

*Small-scale
Technology
Certificate (STC)
creation estimates
for 2013, 2014 and
2015*

*Clean Energy
Regulator*

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certificate (STC)
creation estimates for
2013, 2014 and 2015*

February 2013

Final Report

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Our work was limited to that described in this report and did not constitute an examination or a review in accordance with generally accepted auditing standards or assurance standards. Accordingly, we provide no opinion or other form of assurance with regard to our work or the information upon which our work was based. We did not audit or otherwise verify the information supplied to us in connection with this engagement, except to the extent specified in this report or our approved objectives and scope.

Executive summary

This report provides Clean Energy Regulator (CER) with independent estimates of small-scale technology certificates (STC) creation for the 2013, 2014 and 2015 calendar years. STCs are created by eligible installations of solar water heaters (SWH) and small generation units (SGU), which comprise of small-scale solar photovoltaic panels (Solar PV), wind and hydro electric systems.

Key findings

Table A presents our estimates of STC creations for the 2013, 2014 and 2015 calendar year and compares to the historic 2012 STC creation.

STC creation estimates are presented for Solar PV and SWH. Estimates for STC creation through eligible wind and hydro systems are not modelled here, as combined they only accounted for 712 certificates or 0.002 per cent of total STC creation in 2012.

Table A: Annual STC creation by type

STC creation	History	Forecast		
	2012	2013	2014	2015
Total	39,153,178	29,453,321	27,807,716	25,476,984
Solar PV	36,906,526	28,152,217	26,484,511	23,872,760
SWH	2,246,652	1,301,104	1,323,205	1,604,224

Source: History - CER data; Forecast - PwC estimates

The estimated fall in 2013 is primarily driven by the removal of the solar multiplier for Solar PV and the SWH rebate no longer applying to new systems. Going forward, general underlying economic conditions are expected to remain weak, limiting STC creation through construction.

Developing the STC estimates

Our approach centres on using historic information on STC creation and other relevant literature to identify key drivers of STC creation and incorporates these into a model that projects STC creation. Incorporating the key drivers gives the model predictive capability and allows decomposition of STC projections to understand movements in the projection path. Specifically, we consider drivers of STC creation including:

- economic conditions
- construction projections
- cost and revenue projections
- solar multiplier, SWH rebates, feed-in-tariff changes
- electricity price changes and cost saving from grid electricity.

However, the estimates for STC creation exclude analysis of the following:

- overhang of STC from previous years
- changes in the Small-scale Renewable Energy Scheme (SRES) that would affect the scheme
- changes in future STC price.

Estimates are generated quarterly for each state and territory and for each eligible technology type, with annual estimates equal to the sum of the quarterly estimates. The estimates presented in this report are of STC creation and exclude potential overhang from installations in previous periods and STCs that may fail audit.

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1 Introduction

PwC was commissioned by the Clean Energy Regulator (CER) to estimate small-scale technology certificate (STC) creation for the 2013, 2014 and 2015 calendar years.

Small-scale technology certificates are created by eligible installations of solar water heaters (SWH) and small generation units (SGU), which comprise of small-scale solar photovoltaic panels (Solar PV), wind and hydro electric systems.

This report provides CER with independent estimates of STC creation for 2013, 2014 and 2015 and will be used by CER to assist in setting the annual small-scale technology percentage (STP), which is applied to renewable energy target (RET) liable entities and determines the amount of STC they must surrender quarterly. CER is required to publish the non-binding STP estimates.

To inform this process, this report develops estimates of STC creation by assessing historic information to determine underlying drivers of STC creation and incorporates them into a projection model. The projection model uses the behavioural relationships between the movements of these drivers and STC creation to estimate future STC creation. The estimates in this report are of STC creation in calendar years and consider influences on STC creation from:

- economic conditions
- construction projections
- cost and revenue projections
- solar multiplier, SWH rebates, feed-in-tariff changes
- electricity prices changes and cost saving from grid electricity.

However, the estimates exclude analysis of the following:

- overhang of STC from previous years (these would need to be subtracted from creation estimates)
- changes in the Small-scale Renewable Energy Scheme (SRES) that would affect the scheme
- changes in future STC price.

STC creation estimates are presented for Solar PV and SWH. Estimates for STC creation through eligible wind and hydro systems are not modelled here, as combined, they only accounted for 712 certificates created or 0.002 per cent of total STC creation for 2012.

The remainder of this report is structured as follows.

- **Section 2** describes the approach we used to develop STC creation estimates
- **Section 3** presents our STC creation estimates
- **Appendix A** presents detailed results tables.

2 Developing STC estimates

Our approach centres on using historic information on STC creation and other relevant literature to identify key drivers in STC creation and incorporates them into a model that projects STC creation. Identifying the key drivers will enable us move beyond simply time trending STC creation, by incorporating behavioural responses into a projection model. Incorporating the key drivers gives the model predictive capability and allows the projections to incorporate any identified trends in the driver variables.

Linking the creation of STCs to drivers allows the model to respond to changes in these drivers and gives the model a higher degree of explanatory power. This provides more robust estimates, as the underlying influences on the projections can be qualified and movements explained. A model that links projections of STCs to key drivers also allows running of alternate scenarios where key drivers can be changed to better understand their importance and consequence on STC creation projections.

2.1 About our projection model

To estimate STC creation, PwC developed a bottom-up behavioural model that estimates STC creation for each technology in each state and territory. To maximise flexibility and predictive capability, our model has been developed to provide quarterly projections of STC creation.

A range of factors could drive STC creation. Broadly, we see STC creation falling into two streams:

Drivers of STC take-up rate

The percentage of the population that creates STCs is influenced by factors including (but not limited to):

- potential revenue from installing renewable systems—financial benefits and rebates provided for renewable energy, solar credits multiplier, feed-in tariffs, STC price
- potential costs of installing each system – affected by tech change
- potential electricity cost savings by purchasing less grid electricity – affected by price of electricity.

Drivers of STC creation scale

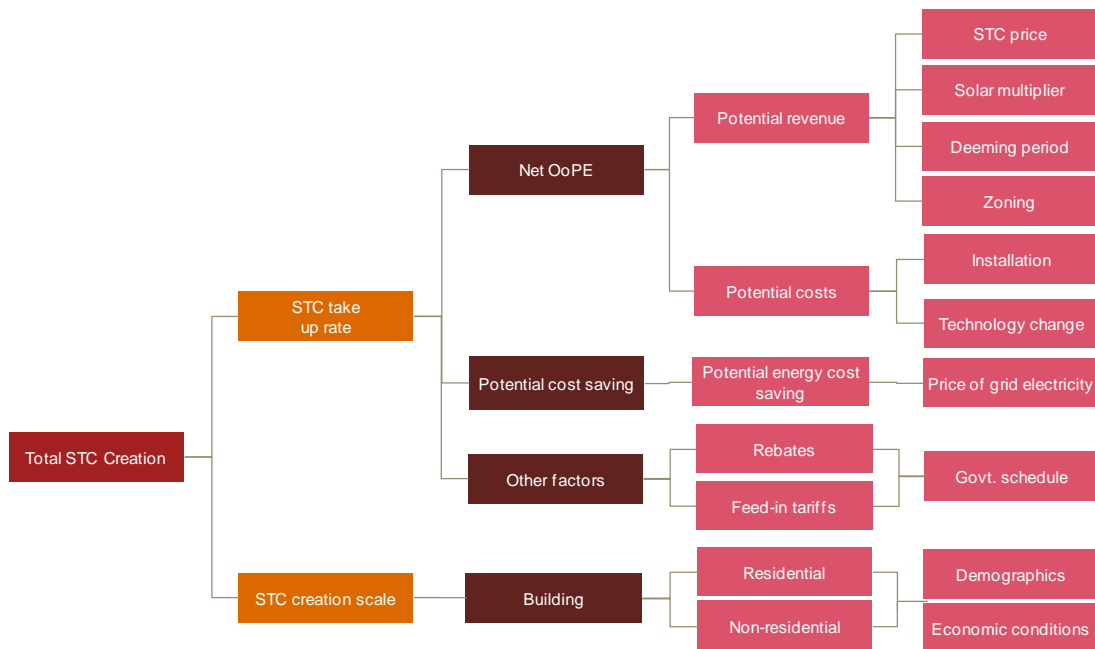
The size of the population who can create STCs that the take-up rate is applied to is influenced by (but not limited to):

- buildings – both residential and commercial, which in turn are affected by demographic trends and economic conditions.

2.1.1 Identification of key behaviour drivers of STC creation

Through analysis of available data, we identified key behavioural drivers of STC creation. The following diagram illustrates the structure of the behavioural relationships.

Figure 2.1: STC creation driver structure



As shown in figure 2.1, the drivers of STC creation can be considered in four main streams, with STC take-up-rate influenced by:

- **net out-of-pocket expenditure (OoPE) per Kw capacity** – considers installation costs and potential revenue through STC creation and solar multipliers
- **potential cost saving**– considers costs saving from reduced grid electricity consumption and factors in the price of electricity
- **Other factors** – considers other incentives for installing STC eligible systems such as feed-in-tariffs and rebates.

And, STC creation scale influenced by:

- **expansion of STC creation through construction** – considers new and renovation construction, which in turn is influenced by economic conditions and demographic trends.

Table 2.1 summarises the relationships between each driver and STC creation and which stream it effects STC creation through.

Table 2.1: key drivers and impact on STC creation

Driver	Influenced by	Direction of relationship	Reasoning
Net OoPE per Kw capacity			
Installation costs per Kw	Technology change; seasonality	Negative	Installation costs are the cost to households – the higher the cost the less likely to install a STC eligible system. Installation costs were found to fluctuate seasonally, but with a downward trend over time as technology improvements reduce installation costs.
Revenue per kw	Solar multiplier; deeming period; STC zone; STC price	Positive	Revenue is the amount households can expect to receive back to offset costs – the higher the revenue the greater the benefit and more likely to install an eligible STC system. Revenue follows the State and Commonwealth Solar multiplier, deeming and zoning schedules as well as the STC price – which follows an assumed path in the modelling.
Potential cost saving from reduced grid electricity consumption			
Electricity price	Regulated consumer price	Positive	In addition to net OoPE, a substantial benefit of installing an eligible system is the potential cost saving through reduced grid electricity consumption – the higher the electricity price the greater the potential savings and more likely to purchase an eligible STC system. For a household, the electricity price follows the regulated electricity price in each state.
Other factors			
Feed-in-tariff(FIT)	State and Commonwealth Government policy	Positive	Feed-in-tariffs provide an additional incentive to install eligible STC systems – the greater the FIT, the greater the incentive to install an eligible STC system. FIT are set by each State or Territory Government and follow the current announced schedule.
Rebate	State and Commonwealth Government policy	Positive	Rebates provide an additional incentive to install eligible STC systems – the greater the rebate, the greater the incentive to install an eligible STC system. Rebates can be set by each State or Territory Government or the Commonwealth Government and follow the current announced schedule.
Expansion of STC creation through construction			
Residential construction work done	Residential approvals Economic variables: bond rates; GSP Demographic variables: population growth Seasonality	Positive	The scale of STC creation is linked to construction – the greater the amount of construction work done each year, the greater the pool of buildings STC eligible systems can be installed in. Residential construction in one period is determined by residential approvals in previous periods, changes in economic conditions (including bond rates, GSP growth – which are linked to population, participation and productivity growth) and seasonality.
Non-residential construction work done	Non-residential approvals Economic variables: bond rates; GSP Demographic variables: population growth Seasonality	N/A	Non-residential construction was not found to be a significant driver of STC creation.

2.1.2 Generalised regression structure

Separate regressions systems were developed for each technology type for each state, to allow each structure to incorporate state specific driver relationships. Allowing for state and technology specific structure and driver relationships is crucial to establish appropriate models to estimate STC creation as incentives can vary between each state and territory. However, while each state model specifications differed, the main drivers were common across all states.

Each regression follows the model structure illustrated in figure 2.1. All regressions are estimated in change (linear) form to mitigate risk of spurious regressions when using non-stationary level values. All models are quarterly models.

General observations

In general, we found that STC creation was backward looking on the cost side (OoPE), and forward looking on the benefit side (FiT, Electricity price). Intuitively, this means that when people are considering installing STC eligible systems, they tend to look backwards at installation costs – what they currently are and what they have been doing. However on the benefits side, they tend to be forward looking – the potential benefits they will receive now and into the future.

The STC creation scale component tends to be backward looking with respect to residential work done. This follows the reasoning that STC creation in the current period depends on work done in the current period – the more residential construction work done the more potential buildings that can install eligible systems and the greater STC creation; and work done in previous periods as there may be a lag between work done and creation of STCs.

Quarterly seasonality was also found to be evident, meaning STC creation varies between quarters due to other seasonal factors, such as: preferences; weather; or available time to install systems.

2.1.3 Data validation

Our STC creation projections are based on analysis of STC creation data provided by CER and modelling developed using publically available data.

We have used this approach so that all projections can be traced back to publicly available information, such as from the Australian Bureau of Statistics, giving a high degree of transparency and robustness to the modelling. This means projections based on this approach can be qualified and are defensible.

Table 2.2 outlines the main historic data sources we drew on for our analysis and how projections were developed.

Table 2.2: data sources

Driver	Historic data source	Forecast data source
STC creation	Drawn from CER database, provided by CER	Developed using regression analysis
OoPE	Drawn from CER database, provided by CER	Developed using regression analysis, separate analysis of cost and revenue
STC price	Found online: www.greenmarkets.com.au	Developed using regression analysis
FiT, rebate, solar multiplier schedules	Each respective State and Territory published schedules	Each respective State and Territory published schedules
Electricity price	Australian Bureau of statistics - consumer price index category: electricity	PwC estimate based on historic price and current information on regulated price increases for each state
Residential construction work done	Australian Bureau of Statistics – residential work done	Developed using regression analysis
Residential approvals	Australian Bureau of Statistics – residential approvals	Developed using regression analysis
GSP	Australian Bureau of Statistics – state accounts	Each respective State and Territory mid-year economic outlook.
Bond rates	Reserve Bank of Australia – 90 day bond rates	PwC estimate linked to GSP projections

Forecasts of each driver were developed using behavioural relationships identified from the historical data.

3 *STC Estimates*

Key findings

Table 3.1 presents our estimates of STC creations for the 2013, 2014 and 2015 calendar year and compares to the historic 2012 STC creation.

Table 3.1: Annual STC creation by type

STC creation	History	Forecast		
	2012	2013	2014	2015
Total	39,153,178	29,453,321	27,807,716	25,476,984
Solar PV	36,906,526	28,152,217	26,484,511	23,872,760
SWH	2,246,652	1,301,104	1,323,205	1,604,224

Source: History - CER data; Forecast - PwC estimates

The estimated fall in 2013 is primarily driven by the removal of the solar multiplier for Solar PV and the SWH rebate no longer applying to new systems.

Going forward, general underlying economic conditions are expected to remain weak, limiting STC creation through construction.

For Solar PV, as Queensland contributed approximately 39 per cent of Solar PV STC creation in 2012, a reduction in STC creation from residential construction in Queensland is expected to dominate the positive influences on STC creation, resulting in underlying lower annual STC creation through to 2015.

For SWH, while being weighed down by lower annual residential construction in Queensland, rising electricity prices are expected to offset this and drive stronger underlying STC creation through to 2015.

3.1 STC creation estimates

Our estimates of STC creation are generated using the approach described in section 2. Estimates are generated quarterly for each state and for each eligible technology type, with annual estimates the sum of quarterly estimates. The estimates presented here are of STC creation and exclude potential overhang from installations in previous periods – overhang would need to be subtraction from the STC creation estimates. Additionally, as a proportion of STCs created may fail audits, the final number of STCs in the market would exclude this amount.

Table 3.2 presents our estimates of STC creation for 2013, 2014 and 2015 by type, by state and includes 2012 historic STC creation for comparison.

Table 3.2: Annual STC creation by type, by state

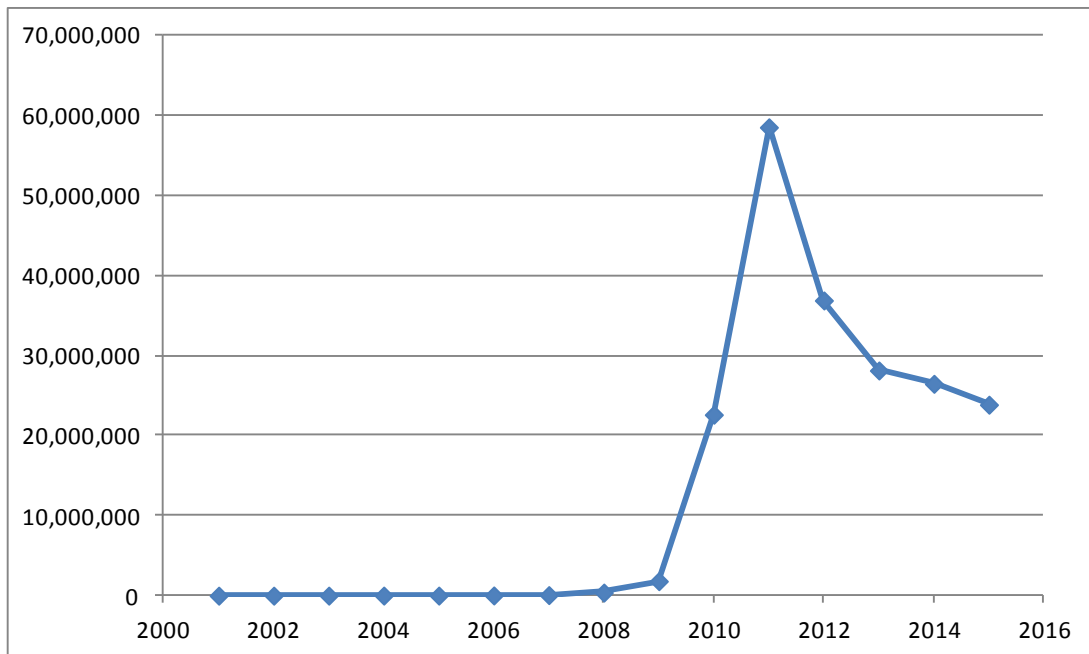
STC creation	History	Forecast		
	2012	2013	2014	2015
Australia	39,153,178	29,453,321	27,807,716	25,476,984
Solar PV	36,906,526	28,152,217	26,484,511	23,872,760
SWH	2,246,652	1,301,104	1,323,205	1,604,224
ACT	246,787	121,939	102,944	97,718
Solar PV	219,949	113,271	93,796	87,777
SWH	26,838	8,669	9,147	9,941
NSW	6,068,901	5,482,839	5,912,785	5,427,802
Solar PV	5,666,219	5,325,584	5,726,598	5,159,777
SWH	402,682	157,255	186,187	268,025
NT	109,854	102,588	120,217	138,506
Solar PV	73,050	69,767	84,384	94,890
SWH	36,804	32,822	35,834	43,616
QLD	14,867,776	9,867,362	7,471,172	5,390,960
Solar PV	14,231,872	9,470,929	7,038,678	4,843,720
SWH	635,904	396,433	432,494	547,241
SA	5,501,282	4,001,999	3,863,178	3,819,718
Solar PV	5,392,324	3,936,251	3,814,746	3,775,074
SWH	108,958	65,748	48,431	44,643
TAS	576,337	513,152	507,444	549,970
Solar PV	545,765	486,302	466,625	490,070
SWH	30,572	26,850	40,819	59,900
VIC	7,202,439	6,055,488	6,081,596	6,051,505
Solar PV	6,575,537	5,764,584	5,828,986	5,755,623
SWH	626,902	290,903	252,610	295,882
WA	4,579,802	3,307,953	3,748,379	4,000,805
Solar PV	4,201,810	2,985,528	3,430,697	3,665,829
SWH	377,992	322,425	317,682	334,976

Source: History - CER data; Forecast - PwC estimates

3.1.1 Solar PV

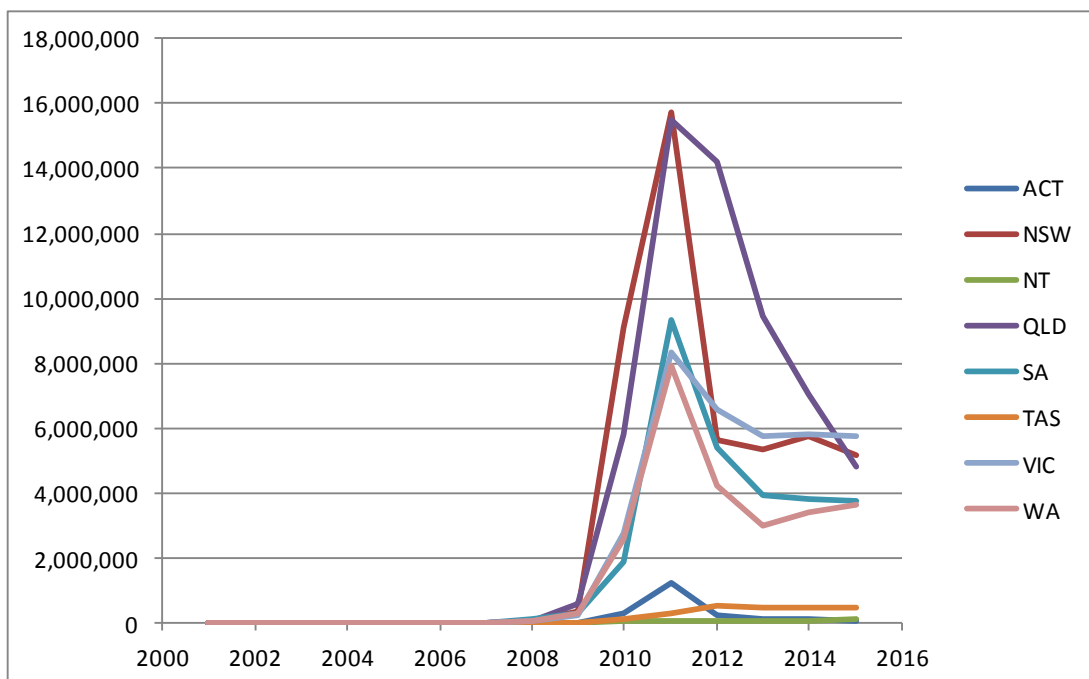
Figure 3.1 and Figure 3.2 illustrates our annual estimates of STC creation from Solar PV nationally and by state.

Figure 3.1: Annual STC creation: Solar PV national



Source: Historic data provided by CER; Forecast estimated by PwC

Figure 3.2: Annual STC creation: Solar PV by state



Source: Historic data provided by CER; Forecast estimated by PwC

STCs created from Solar PV systems account for around 94 per cent of all STC creation.

Figure 3.1 shows we estimate a continuation of the 2012 fall in annual STC creation from the 2011 peak, with a reduction in STC creation from Solar PV of around 24 per cent in 2013, followed by a 6 per cent and 10 per cent reduction in 2014 and 2015 respectively.

As described in section 2, Solar PV STC creation is driven by a range of factors. The drivers of STC creation can be thought of along two streams: underlying factors including costs,

electricity price and residential construction; and headline factors including FiTs and solar multipliers.

Influence of drivers:

Solar multiplier - In 2013, the solar multiplier ends which we expect this to drive a sharp decline in STC creation across all states.

FiT - We don't expect any further changes in FiTs that will apply to new STCs across the forecast period, so we expect that this driver will not influence STC creation going forward. Additionally

STC price – We have assumed STC price remains constants at the current level. A constant STC price means that from 2013 to 2015 (given no multiplier) STC revenue per Kw will remain constant and not drive changes in STC creation. Should this assumption be relaxed and changes to STC price be incorporated, it would affect STC creation estimates.

OoPE – Our model divides OoPE into costs and revenue. The revenue side is given by the STC price and solar multiplier schedule, while annual cost changes are driven by technology change. Following historic trends, we estimate a continuation of gradual cost reductions per Kw capacity as technology continues to improve.

Electricity price – We expect continued rises in the electricity price to provide a continued expansionary influence on STC creation as the potential cost savings from eligible systems rise.

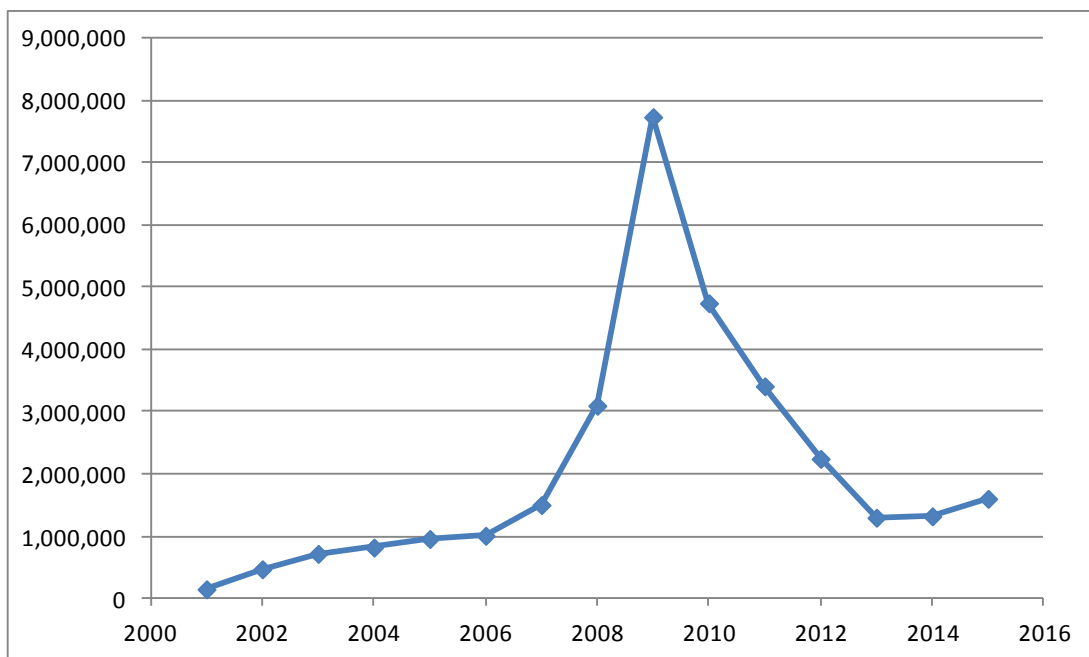
Residential construction – We found residential construction to be a primary underlying driver of STC creation from Solar PV systems. While the rate of annual residential construction growth has slowed, it remains generally positive. However, as Queensland is currently the largest (approximately 39 per cent) contributor to overall Solar PV STC creation, we estimate lower annual residential construction in Queensland will result in lower overall annual STC creation through to 2015.

Overall impact on STC creation - Gradual technological change and rising electricity prices are expected to be a continued driver of annual STC creation. However in the absence of further changes to FiTs and the solar multiplier, we expect that lower annual residential construction in Queensland will dominate the other effects and overall result in a gradual reduction in annual STC creation from Solar PV systems. Notably in 2013, the elimination of the solar multiplier will sharply offset any positive underlying factors and result in reduced STC creation from Solar PV systems in all states.

3.1.2 Solar Water Heaters (SWH)

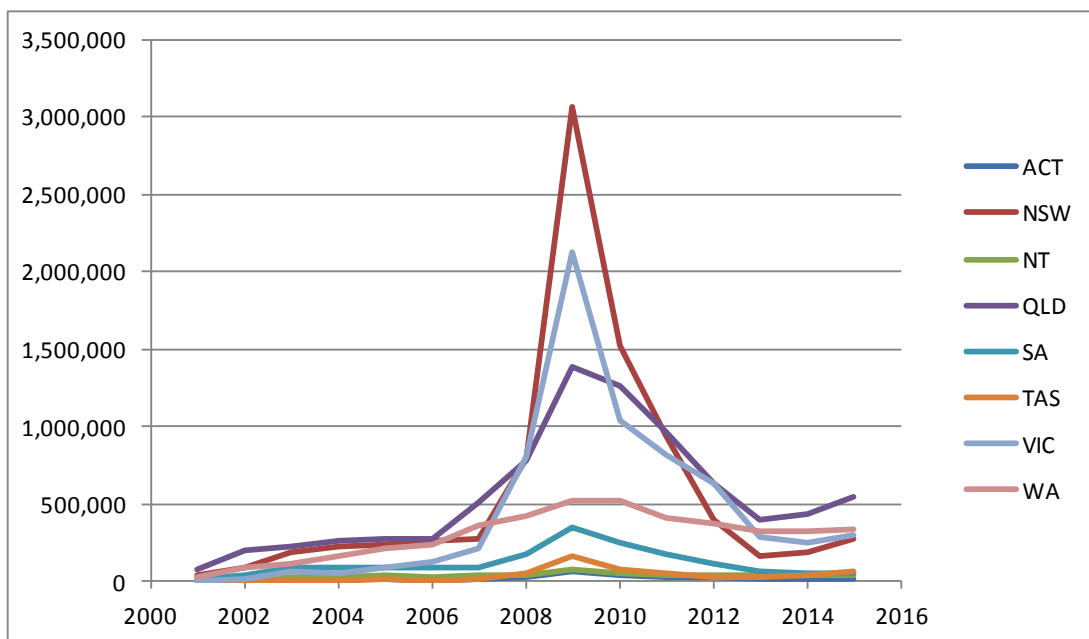
Figure 3.3 and Figure 3.4 illustrates our annual estimates of STC creation from SWH nationally and by state.

Figure 3.3: Annual STC creation: Solar Water Heaters (SWH) national



Source: Historic data provided by CER; Forecast estimated by PwC

Figure 3.4: Annual STC creation: Solar Water Heaters (SWH) by state



Source: Historic data provided by CER; Forecast estimated by PwC

STCs created from SWH systems account for around 6 per cent of all STC creation.

Figure 3.3 shows we estimate a continuation of the 2012 fall in annual STC creation from the 2009 peak, with a reduction in STC creation from SWH of around 42 per cent in 2013, followed by a 2 per cent and 21 per cent expansion in annual STC creation from SWH in 2014 and 2015 respectively.

As described in section 2, SWH STC creation is driven by a range of factors. The drivers of STC creation can be thought of along two streams: underlying factors including costs, electricity price and residential construction; and headline factors including rebates.

Influence of drivers:

SWH rebate – The SWH rebate no longer applies from 2013 onwards. While the rebate ended in 2012, it applied to systems purchased before Feb 28 2012, meaning the 2012 STC creation estimates include STC creation from systems eligible for the rebate. The 2013 estimate is not expected to include any influence from the rebate, resulting in a reduction in annual STC creation. We don't expect any further changes in rebate that will apply to new STCs across the forecast period, so we expect that this driver will not influence STC creation going forward.

STC price – We have assumed STC price remains constants at the current level. A constant STC price means that from 2013 to 2015 STC revenue per system will remain constant and not drive changes in STC creation. Should this assumption be relaxed and changes to STC price be incorporated, it would affect STC creation estimates.

Electricity price – We found the electricity price to be a primary underlying driver of STC creation from SWH systems. We expect continued rises in the electricity price to provide a continued expansionary influence on STC creation as the potential cost savings from eligible systems rise.

Residential construction – While the rate of annual residential construction growth has slowed, it remains generally positive. While residential construction is not estimated to be as strong an influence on STC creation as it is through Solar PV systems, we estimate lower annual residential construction in Queensland (approximately 28 per cent of SWH STC creation) will weigh down overall annual STC creation from residential construction activity through to 2015.

Overall impact on STC creation – Lower expect annual residential construction in Queensland is expected to weigh down STC creation through SWH systems. However, we expect rising electricity prices to be a relatively larger driver of STC creation for SWH systems than it is on Solar PV systems. Overall, we expect higher electricity prices to offset this and drive an underlying expansion in STC creation from SWH systems.

The exception is in 2013, when the elimination of the SWH rebate will sharply offset the underlying factors and result in reduced STC creation in all states in 2013.

Appendices

Appendix A Detailed results

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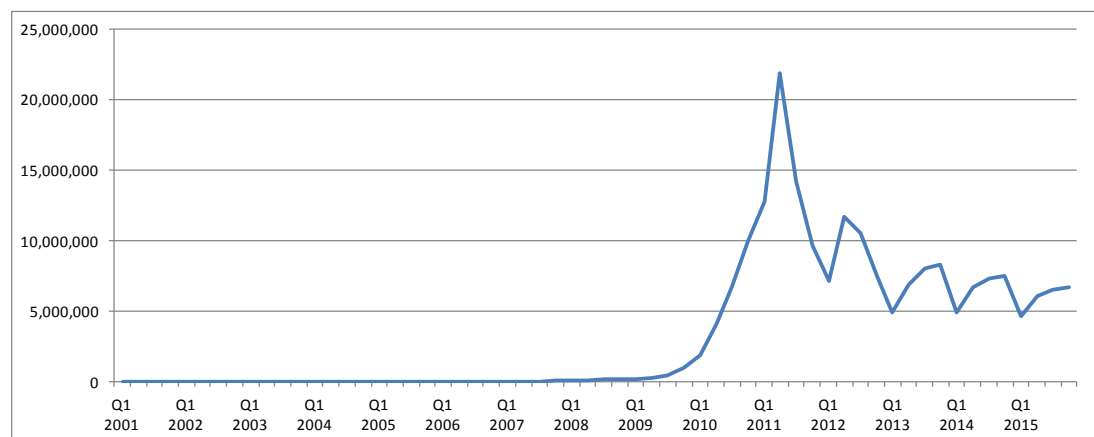
Appendix A Detailed results

Table A1: Quarterly STC creation by type, by state

	2013				2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total	5,241,199	7,182,679	8,406,062	8,623,380	5,184,440	6,989,157	7,712,591	7,921,528	4,912,112	6,439,712	6,950,882	7,174,277
Solar PV	4,913,127	6,906,360	8,063,688	8,269,042	4,905,642	6,711,625	7,359,895	7,507,349	4,591,068	6,101,373	6,521,584	6,658,735
SWH	328,073	276,319	342,374	354,338	278,798	277,532	352,696	414,179	321,044	338,340	429,298	515,542
ACT	21,624	38,782	32,728	28,805	16,548	27,386	31,322	27,687	15,774	26,138	29,448	26,357
Solar PV	19,432	37,195	30,752	25,892	14,680	24,991	29,639	24,487	13,813	23,456	27,670	22,838
SWH	2,193	1,587	1,976	2,913	1,868	2,396	1,683	3,201	1,961	2,682	1,779	3,519
NSW	707,945	1,251,520	1,647,934	1,875,440	919,877	1,421,461	1,695,323	1,876,124	878,286	1,318,256	1,531,928	1,699,332
Solar PV	668,561	1,233,933	1,600,389	1,822,700	882,305	1,396,530	1,642,464	1,805,299	829,600	1,278,192	1,456,418	1,595,567
SWH	39,383	17,587	47,545	52,740	37,572	24,931	52,859	70,825	48,686	40,064	75,510	103,765
NT	18,838	23,078	29,926	30,746	21,885	27,800	34,384	36,148	25,653	32,486	39,095	41,273
Solar PV	9,943	15,567	21,553	22,704	12,674	19,978	25,192	26,538	14,646	23,119	27,811	29,314
SWH	8,895	7,511	8,373	8,042	9,211	7,821	9,192	9,610	11,007	9,367	11,284	11,959
QLD	1,518,486	2,346,156	3,041,822	2,960,898	1,285,628	1,813,388	2,207,018	2,165,138	952,733	1,286,167	1,583,074	1,568,987
Solar PV	1,421,820	2,269,937	2,933,209	2,845,964	1,194,294	1,725,631	2,091,250	2,027,504	843,384	1,171,174	1,436,937	1,392,224
SWH	96,666	76,219	108,613	114,935	91,334	87,757	115,769	137,634	109,349	114,993	146,136	176,763
SA	714,781	1,053,065	1,093,289	1,140,864	708,578	985,879	1,058,312	1,110,409	708,772	969,039	1,045,160	1,096,747
Solar PV	701,466	1,036,025	1,075,041	1,123,719	699,556	974,428	1,045,437	1,095,325	700,638	958,711	1,033,312	1,082,413
SWH	13,315	17,040	18,247	17,145	9,022	11,451	12,875	15,083	8,134	10,328	11,847	14,334
TAS	173,595	112,958	116,514	110,084	119,926	136,507	128,586	122,425	133,135	150,310	135,799	130,725
Solar PV	167,661	107,776	109,694	101,171	110,801	128,478	118,351	108,996	119,442	138,435	120,932	111,261
SWH	5,934	5,183	6,820	8,913	9,125	8,030	10,235	13,429	13,694	11,874	14,867	19,465
VIC	1,326,154	1,585,635	1,561,850	1,581,848	1,207,460	1,671,747	1,593,539	1,608,850	1,212,062	1,672,072	1,576,237	1,591,134
Solar PV	1,243,088	1,516,598	1,490,245	1,514,654	1,160,340	1,615,968	1,523,021	1,529,658	1,159,200	1,606,213	1,493,418	1,496,792
SWH	83,066	69,037	71,605	67,195	47,121	55,780	70,518	79,192	52,862	65,859	82,818	94,342
WA	759,776	771,484	881,999	894,694	904,537	904,988	964,106	974,747	985,696	985,245	1,010,141	1,019,722
Solar PV	681,157	689,330	802,804	812,238	830,992	825,622	884,541	889,542	910,345	902,073	925,085	928,326
SWH	78,619	82,155	79,195	82,456	73,545	79,366	79,566	85,205	75,351	83,172	85,057	91,396

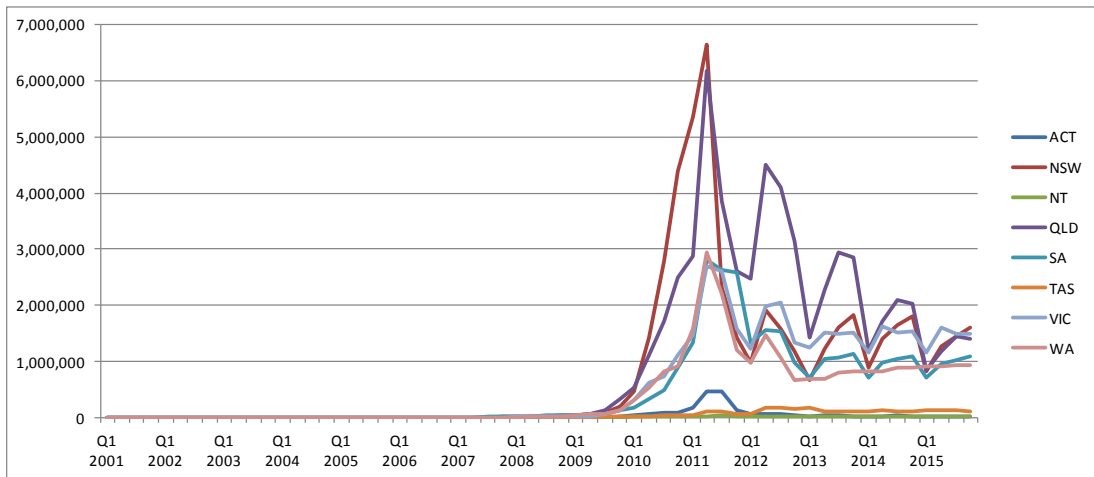
Source: History - CER data; Forecast - PwC estimates

Figure A1: Quarterly STC creation: Solar PV, national



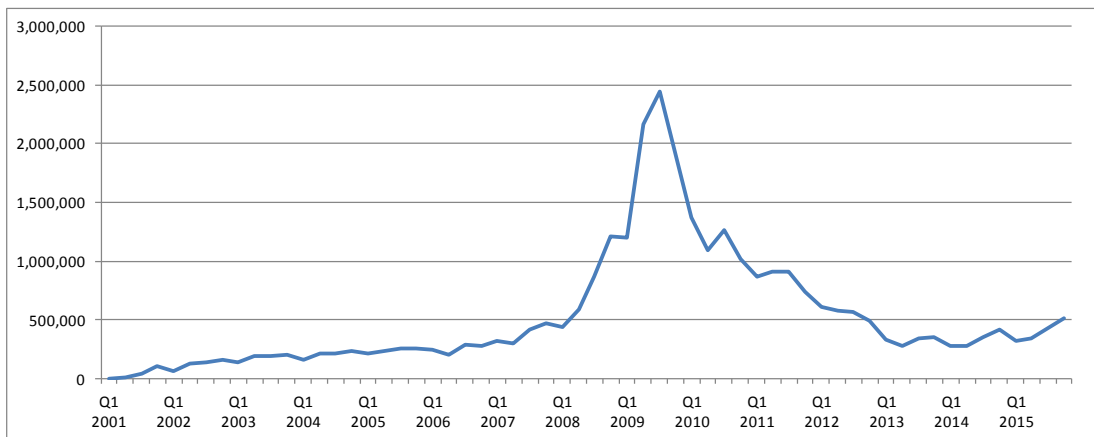
Source: Historic data provided by CER; Forecast estimated by PwC

Figure A2: Quarterly STC creation: Solar PV, by state



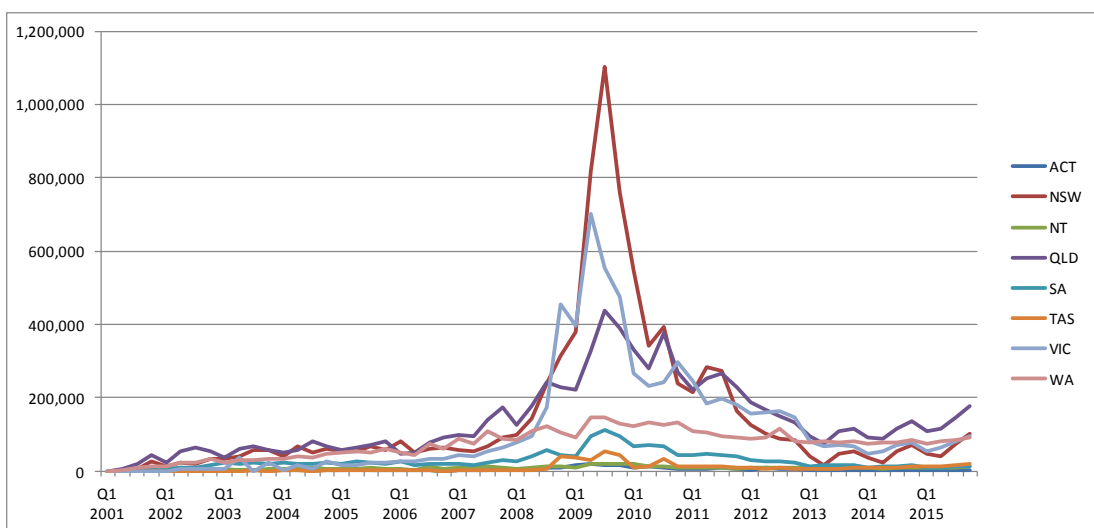
Source: Historic data provided by CER; Forecast estimated by PwC

Figure A3: Quarterly STC creation: Solar Water Heaters (SWH), national



Source: Historic data provided by CER; Forecast estimated by PwC

Figure A4: Quarterly STC creation: Solar Water Heaters (SWH), by state



Source: Historic data provided by CER; Forecast estimated by PwC

