
Australian Energy Market Quarterly Review

Review of December 2010 Quarter

3 March 2011



Clean Energy Council

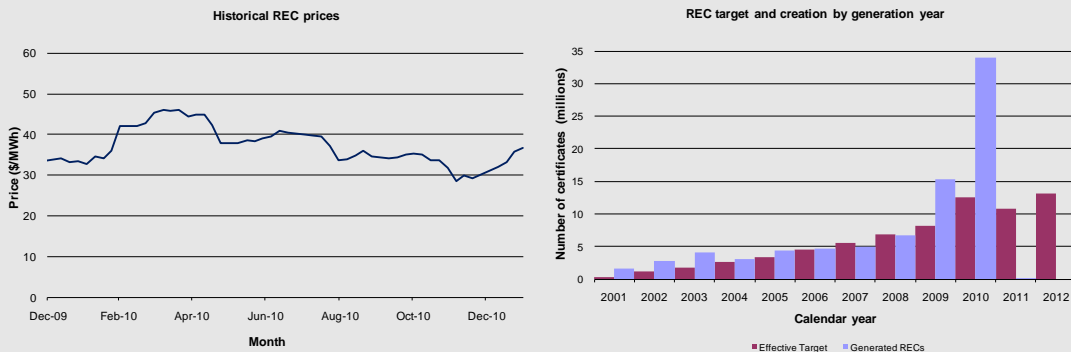
Executive summary

International trends

- After mixed signals from the plant cost indicators in the September quarter, there has been a definite upward movement in the December quarter.
- There has been a steady move towards decreasing feed-in tariffs for residential PV schemes worldwide. The reductions are aimed at cutting government costs in the long term.
- Interest in solar-thermal technology remains very strong with several solar projects in the pipeline.
- Interest in offshore wind technology has taken off with several offshore wind farms and offshore power grid projects planned across the world.
- Research is also being conducted to develop a more powerful 15MW offshore wind turbine.
- During the first half of 2010, wind investment in US has declined whilst China continued to invest heavily in wind technology. China has carried out 88% of its planned small coal mine closures. Germany and Spain will continue to subsidise their coal mines to meet social and energy supply commitments.

Market trends

- The energy spot and contract prices remain subdued. Mild temperatures during spring and early summer months, together with additional renewable generation that came online in 2010, and increased generation from hydro units, have put downward pressure on prices.
- Forward contract prices in South Australia have dropped by more than \$30/MWh since the start of 2010. For the first time South Australian off-peak futures prices have fallen below those of New South Wales.
- REC prices continued to drop, but prices very late in December and early January show a recovery after the separation of the RET scheme came into effect in January. However, an unprecedented number of RECs has been registered for the 2010 year.



Outlook

- The current oversupply of generation capacity and additional committed renewable generation coming online in 2011 should see prices remain subdued. The exception is Queensland where higher prices are being observed after the recent floods.
- Capital cost indicators are still showing increasing tendencies despite significant increases in the previous quarter. Fuelled by strong interest in renewable projects, the costs are likely to increase further in the near future.
- Early indications show that REC prices are likely to recover. However, whether the recovery is durable will depend on development in policy to abate carbon.

International trends

There has been a steady move towards decreasing feed-in tariffs for residential PV schemes worldwide. Following Germany's lead, Italy is reducing its feed-in tariff for rooftop systems over the next three years. France is also revising its tariffs downward, and capping its annual installed PV capacity. In the Czech Republic, a 26% tax will be imposed on ground-mounted solar installations that are greater than 30kW. The tariff rate in New South Wales, Australia, has decreased from 60c/kWh to 20c/kWh for installations connected after 27 October 2010, whilst the overall scheme has been capped at 300MW.

The reductions are aimed at cutting government costs in the long term, and may curb increasing inflation in electricity prices. However, the reduction in tariffs, along with expanding global production capacity in PV, is causing distress for PV cell manufacturers due to tighter profit margins.

In solar thermal news, a total of 1300MW of CSP was installed worldwide by the end of 2010. Furthermore, multiple solar thermal projects are in the pipeline; in California, Palen Solar 1, Rice Solar Energy (650MW total), as well as the 370MW Ivanpah have been approved by the California Energy Commission. The Amargosa Farm Road Solar Project (a 500MW facility in Nevada) as well as the Blythe project (1000MW in California) have been approved for construction by the US Department of Interior.

Interest in offshore wind has taken off on a grand scale, with South Korea announcing a three-phase plan to provide 100MW of offshore capacity by 2013, a further 900MW by 2016, and a further 1.5GW by 2019. France is seeking to develop its offshore wind capacity with plans to build 3GW of offshore capacity by 2015, and a further 3GW by 2020. In the UK, construction of the Dogger Bank offshore wind farm, with an expected capacity of 9GW by 2020, has commenced.

New onshore wind farms are also being built in Nigeria and Honduras, as well as in Iowa (593MW, due 2012), Oklahoma (227MW) and Ontario, Canada (600MW).

In New Jersey, USA, government approval is being sought to build an offshore power grid, stretching 350 miles, and allowing the connection of up to 6GW of offshore wind turbines. Google is partially funding this project. Similarly, 10 European countries have signed a Memorandum of understanding to develop an offshore electricity grid in the North Sea. This infrastructure will allow for 150GW of offshore wind power to be connected to the EU by 2030, paving the way for a single electricity market in the EU.

In offshore R&D, project Azimut, comprised of 11 Spanish companies and 22 Spanish research institutes, is looking to develop a 15MW offshore wind turbine by 2020. Currently, the most powerful turbine is Enercon's 7.5MW wind turbine.

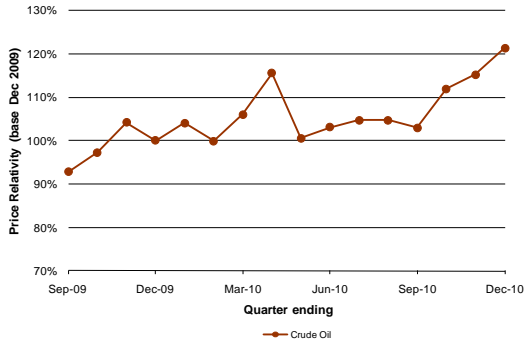
In other wind news, an additional 16GW of wind capacity was installed worldwide up to the first half of 2010. In this period, China increased its capacity by 7.8GW. USA's growth slowed from 10GW in 2009 to only 1.2GW for the first half of 2010. The total wind capacities for USA and China are now comparable at 36GW and 34GW respectively, with the global market having a total of 175GW to June 2010.

In coal news, by September 2010, China had achieved 88% of its planned 1,539 small coal mine closures. This contributes to its goal of reducing energy consumption per unit of GDP by 20% in five years. Germany has taken a different approach by continuing to subsidize its loss-making coal mines until 2018 to meet its social obligations to the country's miners. Spain will also subsidize its domestic coal industry for four more years to ensure a consistent energy supply.

Commodity prices

Figure 1 (Table 1)¹ presents quarterly crude oil prices expressed as a percentage of the December 2009 average price.

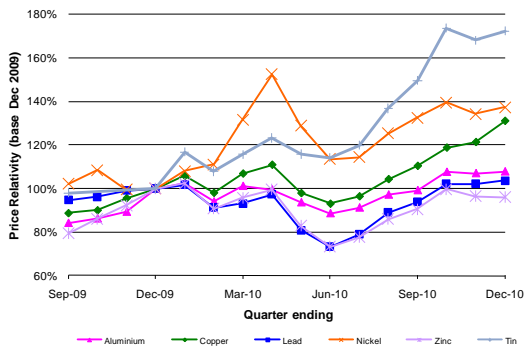
Figure 1 Relative crude oil prices



The figure shows that the average monthly prices in the December quarter rose sharply and closed at around \$88.75/bbl. This was higher than the price peak recorded in April when the average price for the month was around \$84.50/bbl. Compared to December 2009 average price, the average price in December 2010 increased by approximately 21%.

Figure 2 shows relative base metal prices based on data from ABARE and London Metal Exchange (LME).

Figure 2 Relative base metal prices – LME



The increase in base metal prices have tapered off in the December quarter after sharp increases in the September quarter and early in the December quarter. There remains some

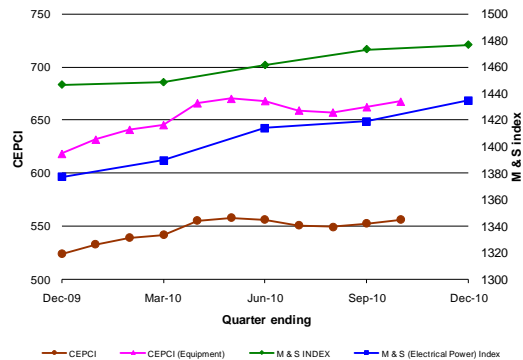
¹ Data sources for figures are shown in tables in the appendix.

increasing tendency as average prices for copper, tin and nickel rose again in the month of December. When compared to the December 2009 quarter, prices for copper, tin and nickel were up by 31%, 73% and 37% respectively. Average prices for the other metals were around parity with average prices in December 2009.

Cost of plant

After mixed signals from the plant cost indicators in the September quarter, there has been a definite upward movement in the December quarter. All the indicators shown in Figure 3 (Table 2 & Table 3) show this upward trend. The indicators shown are the composite Chemical Engineering Plant Cost Index (CEPCI), the equipment sub-index of CEPCI, the Marshall and Swift Equipment Cost Index (M&S index) and the electrical power sub-index of the M&S index.

Figure 3 Plant and equipment cost indices



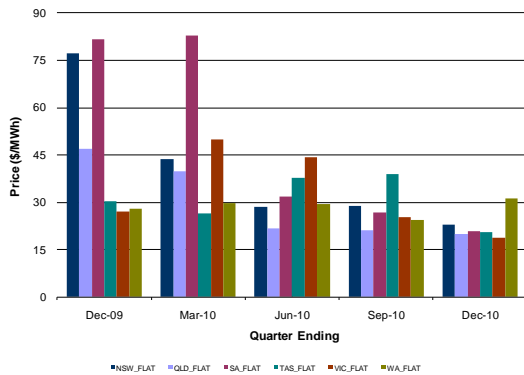
Market trends

Electricity prices

Figure 4 (Table 4) shows the flat quarterly average electricity prices. The key observations are:

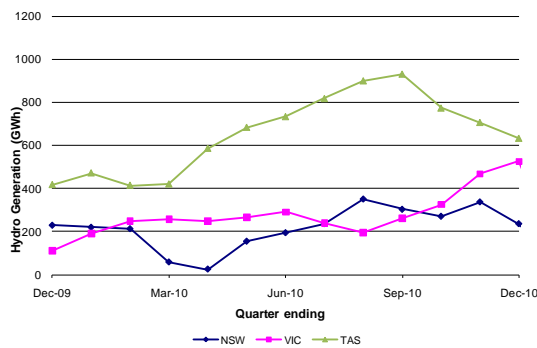
- Prices in all states except Western Australia remained subdued. Most regions have recorded this trend for three straight quarters during both peak and off-peak periods.
- The average quarterly price in Tasmania almost halved in the December quarter, tumbling down to just over \$20/MWh. The downward movement in prices was greater during off-peak periods.

Figure 4 Quarterly averages of flat electricity prices



- In the previous two quarters, prices in Tasmania had increased, thus going against the general trend of subdued prices recorded in other regions.
- Western Australia was the only region where the December quarterly average price increased. The average increases were about \$8/MWh and \$5/MWh during peak and off-peak periods respectively. Although the average price was slightly higher than that in the same quarter last year, the increase in price was seasonally characteristic.
- Both Victorian and New South Wales quarterly average prices fell for the third consecutive quarter largely due to increased low-cost generation from hydro units. Figure 5 shows the total monthly hydro generation in terms of GWh/Mth.

Figure 5 Hydro generation (GWh/Mth) in NSW, TAS & VIC



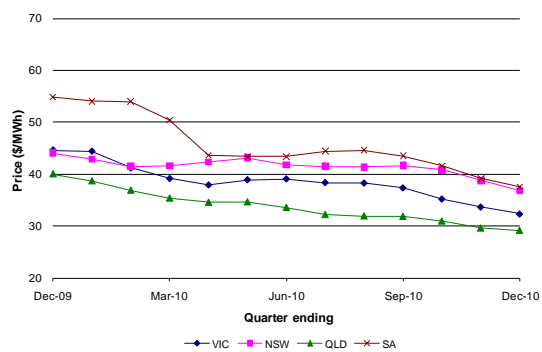
- The average monthly hydro generation in New South Wales has remained high, at just under 300 GWh for the last two quarters. In Victoria, the average monthly

yield from hydro sources increased significantly from about 230GWh/Mth in the September quarter to about 440GWh/Mth in the December quarter, putting downward pressure on prices.

- In addition, average monthly hydro yield in Tasmania remains about 200GWh/Mth higher than the level at the start of 2010. This is despite the decline observed in the December quarter.
- Average prices in Queensland have been steady over the last three quarters. This trend will not continue in the next quarter, as the recent floods have caused electricity prices to increase across all periods.

Average forward contract prices for electricity for the 2011 calendar year declined in all regions to close between \$29/MWh and \$38/MWh by the end of the quarter (Figure 6). Price decreases were in the range \$2/MWh to \$6/MWh, the largest of which was in South Australia, where prices at the start of the year were around \$10/MWh higher than that of any other region. South Australian prices by the close of the quarter were averaging just above New South Wales; however, during off-peak periods, they fell below those in New South Wales. This is the first time such a trend has occurred.

Figure 6 Average flat electricity futures prices (2011)



The continued downward trend in price is likely due to increased capacity from renewable generation and from the increased hydro potential due to recent rainfalls. These additional generation capacities tend to reduce prices more noticeably during peak periods.

Figure 7 and Figure 8 show the trends for peak and off-peak periods respectively. Average prices for peak periods ranged between \$40/MWh and \$60/MWh. Average peak prices in South Australia have dropped noticeably, by over \$30/MWh, compared to average prices in early 2010.

Figure 7 Average peak electricity futures prices (2011)

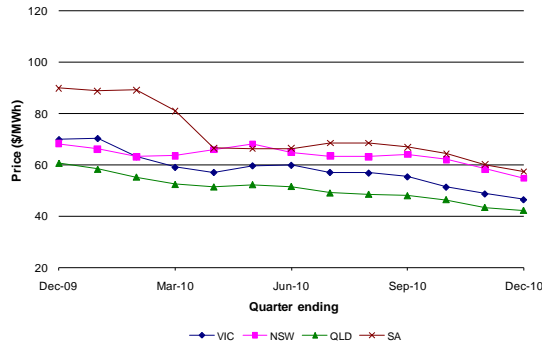


Figure 8 Average off-peak electricity futures prices (2011)

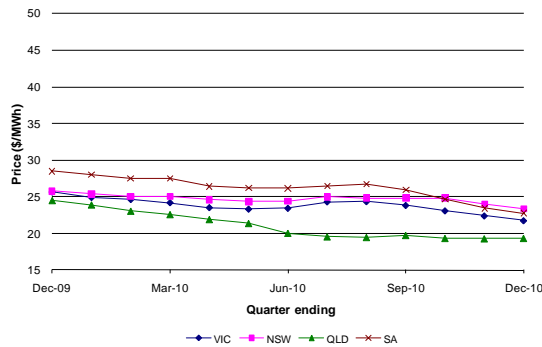
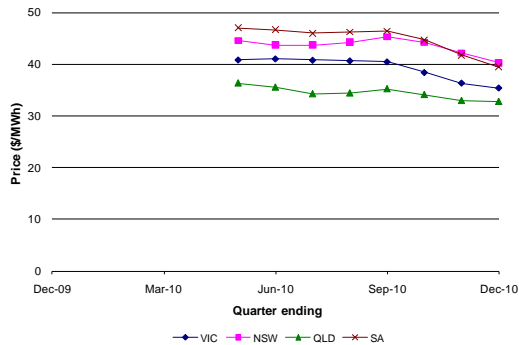


Figure 9 Average flat electricity futures prices (2012)



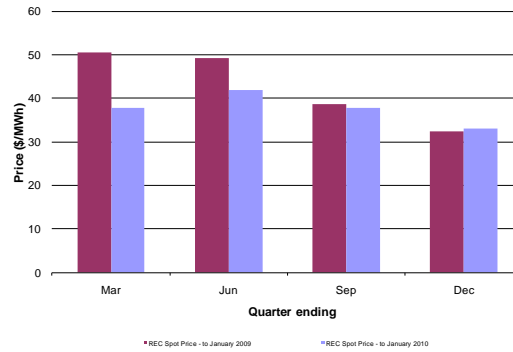
Average forward contract prices for electricity in 2012 (Figure 9), show a downward trend

similar to that of the 2011 contract year. For the December quarter, they were trading on average between \$32/MWh and \$40/MWh, slightly higher than the 2011 prices.

REC prices

REC prices continued trending downwards in the December quarter, falling from around \$36/REC to as low as \$28.5/REC. The average REC price for the quarter was around \$33.50/MWh (Figure 10).

Figure 10 Average quarterly REC spot price



The downward trend is likely to end with the actual separation of the REC scheme, which came into effect in January 2011. Whilst prices have fallen, some upward movement in prices were recorded very late in December, and this upward movement has continued into January (Figure 11).

Figure 11 REC spot price trend

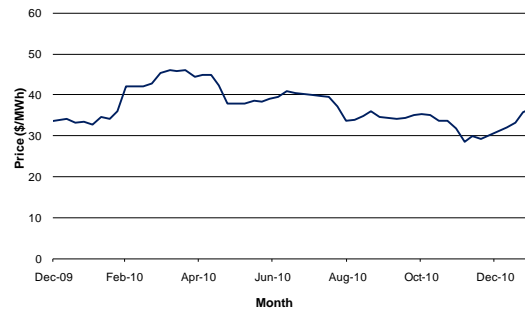
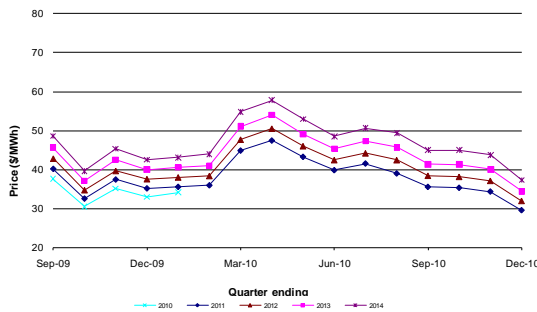


Figure 12 shows an ongoing downward trend for the year-ahead future contract REC prices for the years 2010 to 2014. As is the case with the spot prices, there are early indications that this downward trend will cease and thereafter

contract REC prices will begin to rise in the next quarter.

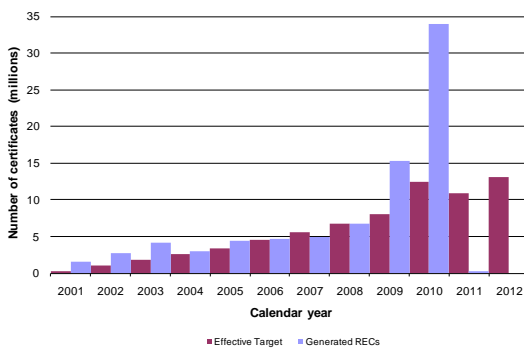
Figure 12 Average REC futures prices



REC quantities

Figure 13 (Table 13) shows the number of RECs created up to the December 2010 quarter against the effective annual scheme targets and includes the LRET scheme² adjustments. Note that the data presented here shows a snapshot of the REC-registry on 16 February 2011. Under Section 20 of the Act, all lodgements for electricity generated in the previous year should be made by 14 February or other approved date. With the separation of the RET scheme into LRET and SRES, the data presented here shows the final stages of the RET scheme.

Figure 13 REC target and creation by generation year



It should be noted that the registry data is continually being updated and the final position may not be known for a while. The numbers change because new certificates get created for past activities and/or undergo a status change. The created REC quantity

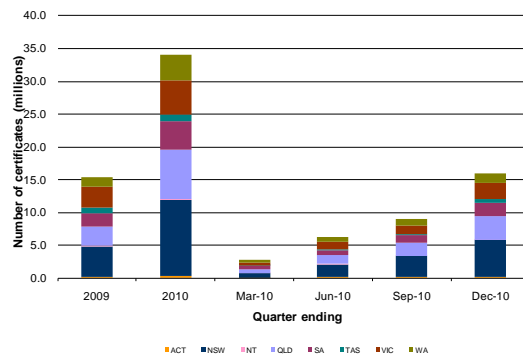
² The drop in the 2011 target is due to LRET.

reported here includes all REC status categories except those that are:

- invalid due to audit
- invalid due to voluntary surrender
- pending voluntary surrender.

Total RECs created in the December 2010 quarter alone surpassed 15 million certificates. This was about 2 million certificates short of doubling the combined number of certificates recreated in the first three quarters of 2010 (Figure 14). The total RECs created in 2010 were in excess of 34 million certificates.

Figure 14 Total RECs created



The bulk of the certificates (about 23 million out of 34 million) were from the solar PVs. This was about 20 million more than the number of certificates created in 2009. Figure 15 shows the difference between the RECs created in 2009 and 2010 from a selection of fuel sources.

Figure 15 Change in RECs created (2009 and 2010)

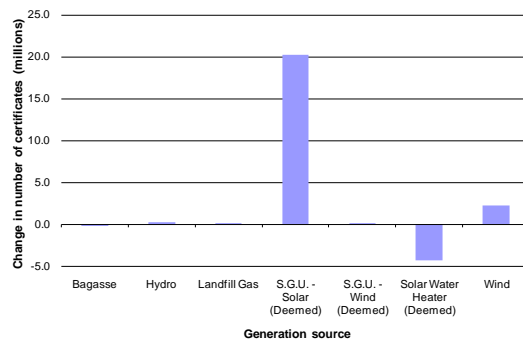
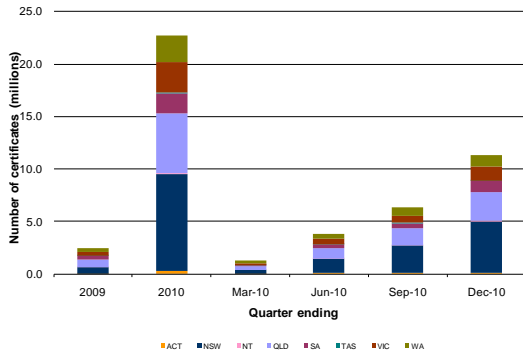


Figure 16 (Table 6) shows the trend in REC creation from solar PVs by state. Quantities created in all quarters of 2010, except the March quarter, have individually surpassed

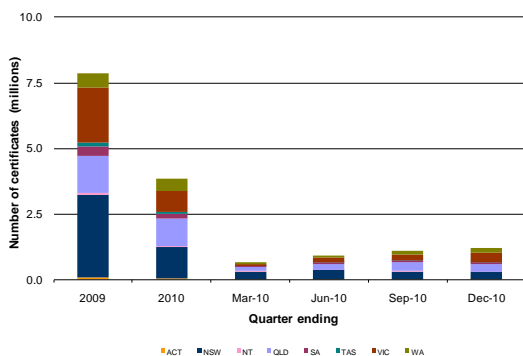
the 2009 yearly value. The uptake in all regions has grown significantly compared to 2009 values; however, the growth in uptake was more pronounced in New South Wales and Queensland.

Figure 16 RECs from small scale solar PV (deemed)



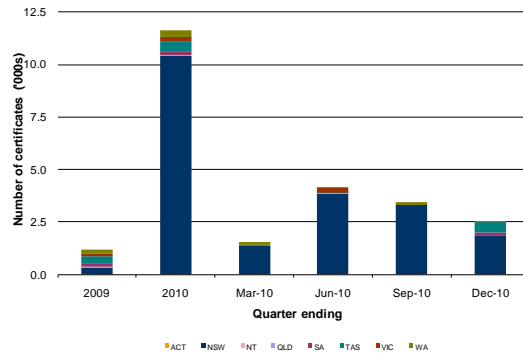
The total number of RECs created from solar hot water units in 2010 was about half the quantity created in 2009. After the initial drop in certificates in the first quarter of 2010, the data shows a steady growth in each subsequent quarter of 2010 (Figure 17, Table 7).

Figure 17 RECs from solar hot water units (deemed)



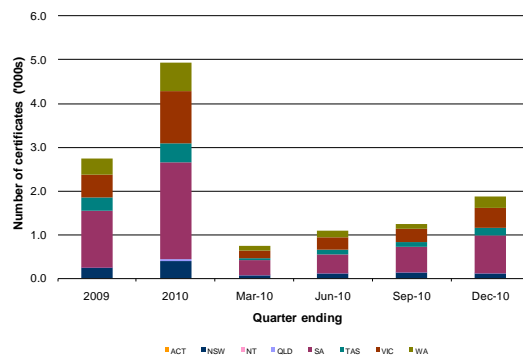
RECs from small-scale wind generation remained relatively few and were mostly generated from installations in New South Wales (Figure 18). Some activity in Tasmania was also recorded in the quarter. The total quantity created in 2010 was about ten times the quantity created in 2009. However, the data following the June quarter shows a declining trend.

Figure 18 RECs from wind (deemed)



There was about an 80% increase in RECs created in 2010 from large-scale wind technology compared to the quantity in 2009 (Figure 19, Table 9). Whilst most of the increase in quantity was from South Australia and Victoria, other regions showed sustained increases in each quarter of 2010.

Figure 19 RECs from large-scale wind



Greenpower sales

Timely access to Greenpower sales data remains an ongoing issue. The last published figures were up to the June 2010 quarter. Later publications were awaiting appropriate verification and approval from the New South Wales government. It is anticipated that the September and December quarter data will not be released in time for this report with the state entering election mode. Data up to June 2010 quarter is shown in Figure 20 (Table 10) and Figure 21 (Table 11).

Figure 20 Number of Greenpower customers

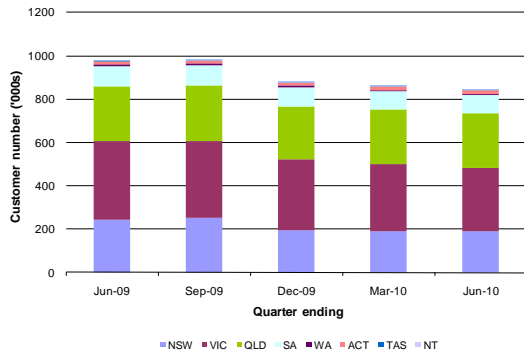
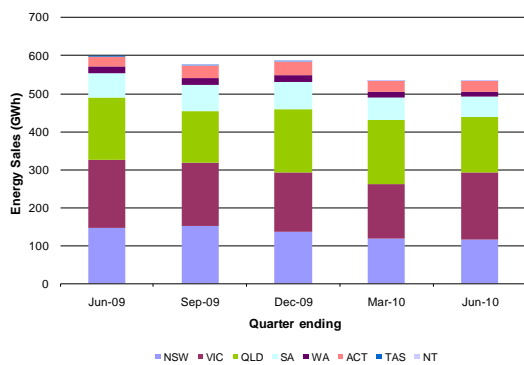


Figure 21 Greenpower sales (GWh)



The trends are summarised as follows:

- Whilst there has been a steady decrease in customer numbers for Greenpower products since the September 2009 quarter, the size of the decreases have remained small over the last two quarters. They represent a loss of under 18,000 customers in each of the last two quarters.
- Most of the losses in customer numbers were from New South Wales and Victoria, which incidentally are two of the three states with a high number of customers. Queensland was the other state with a high number of customers, but its customer number was stable at about 250,000 customers.
- In total, there were just over 800,000 customers in the scheme by June 2010
- After decreases earlier in the year, sales quantities (GWh) have stabilized and even registered a small increase.
- Despite falling customer numbers, Victoria recorded near-record energy sales. In contrast, Queensland, despite its

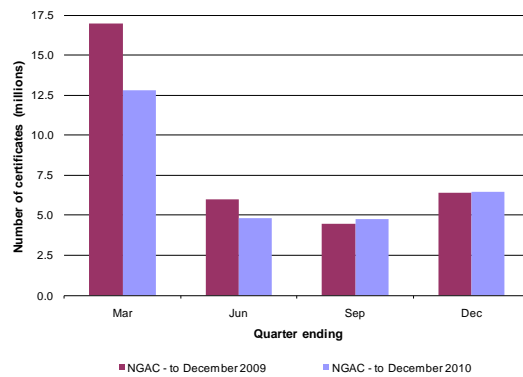
stable customer base, recorded a reduction in energy sales.

- Australian Capital Territory sales were comparable to the March quarter sales.
- All other states and territories recorded reduced sales.

Other green schemes

Figure 22 (Table 12) shows the number of New South Wales GGAS certificates (NGACs) traded in the December 2010 quarter. The number of certificates traded increased from the previous quarter; however, the data is similar to that of the previous year reflecting seasonal trends.

Figure 22 NGACs traded by quarter



Over 11.5 million NGACs were created in 2010, approximately 7 million certificates fewer than the total created in 2009. There remains an over-supply of about 30.5 million certificates.

The number of certificates created under the New South Wales based Energy Saving Scheme (ESS) was just over 0.55 million. This figure is about double the number of certificates created in 2009. The number of certificates that have been surrendered was less than 0.15 million, leaving a surplus of over 0.68 million certificates. Compared to other schemes, the number of certificates created under this scheme is small. In total, less than 1 million certificates have been created.

The trading of ESS certificates increased in the December quarter after being on a downward trend for the last three quarters (Figure 23,

Table 12). This could be a seasonal effect; however, this cannot be confirmed at this stage because the scheme has been in operation for less than two years and therefore lacks sufficient data to make a comparison.

Figure 23 ESSCs traded by quarter

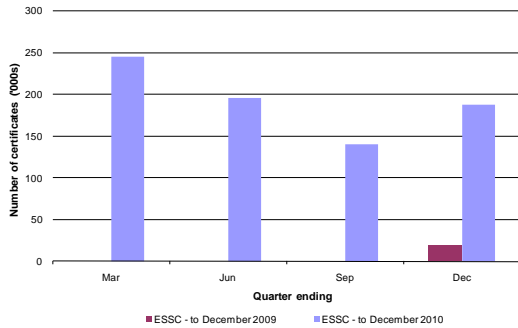


Figure 24 (Table 12) shows the number of GECs traded under the Queensland gas scheme up to the quarter ending December 2010. The traded quantities continued to decline for two successive quarters even though GEC prices have been relatively low. Despite the declining trend, the December quarter trade volume was just under the December quarter volume in 2009.

Figure 24 GECs traded by quarter

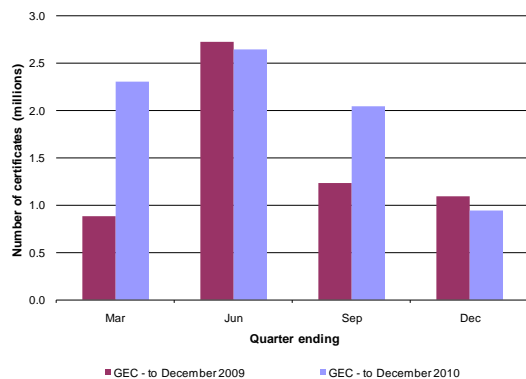
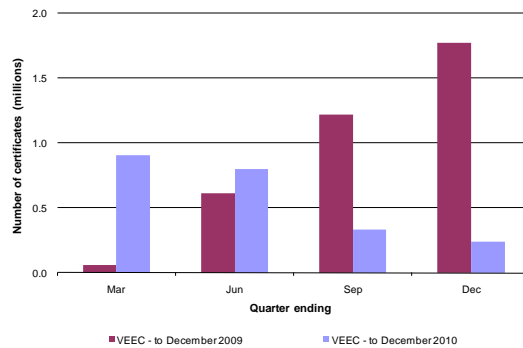


Figure 25 (Table 12) shows the trend in the creation of the Victorian Energy Efficiency Certificates (VEECs). The number of certificates created has continued to decline for four successive quarters. This downward trend can be attributed to a lack of new lighting installation (which forms about 78% of the total VEECs), possibly due to market saturation. This slow down in activity is pushing up the VEEC spot price, which has

risen to \$14.50/certificate, the highest it has been since the scheme started.

Figure 25 VEECs created by quarter



The number of certificates created to date under the VEEC scheme is about 6 million. Of these, about 2.5 million certificates have been surrendered. At this stage, there remains a surplus of about 3.5 million VEECs. This figure is likely to change, as surrenders for 2010 will not be completed until after 30 April 2011. Additional certificates for activity in 2010 may also be possible until the end of June 2011.

Outlook

A significant increase in rainfall during 2010 has boosted reservoir levels. As a result, there has been increased generation from hydro generation units in New South Wales, Tasmania, and Victoria. There has been some additional renewable capacity added during 2010. These factors, together with mild temperatures during spring and early summer months, have put downward pressure on both spot electricity and forward contract prices.

The increased generation potential and additional committed renewable capacity planned to come online in 2011 should see electricity spot and contract prices remain subdued for a while. The exception to this is Queensland, where the impact of the recent floods has seen spot electricity prices rise in early 2011. It is likely the Queensland prices will remain higher than normal in the short term.

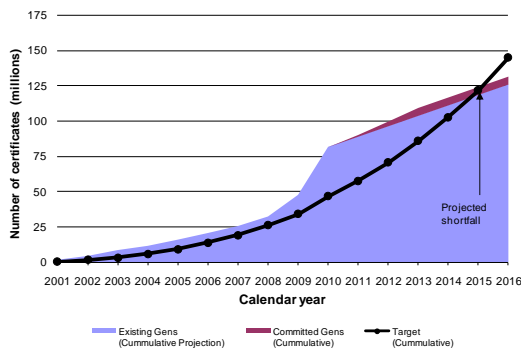
The trends in capital cost indicators show significant increases towards the later part of 2010. Whilst the cost indicators are already at

very high levels, the worldwide growth in demand for renewable technology plus general economic recovery means that costs are likely to head further north.

In Australia, there remains economic uncertainty and a lack of clear direction from the federal government on carbon pricing or other alternative carbon abatement approaches. The lack of firm policy direction and the uncertainty of ongoing government commitment are not boosting investment confidence.

The actual separation of the REC scheme into Large-scale Renewable Energy Target and Small-scale Renewable Energy Scheme came into effect from January 2011. This should prevent a further drop in REC prices in the near term. Early price signals show prices are heading north of \$30/certificate. However, unprecedented quantities of RECs registered for solar PV installations and additional hydro-electric generation in time for the separation of the RET scheme has resulted in additional RECs in an already oversupplied market. The oversupply of RECs is projected to filter out after 2015 (Figure 26).

Figure 26 Projected REC supply and demand

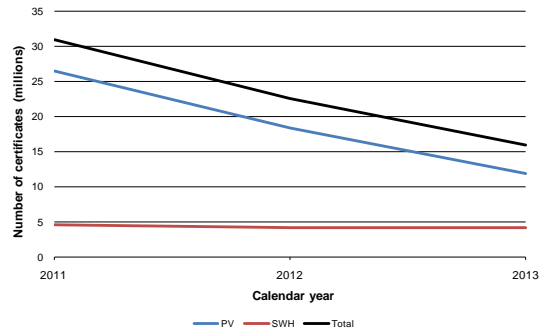


The projection includes REC estimates from existing and committed new generating units but does not consider outstanding voluntary surrenders. Based on the last two years' data, the outstanding voluntary surrender is estimated at under 2 million. This should bring forward the date by which RECs filter out.

Post separation of the RET scheme, the number of small-scale technology certificates (STCs) created under SRES show a continued interest in the small-scale technologies. There were about 2.8 million registered STCs with another 2.5 million pending registration.

Projections for STCs based on time series modelling show the number of certificates expected in 2011 is likely to be around 30 million (Figure 27). The volume of certificates from Solar PVs in subsequent years is projected to decline significantly with the reduction of the certificate multiplier from five to four in July 2011. The multiplier reduces by one every year thereafter until it reaches unity.

Figure 27 STC projection



Statistical appendix

Table 1 Commodity prices

Month	Crude Oil (\$US /bbl)	Aluminium (\$US/t)	Copper (\$US/t)	Lead (\$US/t)	Nickel (\$US/t)	Zinc (\$US/t)	Tin (\$US/t)
Sep-09	67.87	1834.09	6196.43	2204.55	17452.27	1883.93	14869.09
Oct-09	71.16	1878.57	6287.98	2240.77	18525.23	2047.50	
Nov-09	76.19	1946.29	6675.60	2308.76	16991.19	2193.38	
Dec-09	73.11	2180.10	6981.71	2328.52	17066.43	2375.95	15,163.59
Jan-10	76.07	2235.15	7386.25	2368.38	18439.25	2434.45	17714.75
Feb-10	73.04	2048.93	6848.18	2123.68	18976.00	2156.90	16361.75
Mar-10	77.54	2205.63	7462.83	2172.09	22461.30	2275.07	17549.35
Apr-10	84.48	2168.23	7745.08	2264.85	26030.75	2366.68	18683.50
May-10	73.55	2040.53	6837.68	1882.68	22008.16	1968.37	17566.05
Jun-10	75.35	1931.39	6499.30	1703.95	19388.64	1742.84	17319.77
Jul-10	76.55	1988.27	6735.25	1836.98	19517.50	1843.89	18191.36
Aug-10	76.60	2118.14	7283.95	2075.24	21413.33	2044.57	20754.76
Sep-10	75.29	2162.34	7709.30	2184.23	22643.41	2151.41	22701.14
Oct-10	81.90	2346.57	8292.40	2379.67	23807.38	2372.13	26342.62
Nov-10	84.29	2333.07	8469.89	2376.63	22909.32	2291.66	25519.09
Dec-10	88.75	2350.67	9147.26	2412.93	23454.29	2280.93	26163.33

Sourced from ABARE, and L.M.E

Table 2 Plant and equipment cost indices

Indices	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
CEPCI	524.20	532.90	539.10	541.80	555.30	558.20	556.40
CEPCI (Equipment)	618.40	631.80	641.10	645.50	666.00	670.20	668.10
M&S Index	1,446.50			1,448.30			1,461.30
M&S (Electrical power) Index	1,377.30			1,389.60			1,414.10

Table 3 Plant and equipment cost indices

Indices	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
CEPCI	550.70	549.50	552.50	556.20 ‡		
CEPCI (Equipment)	659.20	657.30	662.30	667.50 ‡		
M&S Index			1,473.30			1,476.70
M&S (Electrical power) Index			1,419.20			1,434.90

Sourced from Chemical Engineering Magazine (‡ Preliminary values)

Table 4 NEM and WA Energy prices (\$/MWh)

State	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10
New South Wales	77.23	43.61	28.59	28.90	22.73
Queensland	46.82	39.77	21.57	21.12	19.93
South Australia	81.76	82.74	31.64	26.79	20.78
Tasmania	30.41	26.55	37.64	38.78	20.58
Victoria	27.11	49.99	44.33	25.31	18.59
Western Australia	27.86	29.84	29.38	24.49	31.12

Sourced from: AEMO and IMOWA

Table 5 REC prices (\$/MWh)

	Mar-09	Jun-09	Sep-09	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10
REC Spot Price	50.51	49.16	38.69	32.52	37.73	41.86	37.75	33.00

Source from: Green Room data

Table 6 RECs generated yearly from solar (deemed) by state (GWh)

State	2009	2010	Mar-10	Jun-10	Sep-10	Dec-10
Australian Capital Territory	43.5	282.7	18.8	59.2	83.3	121.5
New South Wales	555.1	9,204.1	315.2	1,365.7	2,629.4	4,893.8
Northern Territory	21.0	77.4	2.7	21.2	13.4	40.1
Queensland	766.0	5,773.2	354.7	1,025.7	1,629.9	2,763.0
South Australia	338.1	1,901.6	117.4	291.4	463.7	1,029.1
Tasmania	38.0	97.5	11.0	17.4	34.6	34.5
Victoria	342.0	2,847.3	221.9	572.7	679.2	1,373.5
Western Australia	369.2	2,551.7	223.9	491.4	773.7	1,062.7

Sourced from <https://www.rec-registry.gov.au>

Table 7 RECs generated yearly from solar hot water (deemed) by state (GWh)

State	2009	2010	Mar-10	Jun-10	Sep-10	Dec-10
Australian Capital Territory	68.3	28.5	5.5	7.8	7.3	7.8
New South Wales	3,150.9	1,204.4	301.3	340.2	294.3	268.5
Northern Territory	76.3	39.3	7.9	6.3	12.8	12.3
Queensland	1,414.9	1,036.4	164.5	231.6	335.7	304.6
South Australia	360.1	201.4	32.0	60.1	56.5	52.9
Tasmania	152.2	66.1	5.7	12.0	32.7	15.8
Victoria	2,103.9	809.1	79.1	159.3	215.1	355.7
Western Australia	528.2	457.4	73.0	106.1	118.1	160.2

 Sourced from <https://www.rec-registry.gov.au>
Table 8 RECs generated yearly from wind (deemed) by state (MWh)

State	2009	2010	Mar-10	Jun-10	Sep-10	Dec-10
Australian Capital Territory	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
New South Wales	0.3120	10.4180	1.3760	3.8560	3.3190	1.8670
Northern Territory	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Queensland	0.0540	0.0570	0.0000	0.0570	0.0000	0.0000
South Australia	0.1500	0.1470	0.0000	0.0030	0.0000	0.1440
Tasmania	0.3460	0.4920	0.0090	0.0010	0.0000	0.4820
Victoria	0.1570	0.2170	0.0000	0.1990	0.0090	0.0090
Western Australia	0.1590	0.3290	0.1380	0.0280	0.1240	0.0390

 Sourced from <https://www.rec-registry.gov.au>
Table 9 RECs generated yearly from wind by state (GWh)

State	2009	2010	Mar-10	Jun-10	Sep-10	Dec-10
Australian Capital Territory	0.0	0.0	0.0	0.0	0.0	0.0
New South Wales	239.7	394.0	63.7	106.3	124.6	99.4
Northern Territory	0.0	0.0	0.0	0.0	0.0	0.0
Queensland	3.4	30.0	2.3	8.1	9.3	10.3
South Australia	1,300.2	2,235.5	351.8	432.9	591.5	859.3
Tasmania	306.8	423.3	38.6	99.2	92.9	192.6
Victoria	510.5	1,205.8	174.9	280.7	303.0	447.2
Western Australia	384.8	650.7	98.1	164.0	127.0	261.6

 Sourced from <https://www.rec-registry.gov.au>
Table 10 Greenpower customer numbers

State	Jun-09	Sep-09	Dec-09	Mar-10	Jun-10
Australian Capital Territory	14,104	15,118	15,788	16,419	16,917
New South Wales	245,255	252,274	193,487	192,559	188,818
Northern Territory	0	5	24	13	13
Queensland	250,190	258,500	245,259	252,967	252,678
South Australia	92,761	94,221	87,780	83,418	81,166
Tasmania	40	53	56	57	57
Victoria	362,199	353,293	327,044	307,078	295,182
Western Australia	8,287	6,642	7,742	7,286	7,097
Total	972,836	980,106	877,180	859,797	841,928

 Sourced from <http://www.greenpower.gov.au>
Table 11 Greenpower energy (GWh) sales

State	Jun-09	Sep-09	Dec-09	Mar-10	Jun-10
Australian Capital Territory	24,260	31,876	35,285	27,423	27,348
New South Wales	146,923	150,506	136,741	118,207	115,261
Northern Territory	0	8	10	11	11
Queensland	161,808	137,004	165,617	168,762	147,818
South Australia	66,203	69,208	73,875	60,525	52,087
Tasmania	113	133	207	180	164
Victoria	179,731	167,233	155,537	143,274	176,158
Western Australia	18,222	17,659	17,253	14,171	13,835
Total	597,260	573,627	584,525	532,554	532,682

 Sourced from <http://www.greenpower.gov.au>
Table 12 Number of certificates traded

Certificate	Mar-09	Jun-09	Sep-09	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10
ESSC	0	0	0	18,713	245,406	195,539	140,520	187,546
NGAC	16,957,973	5,967,687	4,441,229	6,428,116	12,808,170	4,790,403	4,763,589	6,447,944
GEC	885,203	2,733,376	1,229,248	1,093,228	2,310,540	2,651,354	2,042,574	947,402
VEEC	57,936	610,304	1,222,166	1,772,511	909,821	797,397	331,544	238,636

Sourced from various scheme registries

Table 13 Scheme targets (GWh)

Year	MRET target	RET target	LRET target	Waste coal mine gas	Effective target	Generation by Year	Cumulative target	Cumulative generation
2001	300				300	1,620	300	1,620
2002	1,100				1,100	2,708	1,400	4,328
2003	1,800				1,800	4,143	3,200	8,472
2004	2,600				2,600	2,995	5,800	11,466
2005	3,400				3,400	4,382	9,200	15,849
2006	4,500				4,500	4,702	13,700	20,551
2007	5,600				5,600	4,941	19,300	25,492
2008	6,800				6,800	6,748	26,100	32,240
2009	8,100				8,100	15,325	34,200	47,565
2010	9,500	12,500			12,500	34,011	46,700	81,577
2011		14,400	10,400	425	10,825		57,525	
2012		16,300	12,300	850	13,150		70,675	
2013		18,200	14,200	850	15,050		85,725	
2014		20,100	16,100	850	16,950		102,675	
2015		22,000	18,000	850	18,850		121,525	
2016		26,600	22,600	850	23,450		144,975	
2017		31,200	27,200	850	28,050		173,025	
2018		35,800	31,800	850	32,650		205,675	
2019		40,400	36,400	850	37,250		242,925	
2020		45,000	41,000	850	41,850		284,775	
2021		45,000	41,000		41,000		325,775	
2022		45,000	41,000		41,000		366,775	
2023		45,000	41,000		41,000		407,775	
2024		45,000	41,000		41,000		448,775	
2025		45,000	41,000		41,000		489,775	
2026		45,000	41,000		41,000		530,775	
2027		45,000	41,000		41,000		571,775	
2028		45,000	41,000		41,000		612,775	
2029		45,000	41,000		41,000		653,775	
2030		45,000	41,000		41,000		694,775	

Compiled from various sources