administration; engaged, active and compliant clients; a trusted, relevant and expert institution; and secure and enduring infrastructure.

It provides the supporting structure for the Renewable Energy Target including facilities for registering and trading renewable energy certificates, and ongoing stakeholder and client liaison, education and compliance activities to help ensure the efficiency and integrity of the market.

The Government's 2014 review of the Renewable Energy Target by the Expert Panel found that the administration of the Renewable Energy Target 'is generally efficient and meets the expectations of stakeholders'.[15]

The REC Registry

THE NEW REC REGISTRY IS MORE USER-FRIENDLY, RESPONSIVE AND EFFICIENT

The REC Registry is the secure web-based system for all transactions under the Renewable Energy Target including creating, registering, selling, trading and surrendering certificates. The REC Registry also provides access to several public registers that contain data about the Renewable Energy Target.

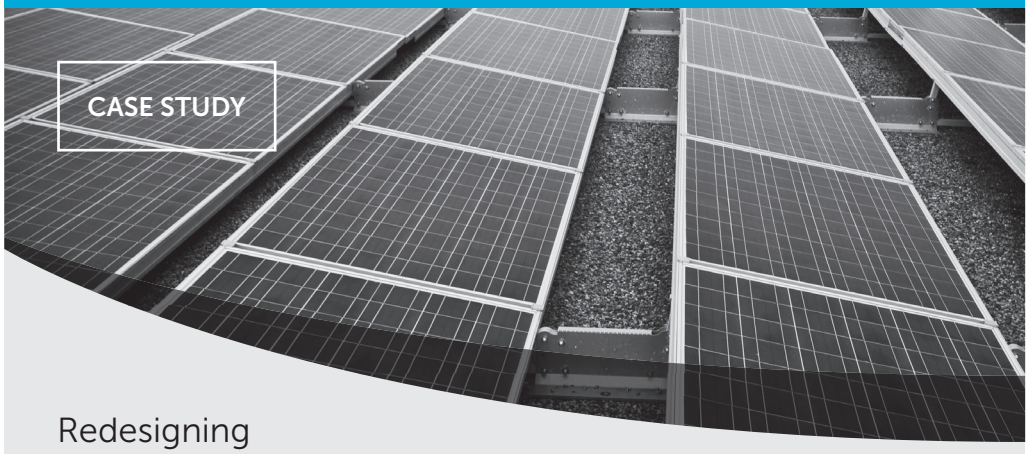
It was first released in 2001 and enhanced in 2011 to reflect the split into the Large-scale Renewable Energy Target and the Small-scale Renewable Energy Scheme.

To ensure the system continues to evolve and mature with the scheme, reflect emerging technologies and meet user requirements, the Clean Energy Regulator released a new, redesigned REC Registry in September 2014. It is more user-friendly, more responsive during peak periods and more efficient, with many offline processes moving online. More details are in the case study on page 24.

The Clean Energy Regulator does not oversee transfer or payment arrangements for certificates transferred through the REC Registry. Buyers and sellers negotiate this directly as per the business contracts they sign.

The Clean Energy Regulator does not regulate certificate prices. This process is market-driven, with the price of certificates determined by factors including supply and demand.

15 Expert Panel, *Renewable Energy Target Scheme Report of the Expert Panel*, August 2014, viewed 18 February 2015, <https://retreview.dpmc.gov.au/ret-review-report-0>.



CASE STUDY

Redesigning the REC Registry

If solar panels, wind turbines and hydro pipelines are the public face of the Renewable Energy Target, the REC Registry is the essential backroom support.

All transactions under the Renewable Energy Target are completed in the REC Registry: on average some 1 120 transactions a day. This includes participants creating, transferring and surrendering renewable energy certificates. Clean Energy Regulator staff also use the REC Registry as an essential business tool in administering the scheme, for example to assess applications submitted online by participants and to efficiently validate large numbers of certificates.

Since its first release in 2001, the REC Registry has supported around 5.5 million transactions. It is available 24-hours-a-day, seven-days-a-week to its 13 554 account holders.

To keep pace with these requirements, the maturing of the scheme and emerging technologies, a completely redesigned REC Registry was released on 15 September 2014.

Critical improvements

Detailed stakeholder and client consultation informed the redesign, which began in 2012 after an open tender process. The new system features critical improvements to functionality and useability.

The changes have reduced the administrative burden for scheme participants and improved the efficiency with which the Clean Energy Regulator administers key aspects of the Renewable Energy Target. The improved REC Registry is helping to maintain the smooth operation and integrity of the Renewable Energy Target.

Key benefits

- The design is more intuitive and includes built-in guidance for each function, making it easier to use.
- It is more streamlined and efficient, with extra processes coming online—for example, end-to-end account application processes and annual returns for some 440 power stations and 114 liable entities.
- It is more responsive and reliable during peak times.
- There is better access to certificate data for data analysts, via the public registers.
- A range of additional features benefit all users—for example, enhanced user management, certificate activity log and certificate tagging.
- It enables efficient collection of statutory fees for creation and surrender of certificates, reducing the cost of participating in the Renewable Energy Target schemes.
- It provides important email updates to registered users and allows users to configure the types of emails that they would like to receive.

Positive feedback

The response has been positive, as encapsulated by these comments:

> *The new REC Registry has been a great improvement overall to stakeholders, providing greater integration and processing ability, easy usability and resulting in a more efficient processing of small-scale technology certificate applications for market.*
>
> **Daniel Sullivan, FormBay**
> Registered Agent under the Small-scale Renewable Energy Scheme

> *As a major user of the REC registry, EDL is extremely satisfied with the change process and welcomes the new functionality of the redesigned REC registry. The transition to the new registry was seamless, well communicated and ensured EDL was able to continue its processes without interruptions. The new functionality, such as point-in-time summaries, makes it a lot easier for us to reconcile the number of certificates at any given time. Another great improvement was the enhancements to the certificate activity log, which provides us a faster and more convenient way to monitor transfers.*
>
> **Tim Sprey, Manager Corporate and Commercial Affairs,**
> **Energy Developments Limited (EDL)**
> Participant under the Large-scale Renewable Energy Target

Creating accounts

Individuals and companies need to create an account to use the REC Registry. This enables them to create and transfer (trade) or surrender registered certificates.

Small-scale technology certificates may be sold through the open market or through the Small-scale Technology Certificate Clearing House (STC Clearing House), a facility available through the REC Registry. To sell through the STC Clearing House, account holders must register with the STC Clearing House and provide proof of identity. More details on the STC Clearing House are on page 29.

The *Renewable Energy (Electricity) Act 2000* allows for large-scale generation certificates and small-scale technology certificates to be electronically transferred between REC Registry account holders (usually 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.

Becoming a 'registered person' or 'agent'

To create certificates, individuals and companies must apply to become a 'registered person' as defined under the *Renewable Energy (Electricity) Act 2000*. A registered person may:

- seek accreditation of a renewable energy power station and, if the application is successful, 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'—owners of eligible small-scale systems can assign the right to create certificates for that system to agents (individuals or companies), and
- create small-scale technology certificates for an eligible small-scale system, as the owner or agent for that system.

During 2014, the Clean Energy Regulator:

- approved 143 registered person applications, bringing the total number of registered persons to 7 426 as at 31 December 2014, and
- registered 68 agents, bringing the total number of registered agents to 1 503 as at 31 December 2014.

143 REGISTERED PERSONS AND 68 REGISTERED AGENTS IN 2014

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 right to create certificates to the agent after the system has been installed and demonstrated to be working.

Summary of certificate activity for 2014

Table 1 summarises the range of activities during the year for both large-scale generation certificates and small-scale technology certificates.

Table 1: Certificate activity summary for 2014

Certificate activity	Large-scale generation certificates	Small-scale technology certificates
Created	18 044 912	19 612 915
Failed validation audit	643 351	1 439 529
Passed validation audit	18 105 644	18 784 182
Registered[1]	15 917 363	18 847 421
Transferred successfully	48 370 772	107 856 226
Entered STC Clearing House	Not applicable	1 146 418
Transferred successfully in STC Clearing House	Not applicable	341 362
Withdrawn from STC Clearing House	Not applicable	1 611 833
Bought from STC Clearing House	Not applicable	7 033
Certificates accepted or are available to acquit mandatory surrender obligations	17 924 951	18 839 856
Accepted for voluntary surrender	1 519 401	60 812

[1] Certificates validly created for previous generation years can be audited, registered and surrendered in 2014.

Transfer of certificates

From 2001 to 31 December 2014, an accumulated total of 76 736 successful certificate transfers had taken place in the REC Registry, representing a total of 709 248 514 certificates transferred.

Of this overall total, during 2014 there were:

› 13 752 accepted transfers, representing a volume of 156 226 998 certificates

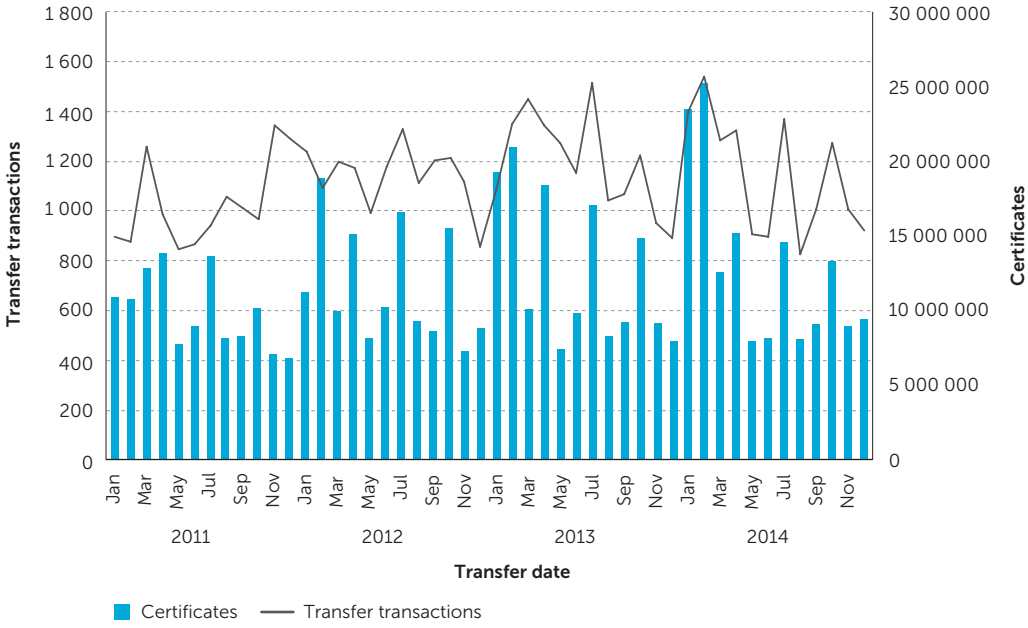
› 289 transfers cancelled by sellers, representing a volume of 9 563 542 certificates, and

› 44 transfers rejected by buyers, representing a volume of 249 571 certificates.

Transfer trends

Graph 8 shows monthly trends in transfers over the past four years. The busiest transfer months are January and February, linked to the annual liability in the Large-scale Renewable Energy Target.

Graph 8: Number of certificate transfers by month in 2011, 2012, 2013 and 2014



Validation of certificates

The Clean Energy Regulator's certificate validation activities are an important component of maintaining the integrity of the Renewable Energy Target and the certificate market. Scheme participants creating small-scale technology certificates and large-scale generation certificates must provide thorough supporting documentation before the Clean Energy Regulator validates and registers certificates. As part of this process, accredited power stations must also confirm they are operating in accordance with all Commonwealth, state, territory and local government planning and approval requirements through a 'standing notice' to the Clean Energy Regulator.

As at 31 December 2014:

- A total of 37 657 827 certificates were created in the REC Registry in the 2014 calendar year. By comparison, 36 804 677 certificates were created in 2013 and 51 051 676 certificates were created in 2012.
- A total of 36 889 826 certificates were validated in the REC Registry in the 2014 calendar year. By comparison, 34 810 407 certificates were validated in 2013, and 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 2014. 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 the change in price of solar photovoltaic due to foreign currency exchange rates and global production of solar photovoltaic systems. Overall, the number of certificates created in 2014 was similar to the number for 2013.

As shown in Graph 11 on page 41 and Graph 15 on page 46, a wide range of eligible renewable energy sources were used to create certificates in 2014. Not all accredited renewable energy power stations, agents or individuals created certificates in 2014.

Fixed price small-scale technology certificates (STC Clearing House)

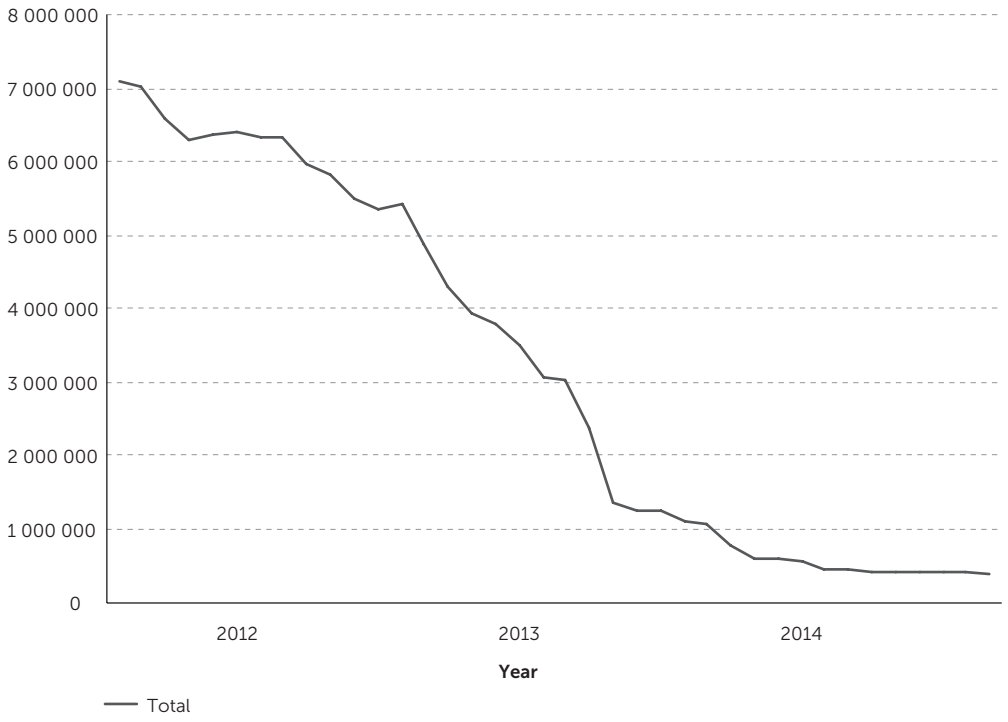
The REC Registry includes the STC Clearing House. This facility allows liable entities to purchase small-scale technology certificates at a fixed price of $40 (GST exclusive) when the supply from the open market does not meet their demand. This provides certainty to liable entities by guaranteeing a supply of certificates to meet their liability and setting a maximum price, which allows them to protect their risk and pass through costs efficiently. Sellers can also use this facility and receive the fixed price. Large-scale generation certificates are not included in the STC Clearing House.

The STC Clearing House was expected to be used for a large number of trades that would set the market price. However, most small-scale technology certificates are traded outside the STC Clearing House in a thriving secondary market. The oversupply of small-scale technology certificates since 2011 has resulted in the secondary market trading lower than the fixed price. Approximately 137 million small-scale technology certificates have been created between 1 January 2011 and 1 January 2015, with only 145 519 traded in the STC Clearing House.

In 2014, there were three significant purchases in the STC Clearing House. The largest was for 5 019 small-scale technology certificates valued at $220 836 (including GST). Smaller but significant purchases included 990 small-scale technology certificates valued at $43 560 and 549 small-scale technology certificates valued at $24 156.

The total value of the 14 individual STC Clearing House transactions in 2014 was $309 452, representing a total of 7 033 small-scale technology certificates.

Graph 9: Small-scale technology certificates awaiting sale in the STC Clearing House



A clear trend throughout 2014 was the continuing decline in the number of small-scale technology certificates awaiting sale in the STC Clearing House, as shown in Graph 9. 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 10: Small-scale technology certificate secondary market spot price (GST exclusive), 2011–2014

The price of small-scale technology certificates in the secondary market is shown in Graph 10. The Clean Energy Regulator sources wholesale market prices from NextGen.Net, Thomson Reuters and Mercari.

Estimated 2015 volume weighted average market price for large-scale generation certificates

Under regulation 22ZH of the Regulations, the Clean Energy Regulator was required to estimate and publish the volume weighted average market price for a large-scale generation certificate for 2015 by 31 October 2014.

The Clean Energy Regulator estimated the volume weighted average market price for a large-scale generation certificate for 2015 at $29.38 and published this, along with the methodology used to estimate the price, on its website on 22 October 2014.

The volume weighted average market price for a large-scale generation certificate for 2015 is factored into the calculation of the partial exemption assistance rate for the year. Details on partial exemptions are under *Industry assistance* on page 49.

Voluntary surrender of certificates

Individuals or companies that are registered owners of certificates can choose to surrender certificates to the Clean Energy Regulator for any reason. Reasons include supporting additional generation of electricity from renewable energy sources and meeting GreenPower obligations (a voluntary government accreditation program). Offers made for these reasons are considered 'voluntary surrender' offers. This is covered under section 28A of the *Renewable Energy (Electricity) Act 2000*.

Individuals or companies may also choose to offer certificates for voluntary surrender 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.

Certificates accepted for voluntary surrender are 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. One offer was refused in 2014.

As at 31 December 2014, a total of 1 580 213 certificates, representing 218 offers, had been accepted for voluntary surrender in the REC Registry.

Table 2 shows the number of certificates accepted for voluntary surrender.

Table 2: Certificates accepted for voluntary surrender from 2007 to 31 December 2014

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
2014[1]	1 518 214	1 187	10	60 802	1 580 213 representing 218 offers
2007–13	13 811 893	57 376	804	52 094	13 922 167 representing 929 offers
Total	**15 330 107**	**58 563**	**814**	**112 896**	**15 502 380 representing 1 147 offers**

LGC = large-scale generation certificate; STC = small-scale technology certificate

Note: 2007 is when the Act (and REC Registry) was amended to allow for voluntary surrender.

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

Certificates are also surrendered to the Clean Energy Retailer to acquit liabilities under the *Renewable Energy (Electricity) Act 2000*. Details are on page 52.

Client and stakeholder engagement

Maintaining and strengthening relationships with clients and stakeholders is essential to the Clean Energy Regulator's role in administering the Renewable Energy Target.

The Clean Energy Regulator helps to ensure the efficiency and integrity of the renewable energy certificate market by working with a wide range of stakeholders and clients to:

- communicate regulations, policy and procedures
- provide information and outreach to facilitate market participation
- educate liable entities about their obligations and how to comply
- monitor and enforce compliance if necessary, including working with other regulators and law enforcement bodies, and
- track and report on key market trends.

During 2014 the Clean Energy Regulator attended and presented at several industry conferences including Solar 2014 and Clean Energy Week. At these conferences the Clean Energy Regulator showcased the redesigned REC Registry, and explained its role in administering the Renewable Energy Target.

The Clean Energy Regulator also hosted workshops around the country to refresh liable entities on their obligations under the *Renewable Energy (Electricity) Act 2000* and present the new functionality for liable entities in the REC Registry (see page 24).

Such workshops help to engage stakeholders and clients, and build and maintain strong relationships that support compliance.

Large-scale systems

The Large-scale Renewable Energy Target creates a financial incentive to establish and expand renewable energy power stations such as wind and solar farms or hydroelectric power stations.

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. Eligible sources include solar energy, wind, hydro, geothermal-aquifers, wood waste, agricultural waste, bagasse (sugar cane waste), black liquor (a by-product of the paper-making process) or landfill gas. The list of eligible renewable energy sources is in section 17 of the *Renewable Energy (Electricity) Act 2000*.

Accredited power stations can create large-scale generation certificates for the electricity they generate above their renewable power baselines. Baselines are determined by the Clean Energy Regulator under the Regulations. Details about baselines are on page 40.

The power stations can sell their large-scale generation certificates in addition to selling their electricity. The Large-scale Renewable Energy Target places a legal requirement on liable entities (usually electricity retailers) to purchase a set number of large-scale certificates each year.

Accreditation of power stations

The Clean Energy Regulator assesses applications for accreditation of power stations, including checking that applications are complete and that the applicant is a 'registered person' in the REC Registry (see page 26).

Once an application is assessed as properly made under section 13 of the *Renewable Energy (Electricity) Act 2000* and the application fee is paid, details of the renewable energy power station are listed on the public Register of Applications for Accredited Power Stations, which can be accessed through 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) 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 can create large-scale generation certificates from the date of accreditation.

440 ACCREDITED RENEWABLE POWER STATIONS

Over the past five years the number of power station accreditations has risen steadily, with 2014 recording the highest number of applications in any year except at the start of the scheme.

Of the 486 renewable energy power station applications listed in the REC Registry as at 31 December 2014:

- 440 renewable energy power stations were accredited and eligible to create large-scale generation certificates from renewable energy sources (this includes 46 renewable energy power stations accredited in 2014)
- 16 renewable energy power stations had been deaccredited (no renewable energy power stations were deaccredited in 2014)
- three renewable energy power station applications were pending assessment
- 23 renewable energy power station applications had been withdrawn because applications had not been properly made by applicants (no renewable energy power station applications were withdrawn in 2014), and
- four renewable energy power station applications had not been approved.

Power stations must confirm their compliance with Commonwealth, state, territory and local government planning and approval requirements, as stated in section 20 of the *Renewable Energy (Electricity) Act 2000* and regulation 18 of the associated Regulations. Sections 30D or 30E of the Act set out the grounds for suspension of accreditation of a power station. No accredited power stations were suspended during 2014.

Tables 3, 4 and 5 provide a breakdown of the types and locations of accredited renewable energy power stations.

Table 3: Number of new renewable energy power stations accredited in 2013 and 2014

Renewable energy source	Accredited in 2013	Accredited in 2014
Agricultural waste, food waste, waste from processing of agricultural products	2	2
Hydro	1	6
Landfill gas	2	0
Sewage gas and biomass-based components of sewage	0	3
Solar	11	31
Wind	10	4
Total[1]	**26**	**46**

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

Table 4: Total number of accredited renewable energy power stations

Renewable energy source	Accredited up to 2013	Accredited up to 2014
Agriculture waste, food waste, waste from processing of agricultural products	14	16
Bagasse	27	27
Black liquor	2	2
Hydro	101	107
Landfill gas	62	62
Sewage gas and biomassbased components of sewage, municipal solid waste	19	22
Solar	68	99
Waste coal mine gas	7	7
Wind	78	82
Wood waste	16	16
Total[1]	**394**	**440**

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

In Table 5, power stations 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 5: Number of accredited renewable energy power stations by state as at 31 December 2014

Renewable energy source	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Agriculture waste, food waste, waste from processing of agriculture products	0	6	1	3	0	1	3	2	16
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	2	39	21	3	107
Landfill gas	2	16	1	14	4	3	13	9	62
Sewage gas and biomassbased components of sewage, municipal solid waste	0	11	0	5	0	1	4	1	22
Solar	7	25	14	13	7	1	19	13	99
Waste coal mine gas	0	4	0	3	0	0	0	0	7
Wind	0	11	1	3	17	9	20	21	82
Wood waste	0	6	0	4	1	1	3	1	16
Total[1]	**10**	**114**	**17**	**78**	**31**	**55**	**84**	**51**	**440**

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

CASE STUDY

Solar success

The flat rural plains near Nyngan in central-west New South Wales are the perfect setting for Australia's largest solar photovoltaic power plant. There is strong and consistent solar radiation and a significant need for electricity from the regional centre of Dubbo to the east and the mining loads of Cobar to the west.

AGL Energy's Nyngan Solar Plant has the unprecedented capacity of 102 megawatts. The 1.35 million advanced solar panels generate electricity with no emissions, no waste production, no water use, and one of the smallest footprints of any current photovoltaic technology. The plant will produce around 233 000 megawatt hours of electricity annually, enough to meet the needs of approximately 33 000 average New South Wales households each year.

Benefits to the region include around 300 local construction jobs and the injection of millions of dollars on labour, housing, materials and increased general economic activity.

Australia's solar industry will also benefit, with training for local workers and a broad range of participants engaged in the project. Together with AGL's other solar project at Broken Hill, the Nyngan Solar Plant will also assist with supply chain development across the state.

The Nyngan Solar Plant was one of a record number of solar power station accreditation applications received under the Large-scale Renewable Energy Target in 2014, with solar representing three-quarters of all 2014 applications. This reflects the sharp rise in large-scale solar plants accredited under the scheme: from seven in 2012 to nine in 2013, and jumping to 31 in 2014.

With technology advances in energy storage such as high capacity energy storage batteries and molten salt likely to address intermittency, solar is becoming more economically competitive and catching up with wind as a renewable energy source for large-scale renewable energy power stations.

Other large solar plants in Australia that are either accredited or will be applying for accreditation under the Renewable Energy Target include AGL Energy's Broken Hill plant (53 megawatt capacity), the Royalla Solar Farm in the Australian Capital Territory (20 megawatt capacity) and the Greenough River Solar Farm in Geraldton in Western Australia (10 megawatt capacity).

AGL Energy's solar plants at Nyngan and Broken Hill are supported by $166.7 million from the Australian Renewable Energy Agency and $64.9 million from the New South Wales Government, as well as the financial incentive of large-scale generation certificates under the Renewable Energy Target.

Power station baselines

Accredited power stations can create certificates for electricity generated above their renewable power baselines. The Clean Energy Regulator determines the baseline for each power station according to the Regulations. For a power station that generated electricity *before* 1997, the baseline is determined by the average amount of electricity it generated from eligible renewable sources from 1994 to 1996. The Clean Energy Regulator determines special baselines if generation data is not available for these generation years. For a power station that first generated electricity *after* 1 January 1997, the baseline is zero.

Power station baseline variations

The Clean Energy Regulator received six requests from a nominated person (Snowy Hydro Limited) to vary its eligible renewable power baselines for the 2014 generation year under section 30F of the Act. Snowy Hydro Limited applied for these baseline variations as it had been required to release water for environmental flows into the Snowy Montane Rivers and the Snowy River in 2014. The Clean Energy Regulator made decisions in December 2014 to vary the eligible renewable power baselines for the 2014 calendar year under section 30F of the Act and regulation 20E of the Regulations.

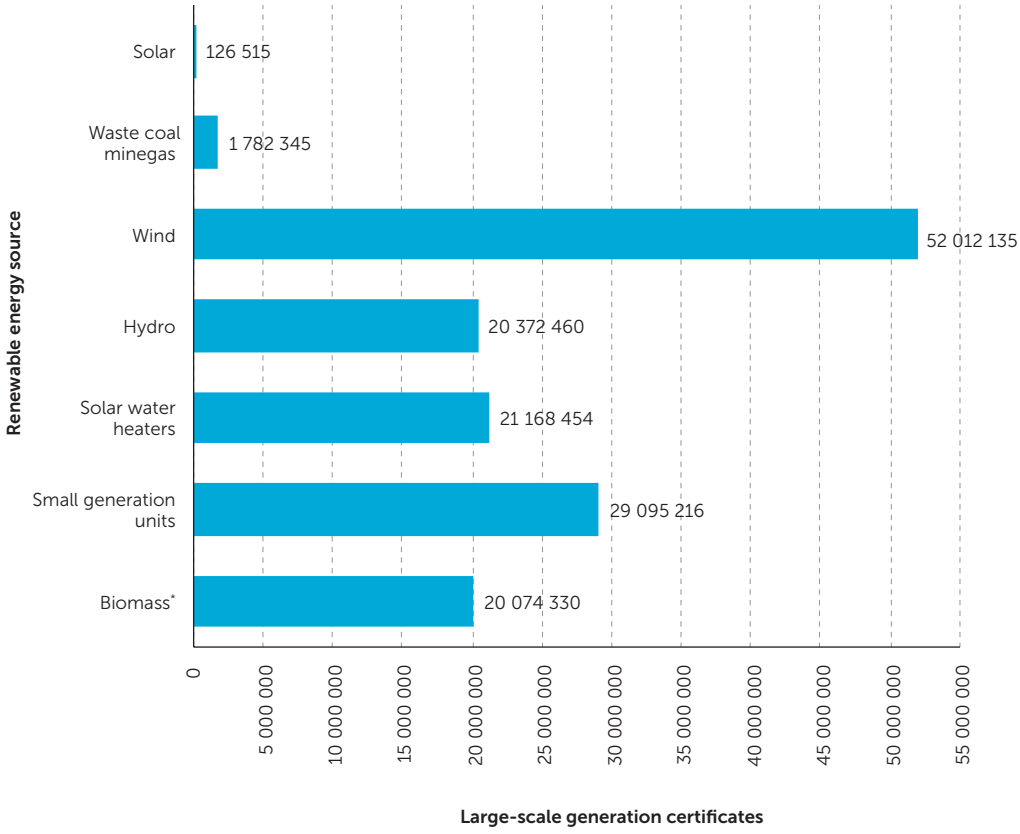
Creation of large-scale generation certificates

18 105 644 LARGE-SCALE GENERATION CERTIFICATES VALIDLY CREATED IN 2014

In 2014, a total of 18 105 644 large-scale generation certificates were validly created.

Graph 11 shows valid large-scale generation certificates by renewable energy source since the start 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 11: Large-scale generation certificates validly created from the start of the scheme, as at 31 December 2014



* Biomass includes landfill gas, food waste, food processing waste, agricultural waste, wood waste, sewage gas and biomass based components of sewage, energy crops, waste from processing of agricultural products and biomass based components of municipal solid waste, bagasse, bagasse co-generation, biomass-based components of municipal solid waste, energy crops, wood waste and black liquor.

Note: Large-scale generation certificates can be created up to 31 December the year after the electricity was generated by power stations, which means the complete 2014 year data will be available in next year's report.

Process for creating large-scale generation certificates

In 2014, accredited renewable energy power stations were able to create large-scale generation certificates for eligible renewable electricity they generated above their renewable power baseline for the 2013 and 2014 generation years. Certificates for the 2013 generation year needed to be created by the 31 December 2014 deadline. This is done under section 19 of the *Renewable Energy (Electricity) Act 2000*.

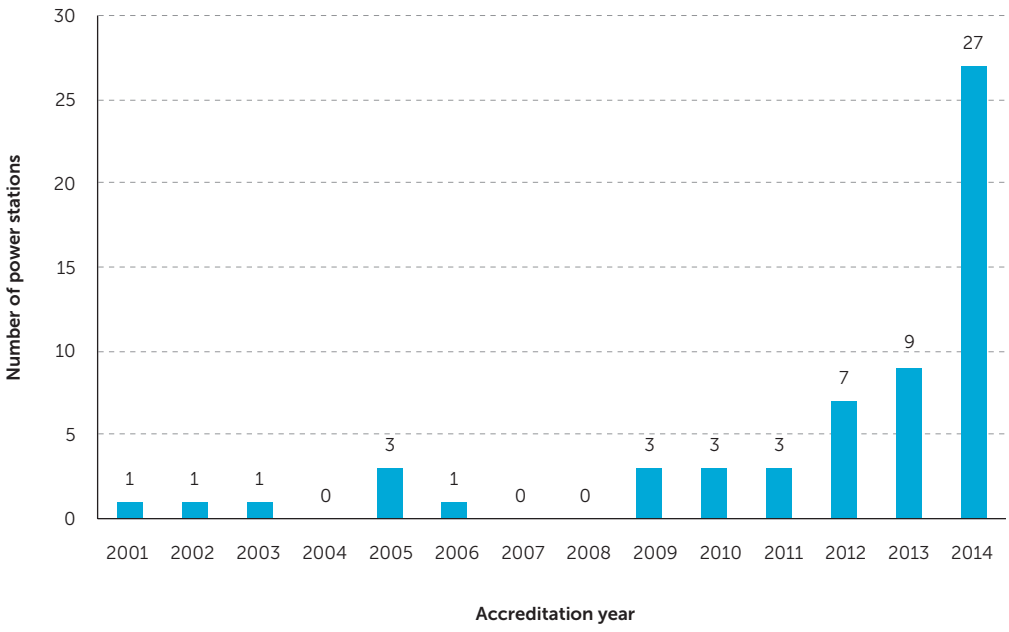
Renewable energy power stations that did not create certificates within the allowed timeframe are no longer eligible to create certificates for eligible renewable electricity generated in the 2013 generation year.

Since June 2013, the Clean Energy Regulator's large-scale generation certificate validation procedure has required power stations to complete a standing notice declaration each time large-scale generation certificates are created in the REC Registry. This notice confirms ongoing compliance with all relevant Commonwealth, state, territory or local government planning and approval requirements. This requirement is complemented by the annual statement of compliance at the end of each generation year.

Solar growth at lower end of large-scale/higher end of small-scale

As shown in Graph 12, there has been an increase in solar power stations at the lower end of the Large-scale Renewable Energy Target in the past three years, most notably during 2014. Of the 31 solar power stations accredited in 2014, a total of 27 had capacities between 100 kilowatts and 500 kilowatts.

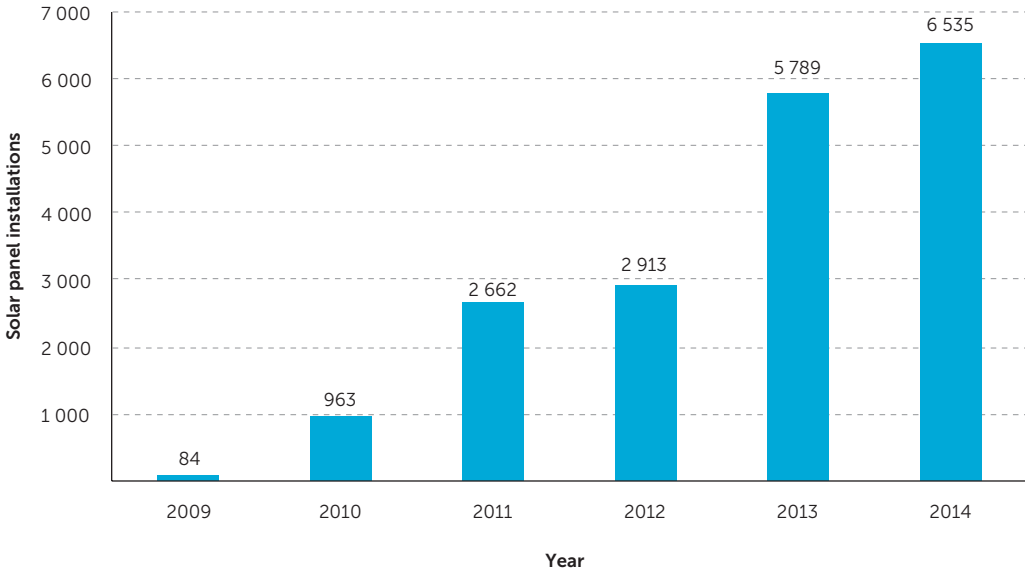
Graph 12: Solar power stations with capacities between 100 and 500 kilowatts, 2001–2014



There has also been a significant increase in commercial and industrial solar panel installations under the Small-scale Renewable Energy Scheme over the past few years, most notably during 2013 and 2014.

Graph 13 shows the rise in solar panel installations with a capacity between 10 and 100 kilowatts, from 84 in 2009 to 6 535 in 2014.

Graph 13: Solar panel installations with capacity between 10 and 100 kilowatts, 2009–2014



This increase in solar across the lower end of large-scale/higher end of small-scale represents a strong area for growth in the Renewable Energy Target.

More details about the increase at higher end of the Small-scale Renewable Energy Scheme are in the *Case study: Rooftop revolution* on page 45.

Small-scale systems

The Small-scale Renewable Energy Scheme creates a financial incentive for owners to install eligible small-scale systems which include small generation units (solar panels, wind and hydro systems) and solar water heaters (solar water heaters and air source heat pumps).

Small-scale installations

In 2014 a total of 227 807 small-scale systems were installed under the Small-scale Renewable Energy Scheme.

Of these, 174 356 were small generation units and 53 451 were solar water heaters.

Approximately 4 454 solar water heaters and 14 530 small generation units were installed each month, compared to approximately 4 858 and 16 701 respectively per month in 2013.

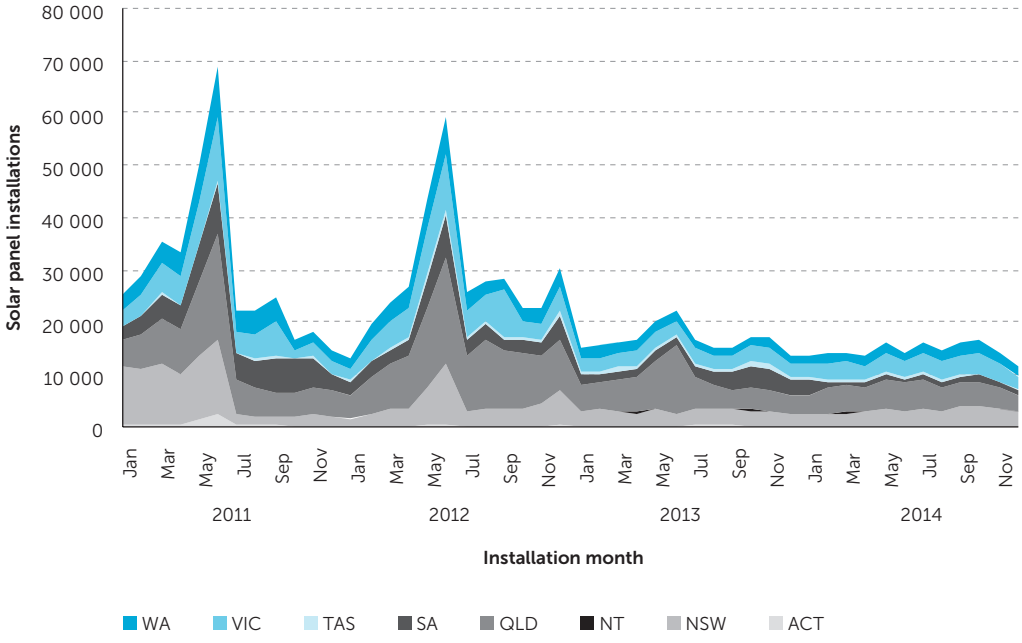
MORE THAN 2.2 MILLION SMALL-SCALE INSTALLATIONS

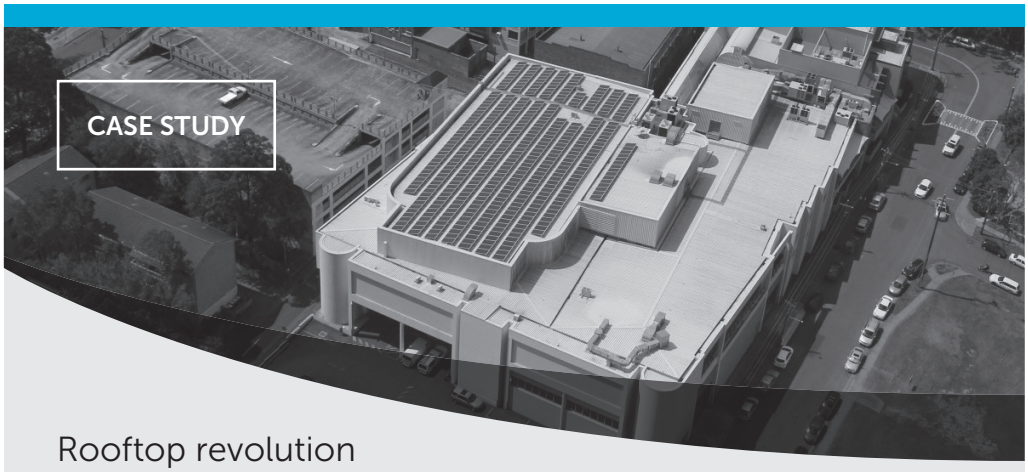
As at 31 December 2014, the total number of small-scale installations were 2 268 398. These small-scale systems have the capacity to generate or displace around 7.6 million megawatt hours of renewable electricity each year.

Solar panels make up 99.99 per cent of the small generation unit installations, with wind and hydro comprising the remaining 0.01 per cent.

Graph 14 represents the number of solar panel installations by state. The greatest number of solar panel installations in 2014 was in Queensland (32 per cent) followed by Victoria (22 per cent) and New South Wales (20 per cent).

Graph 14: Solar panel installations by state, 2011–2014





CASE STUDY

Rooftop revolution

Fly over almost any Australian suburb today and multiple rooftop panels glint in the sun. This reflects the steady increase in small-scale rooftop solar panel installations under the Renewable Energy Target.

In 2014 the number of small-scale solar panel installations on Australian household roofs passed 1.3 million, with a capacity of four gigawatts—enough to supply electricity for an average 755 000 households for a year. This highlights the role of everyday Australians in generating renewable energy and managing their electricity expenses.

Businesses are also realising the benefits of going solar. Installations under the higher end of the Small-scale Renewable Energy Scheme during 2014 included a bakery, dairy farm, abattoir, hardware store, insurance company, schools, bowling club, manufacturing business, retail business and an RSL Club.

The Hornsby RSL Club installed a 100 kilowatt system in April 2014.

> *'We had been investigating solar energy for a number of years to complement our existing environmental and sustainability measures and to reduce increasing energy costs,' said Hornsby RSL Club Assistant CEO, Steve Rigney. 'The electricity generated by the 100 kilowatt solar system is consumed entirely by the Club—creating considerable savings per annum off our total energy bill. It's well worth it.'*

The average size of installations has been increasing, from two kilowatts in 2010 to 4.6 kilowatts in 2014. The number of higher kilowatt capacity systems also increased in 2014, with 1 505 installations between 30 and 100 kilowatts, compared with 847 in 2013.

From residential to industrial and commercial, rooftops around the country are evidence of Australians' growing preference for solar.

Creation of small-scale technology certificates

Under the Small-scale Renewable Energy Scheme, participants can create small-scale technology certificates for up to 12 months after the date the system is installed. This means that during 2014, the Clean Energy Regulator validated small-scale technology certificates created for systems installed in 2013 and 2014.

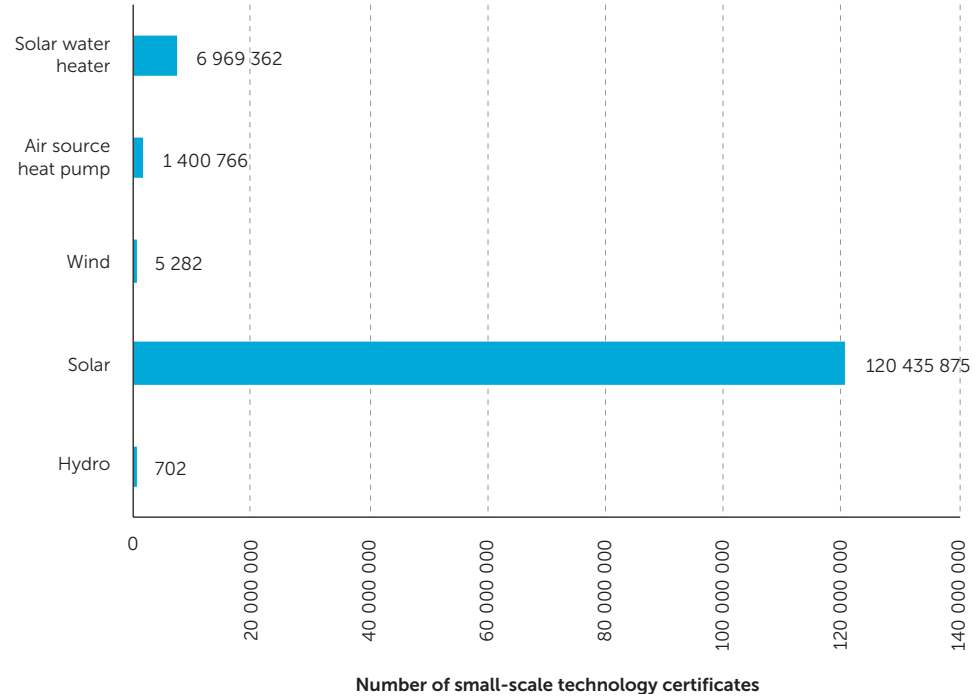
Details about the process for creating certificates for small-scale systems are on page 48.

Between 1 January 2014 and 31 December 2014, a total of 18 784 182 small-scale technology certificates were validly created for 252 843 small-scale installations.

Of these, 59 469 were created by solar water heaters and 193 374 were created by small generation units.

The data presented in graphs 15 and 16 are for certificates validly created in 2014, based on the date the system was installed. Given the 12-month period for creating certificates, the number of certificates for 2014 installations will continue to rise in 2015.

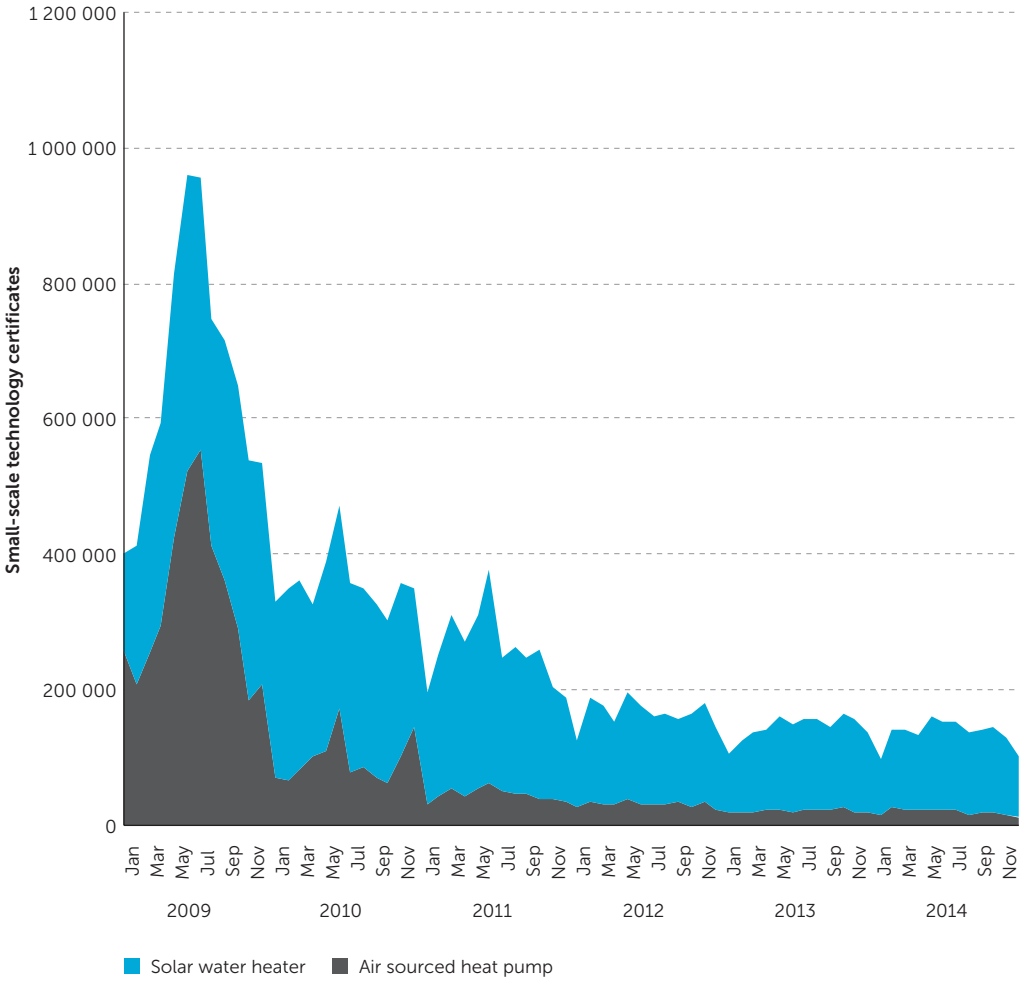
Graph 15: Small-scale technology certificates validly created from 2011–2014



Note: Data current as at February 2015.

Graph 15 shows valid small-scale technology certificates by renewable energy source since the start of the scheme.

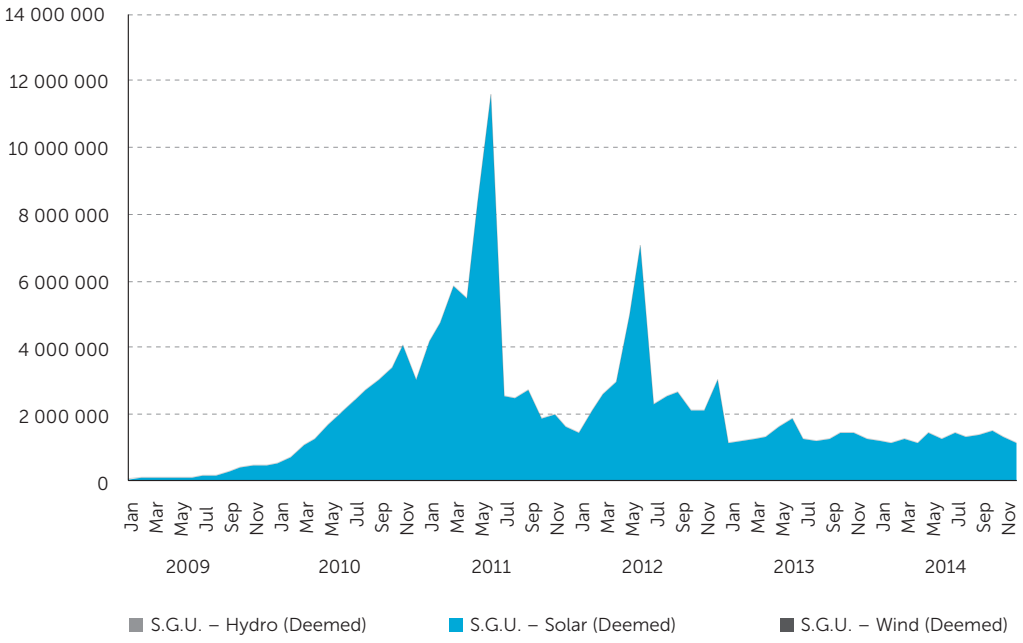
Graph 16: Certificates validated for solar hot water system and air source heat pump installations, 2009–2014



Note: Data current as at February 2015.

Graph 16 represents valid certificates created by solar water heaters. Solar water heaters accounted for 83 per cent of certificates validated in 2014, while air source heat pumps equated to 17 per cent.

Graph 17: Certificates validated for small generation units, 2009–2014



SGUs = small generation units

Graph 17 represents valid certificates created by small generation units in 2014.

A solar credits multiplier was introduced in 2009 to provide an additional financial incentive for solar panel installations by multiplying the number of certificates these systems could create. This multiplier was designed to reduce over time and it ceased on 30 June 2013. As a result, no systems installed in 2014 were eligible for a multiplier. However, multiplied certificates may have been created in 2014 due to the 12-month certificate creation rule.

Process for creating small-scale technology certificates

Section 21 of the *Renewable Energy (Electricity) Act 2000* states that certificates for eligible solar water heaters must be created within 12 months of the installation date.

Regulation 19D (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.[16]

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.

Industry assistance (partial exemption certificates)

The *Renewable Energy (Electricity) Act 2000* includes provisions to provide partial exemption from liability under the Large-scale Renewable Energy Target and Small-scale Renewable Energy Scheme for electricity used in defined emissions-intensive trade-exposed activities.

The Renewable Energy Target imposes additional costs on electricity consumers. These costs can be significant for emissions-intensive industries and may affect their international competitiveness. A partial exemption reduces this cost-burden and supports achievement of the Renewable Energy Target objectives without adverse impacts on industry, local communities and jobs.

Emissions-intensive trade-exposed activities include aluminium smelting, smelting zinc, petroleum refining and manufacture of newsprint. Emissions-intensive trade-exposed activities are specified in the Regulations and listed in Table 6.

Under the Act, 'prescribed persons' (usually entities that carry on emissions-intensive trade-exposed activities) may apply for partial exemption certificates. If approved, the Clean Energy Regulator issues the prescribed person with a partial exemption 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). The exemption is for electricity used in the emissions-intensive trade-exposed activity during the year specified in the certificate.

In 2014, the Clean Energy Regulator received 177 partial exemption certificate applications by the legislated deadlines. Applications from prescribed persons spanned 46 of the 51 eligible emissions-intensive trade-exposed activities.[17]

164 PARTIAL EXEMPTION CERTIFICATES ISSUED IN 2014

As at 31 December 2014, the Clean Energy Regulator issued 164 partial exemption certificates, totalling 25 861 492 megawatt hours of partial exemption for 2014.

Table 6 provides details of the partial exemption issued in 2014 for each emissions-intensive trade-exposed activity.

16 See Renewable Energy Target FAQs at www.cleanenergyregulator.gov.au

17 Two additional emissions-intensive trade-exposed activities were included in the Regulations in November 2014, but are only eligible for partial exemption for 2015 onwards.

Table 6: Total amount of 2014 partial exemptions given for each emissions-intensive trade-exposed activity as at 31 December 2014

Activity	Partial exemption (megawatt hours)
Alumina refining	664 356
Aluminium smelting	16 944 478
Cartonboard manufacturing	0
Dry pulp manufacturing	0
Integrated iron and steel manufacturing	579 161
Integrated production of lead and zinc	58 890
Manufacture of carbon steel from cold ferrous feed	464 821
Manufacture of newsprint	832 931
Manufacture of reconstituted woodbased panels	156 767
Packaging and industrial paper manufacturing	640 095
Petroleum refining	946 217
Printing and writing paper manufacturing	86 130
Production of ammonia	105 998
Production of ammonium nitrate	66 332
Production of bulk flat glass	18 487
Production of carbamide (urea)	42 463
Production of carbon black	0
Production of ceramic floor and wall tiles	5 396
Production of chlorine gas and sodium hydroxide (caustic soda) solution	201 336
Production of clinker	248 330
Production of coal char	0
Production of coke oven coke	305
Production of copper	344 526
Production of dried distillers grains with solubles	7 227
Production of ethene (ethylene)	59 333
Production of fused alumina	4 181
Production of fused zirconia	2 251
Production of glass beads	1 899
Production of glass containers	142 795
Production of glass wool	48 072

Activity	Partial exemption (megawatt hours)
Production of helium	16 624
Production of high purity ethanol	26 188
Production of hydrogen peroxide	6 260
Production of iron ore pellets	28 963
Production of lime	55 795
Production of liquefied natural gas	1 414
Production of magnesia	76 130
Production of magnetite concentrate	147 788
Production of manganese	601 905
Production of methanol	21 744
Production of nickel	184 567
Production of polyethylene	82 083
Production of polymer grade propene (polymer grade propylene)	7 245
Production of rolled aluminium	74 357
Production of silicon	301 435
Production of sodium carbonate (soda ash) and sodium bicarbonate	0
Production of sodium silicate glass	250
Production of synthetic rutile	39 754
Production of white titanium dioxide (TiO2) pigment	31 801
Smelting zinc	1 322 727
Tissue paper manufacturing	161 685
Total	**25 861 492**

Note: In accordance with regulation 22E(3), the total amount of partial exemptions given for each emissions-intensive trade-exposed activity must be published by 1 October in the year to which the partial exemptions relate.

Liable entities

Liable entities (usually electricity retailers who first acquire electricity in a grid of 100 megawatts or more) have an obligation to purchase and surrender large-scale generation certificates and small-scale technology certificates based on the volume of electricity they purchase each year.

For each assessment year, liable entities are required to report 'reduced acquisitions'[18] in megawatt hours, and 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 calendar year), and
- surrendering sufficient certificates to acquit their reduced acquisitions or paying a shortfall charge of $65 per certificate not surrendered.

Determination of power percentages

The amount of certificates that liable entities are required to purchase is determined by the:

- renewable power percentage, and
- the small-scale technology percentage.

Renewable power percentage

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 changes each year in proportion to the legislated annual targets as they increase to reach 41 000 gigawatt hours by 2020.[19]

The renewable power percentage takes into account factors including:

- the legislated annual target and any certificates surrendered that were under or over the previous year's target
- estimated amount of electricity that will be acquired by liable entities for the year, and
- any partial exemption estimated to be issued for emissions-intensive trade-exposed activities.

The renewable power percentage for 2014 was 9.87 per cent, equivalent to 16.95 million large-scale generation certificates.

18 Reduced acquisitions refers to a liable entity's relevant acquisitions of electricity less any partial exemption certificates provided by their emissions-intensive trade-exposed customers for a return benefit.

19 The target of 41 000 gigawatt hours does not include the additional 850 gigawatt hours annual amount for waste coal mine gas, which is removed from the 2021–2030 targets.

Small-scale technology percentage

Liable entities are also required to purchase small-scale technology certificates. The number of small-scale technology certificates that liable entities must purchase is based on the expected supply of small-scale technology certificates, rather than specified annual targets.

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
- certificates surrendered that were under or over the previous year target
- accumulated excess or shortfall from previous years
- estimated amount of electricity that will be acquired by liable entities for the year, and
- any partial exemption estimated to be issued for emissions-intensive trade-exposed activities.

The small-scale technology percentage for 2014 was 10.48 per cent, equivalent to 18.65 million small-scale technology certificates.

Reporting of 2014 energy acquisitions

On 14 February 2015, the Clean Energy Regulator received energy acquisition statements and shortfall statements submitted by liable entities for the 2014 assessment year. A total of 114 liable entities were required to report for the 2014 assessment year by the due date, 17 more than in 2013.

Liability is determined by deducting partial exemptions from the overall amount of relevant acquisitions of electricity (the liable entity's reduced acquisitions). Liable entities initially[20] reported 181.852 million megawatt hours of reduced acquisitions for 2014, which is 207.541 million megawatt hours of relevant acquisitions of electricity less 25.689 million megawatt hours of partial exemptions.

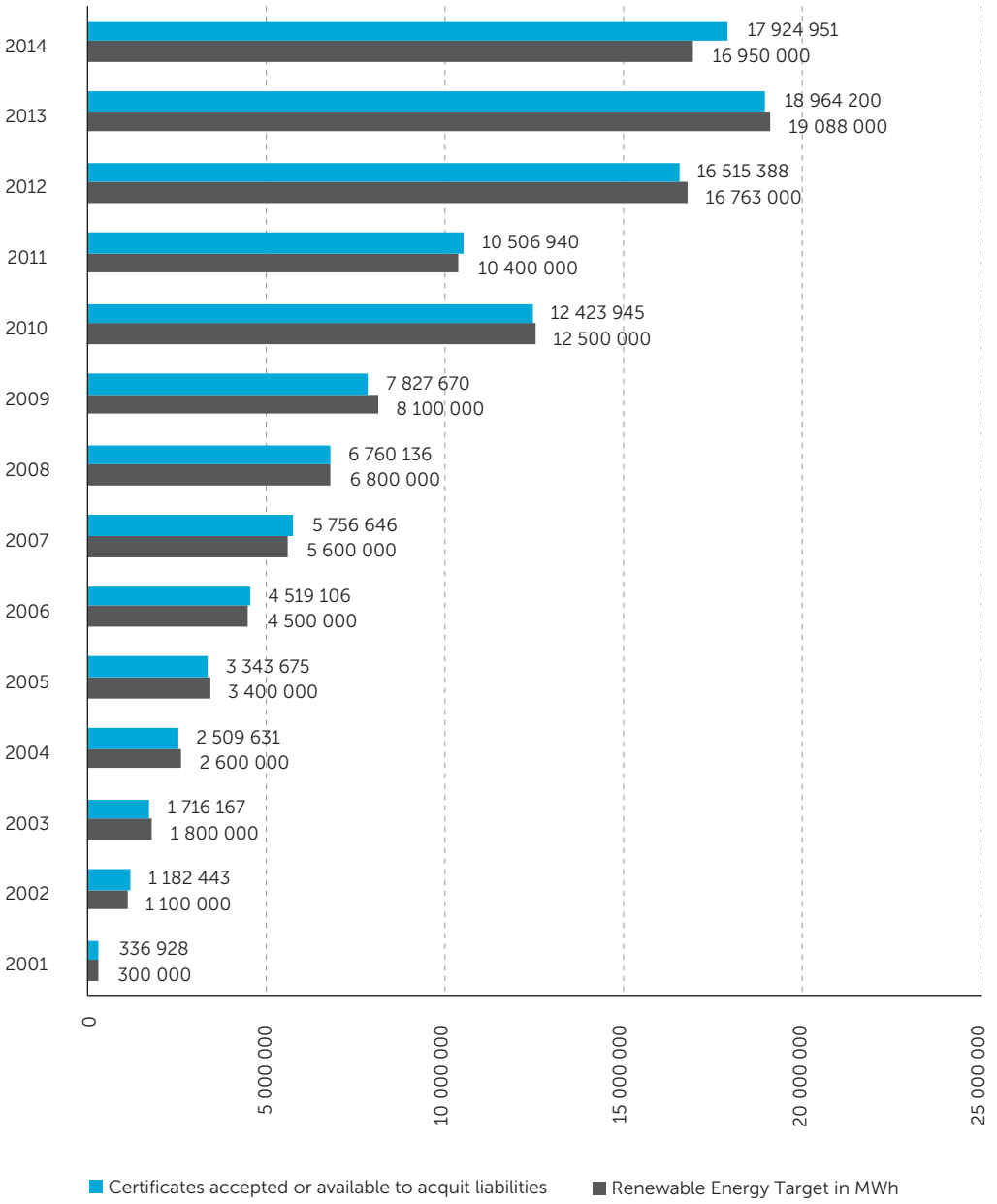
Reduced acquisitions for the Large-scale Renewable Energy Target

Reduced acquisitions for the Large-scale Renewable Energy Target in 2014 resulted in an initial liability of 19 367 246 large-scale generation certificates. Liable entities initially had a 99.97 per cent compliance rate for surrendering these certificates. Based on initial assessments, there were 42 liable entities with an accumulated carried-forward surplus of 84 314 large-scale generation certificates (which can be used to acquit future large-scale generation certificate liabilities).

Three liable entities were initially found to have a total shortfall of 6 569 large-scale generation certificates. All three liable entities had shortfalls within 10 per cent of their total large-scale generation certificate liability. This will be carried forward and added to the entities' 2015 large-scale generation certificate liability.

20 This report provides initial data for the 2014 assessment year. The Clean Energy Regulator continued to assess related statements during the 2015 calendar year.

Graph 18: Large-scale generation certificates accepted or are available to acquit a mandatory liability for the assessment years from 2001–2014



Graph 18 shows the number of large-scale generation certificates that were accepted or are available to acquit liabilities under the Act.

Reduced acquisitions for the Small-scale renewable energy scheme

Reduced acquisitions for the Small-scale Renewable Energy Scheme in 2014 resulted in an initial liability of 19 058 098 small-scale technology certificates. Liable entities initially had a 99.88 per cent compliance surrender rate for surrendering certificates overall. Based on initial assessments, there were 75 liable entities with an accumulated carried-forward surplus of 438 832 small-scale technology certificates (which can be used to acquit future quarterly small-scale technology certificate liabilities).

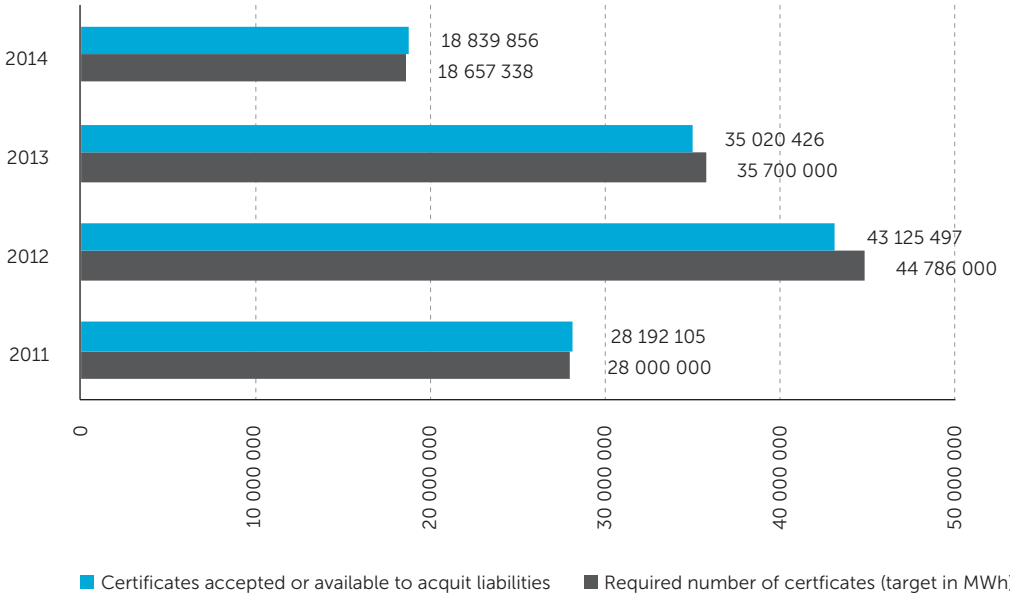
Three liable entities were found to have a total shortfall of 22 056 small-scale technology certificates. Those entities were required to pay the shortfall charge, because there is no buffer for entities with small-scale technology certificate shortfalls. The shortfalls for each quarter were:

- quarter 1—two liable entities had a total shortfall of 3 119 small-scale technology certificates
- quarter 2—three liable entities had a total shortfall of 7 834 small-scale technology certificates
- quarter 3—two liable entity had a total shortfall of 11 103 small-scale technology certificates, and
- quarter 4—zero liable entities had a shortfall.

As at 16 February 2015[21], all but one liable entity with shortfalls had paid for their 2014 shortfall charges.

21 The first business day after the legislative deadline of 14 February.

Graph 19: Small-scale technology certificates accepted or are available to acquit a mandatory liability for the assessment years from 2011–2014



Graph 19 shows the number of small-scale technology certificates that were accepted or are available to acquit liabilities under the Act.

Methods for determining the amount of small-scale technology certificates to be surrendered for quarters 1 to 3

The Act allows for four methods to estimate, determine or refuse required surrender amounts for small-scale technology certificates for quarters 1 to 3 of an assessment year:

- Liable entities that lodge an Energy Acquisition Statement are allowed to amend the amount of small-scale technology certificates they are required to surrender from 15 February to 1 October, the due date (section 38AF of the Act). The Clean Energy Regulator may approve, determine another amount or refuse these applications. Assuming the application is approved, and the liable entity applied for an inappropriate amount, the Clean Energy Regulator determines another amount (section 38AF(7) of the Act).
- Liable entities that did not lodge an Energy Acquisition Statement by the due date are allowed to apply for an amount of small-scale technology certificates to surrender from 1 January to 31 December, the due date (section 38AG of the Act). The Clean Energy Regulator may approve, determine another amount or refuse these applications.
- The Clean Energy Regulator determines an amount (section 38AH of the Act). This applies when liable entities failed to lodge for the assessment year or as required by the Act.
- The Clean Energy Regulator estimates an amount by 15 April or assesses an amount by 1 April (section 40C of the Act). This is the first step to receiving an amount.

Table 7 represents the number of liable entities and the methods used to determine quarter 1 to 3 STC required surrender amounts since 2011. Figures will change annually due to assessment process time frames and when new liabilities are found.

Table 7: Methods used to determine quarter 1 to 3 small-scale technology certificates required surrender amounts

Method	2011	2012	2013	2014
Applications lodged by liable entities (section 38AF of the Act)	7	10	3	8
Reduced acquisitions that exceed the application amount by more than 10%, assessed by the Clean Energy Regulator (section 38AF(7) of the Act)	3	1		
Reduced acquisitions that exceed the application amount by more than 10%, not assessed; reported by the liable entity (section 38AF(7) of the Act)				1
Application lodged by liable entities (section 38AG of the Act)	2	6	8	12
Regulator determined amount (section 38AH of the Act or as required under the Act)	5	3	4	1
Previous assessment year energy acquisitions, assessed by the Clean Energy Regulator before 1 April (section 40C of the Act)	1	4	1	
Previous assessment year energy acquisitions, not assessed; reported by the liable entity in the applicable Energy Acquisition Statement (section 40C of the Act)	62	63	80	86

Compliance activities

Failure to comply with the Act can result in prosecution and penalties where warranted. The Clean Energy Regulator has a proactive policy for monitoring and ensuring compliance with the requirements of the *Renewable Energy (Electricity) Act 2000*.

The Clean Energy Regulator's investigation and enforcement activities raise awareness about compliance obligations. Through its compliance web page and by publishing compliance statistics and enforceable undertakings, the Clean Energy Regulator sends a clear message about its commitment to ensuring all parties comply with the Act.

The Clean Energy Regulator also works in close partnership with other agencies that have regulatory responsibilities under the legislation. This includes sharing relevant information, intelligence gathering and referring matters for law enforcement.

The Clean Energy Regulator's certificate validation activities outlined on page 28 are also an important component of maintaining the integrity of the Renewable Energy Target and the certificate market.

Power station monitoring inspections

Part 11 of the *Renewable Energy (Electricity) Act 2000* authorises the Clean Energy Regulator to perform monitoring inspections of the affairs of a registered person to substantiate information provided under the Act and determine 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 2014, the Clean Energy Regulator performed four monitoring inspections of renewable energy power stations. All inspected power stations were found to be compliant with the Act and Regulations and the Clean Energy Regulator took no further action.

Inspections of small generation units

In 2011 the Government introduced a provision in the Act for the Clean Energy Regulator to inspect a statistically significant sample of installed systems each year for compliance with Small-scale Renewable Energy Scheme eligibility criteria. This includes relevant Australia/New Zealand standards related to electrical safety.

Responsibility for electrical safety is a matter for state and territory electrical safety regulators. Each year the Clean Energy Regulator inspects a sample of small generation units installed under the Small-scale Renewable Energy Scheme for compliance with eligibility criteria and provides the results of these inspections to the state and territory regulators to assist them in their compliance role.

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 compliance with the eligibility criteria for claiming certificates. Small-scale solar panels on the rooftops of residential buildings are the most common small 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 Council and Carbon Footie. All inspectors hold an unrestricted electrical license in the state or territory in which they are conducting inspections, as well as Clean Energy Council accreditation.

THE CUMULATIVE PERCENTAGE OF UNSAFE AND SUBSTANDARD SYSTEMS HAS FALLEN

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.

Under the Regulations, if a Clean Energy Regulator inspector finds an unsafe system, they must immediately notify all interested parties of the extent and nature of the safety risk. This includes the homeowner, installer, system designer, agent and the relevant state and territory electrical safety regulator.

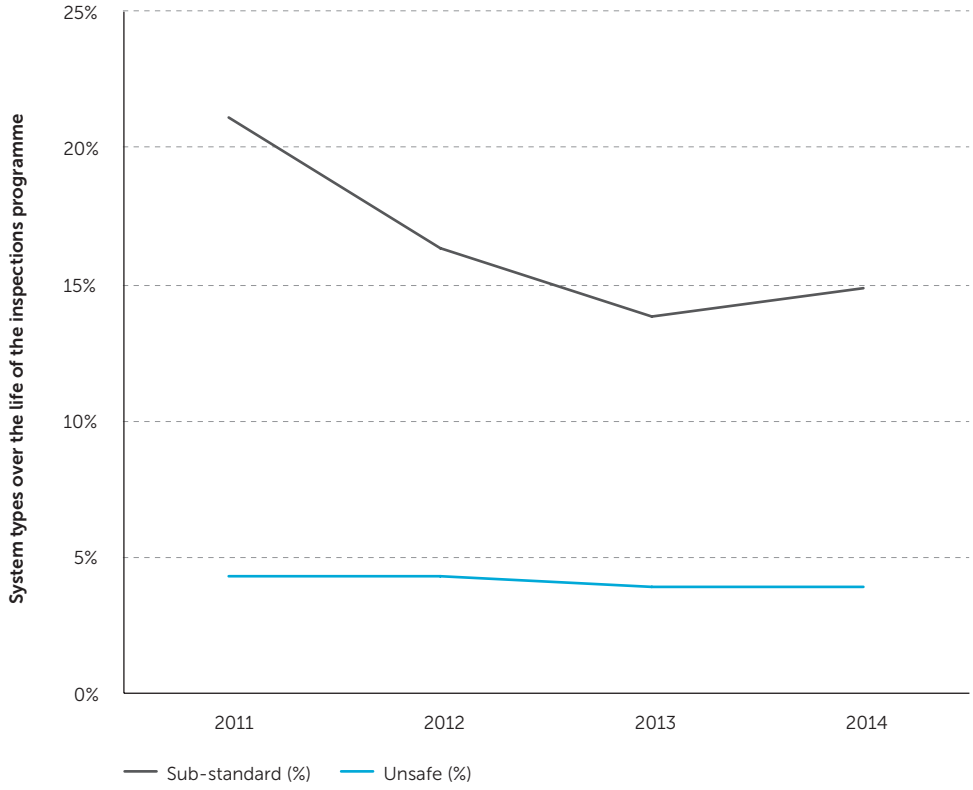
Table 8 provides details of the inspection reports received in 2014.

Table 8: Number of final reports for inspections of small generation units received by the Clean Energy Regulator between 1 January and 31 December 2014

State	Number of systems inspected	Systems unsafe[1]	Systems substandard[1]
ACT	30	0	0
NSW	473	25	85
NT	3	0	3
QLD	1 247	31	247
SA	602	8	75
TAS	70	4	5
VIC	675	29	71
WA	547	16	104
Total	**3 647**	**113 (3%)**	**590 (16%)**

[1] As defined by the Clean Energy Regulator.

Graph 20: Summary of cumulative inspections results since the inspections programme was introduced, up to 31 December 2014



Graph 20 shows a cumulative summary of inspections results since the inspections program was introduced in May 2011, up to 31 December 2014. The graph shows that the cumulative percentage of unsafe systems and substandard inspected systems has fallen since the inspections program started: cumulative unsafe systems from 4.2 per cent in 2011 to 3.9 per cent between 2011 and 2014, and substandard systems from 21.1 per cent in 2011 to 14.84 per cent between 2011 and 2014.

A majority of unsafe and substandard installations are attributed to water ingress of DC isolator switches and installers failing to ensure all DC wiring within the building is enclosed in heavy duty conduit. Both relate to Australian Standards changes, effective from October 2012. Inspections in late 2014 identified improvement in sub-standard rates when compared with earlier in 2014.

In late 2014 the Clean Energy Regulator had scheduled a meeting of the Renewable Energy Target Inspection Advisory Committee for early 2015 to elicit the views of electrical safety regulators and peak industry bodies on the results of inspections.

Total cumulative inspections data is available on the Clean Energy Regulator website.[22]

22 Details are published at www.cleanenergyregulator.gov.au

Investigations

The Clean Energy Regulator actively investigates allegations of breaches of the Act. In 2014, the Clean Energy Regulator received 102 matters related to possible breaches, with 27 matters open as at 31 December 2014. The open matters included 23 cases under investigation and four incident reports under assessment.

The majority of matters requiring further attention in 2014 related to the improper creation of certificates for solar panel installations.

In 2014 the Clean Energy Regulator closed a total of 121 matters relating to the Act, including 49 investigations that were finalised during the year. These investigations resulted in activities such as client education, rectification of installations, enforceable undertakings, letters of advice/warning, and the failure and/or voluntary surrender of improperly created certificates.

There were three enforceable undertakings agreed to in 2014 and five closed.

As a result of the finalised investigations, a total of 36 477 improperly created renewable energy certificates were surrendered (relating to 278 individual installations).

49 INVESTIGATIONS

3 ENFORCEABLE UNDERTAKINGS

1 CONVICTION

One REC Registry account was suspended while investigations were undertaken.

The aim of the Clean Energy Regulator's Compliance, Education and Enforcement Policy is to achieve voluntary compliance. However, civil and criminal prosecutions are pursued in the more serious matters.

In July 2014, in the New South Wales Sutherland Local Court, Ms Lucie Yeung was convicted of New South Wales fraud offences for the improper creation of small-scale technology certificates to the value of more than $1.2 million. She was sentenced to two years imprisonment to be served by way of intensive correction in the community.[23]

In another case, an investigation into allegations of improper creation of renewable energy certificates led to charges being laid. A committal hearing in the Queensland court systems is scheduled for early 2015.

23 Details are published at www.cleanenergyregulator.gov.au.

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).

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.