

Report on impact of the Renewable Energy Target on power prices

This Report has been prepared for the REC Agents Association (RAA) – a national industry association representing companies that create and trade in renewable energy certificates - by Green Energy Markets (GEM) to shed light on (i) the real cost impact of the Renewable Energy Target (RET) and (ii) assess what is really driving up power prices.

This report is an important and early contribution to the Review of the Renewable Energy Target, and goes to the heart of the issue of the cost of the Renewable Energy Target.

The key findings are:

- The cost of the RET that gets passed through to residential customers currently amounts to a modest 1.12 cents per Kilo Watt hour (kWh) or 4 per cent of the average residential electricity bill.
- The cost of the Small-scale Renewable Energy Scheme (SRES) that supports residential and commercial solar systems currently accounts for 0.54 cents per kWh or 2 per cent of a customers bill and is expected to more than halve over the next two years to account for less than 1 per cent.
- The RET provides downward pressure on wholesale electricity prices and as a result wholesale prices are considerably lower than would otherwise be the case. The reduction in the wholesale price due to the RET is estimated to be \$6.70 per Mega Watt hour (MWh) equivalent to 0.67 cents per kWh.
- In the case of the SRES the reduction in the wholesale price cancels out the future cost increase that gets passed through to customers. In fact, residential customers will be better off in the future with the operation of the SRES as the reduction in the wholesale price exceeds the cost pass-through on customer bills.
- Regulated transmission and distribution cost has been the biggest driver of rising power prices to date and is expected to be the major contributor to rising power prices in the future.
- Though not quantified, by reducing demand on the local electricity distribution system solar PV supported by the SRES also reduces losses and reduces the stress on peak demand periods reducing the likelihood of customers losing power supply.

Cost impact of the RET

There are two components to the RET: the Small-scale Renewable Energy Scheme and the Large-scale Renewable Energy Target . The focus of the REC Agents Association is on the SRES which covers residential and commercial sized solar energy systems. The LRET covers large-scale renewables such as wind farms and large solar power systems.

The Australian Energy Market Commission (AEMC) released a report “2013 Residential Electricity Price Trends” on 13 December 2013. The AEMC analysed the composition of residential electricity price by state as well as developing a national average and projected prices to 2015/16. The results at a national level are summarised in Table 1.

The major policy measure supporting the deployment of renewables is the RET. State Feed-in tariffs (FIT) have been phased out although the cost of these will continue for several years yet. It is the RET that has been in the spotlight recently and its cost in the current year is 1.12 cents per kWh (includes the SRES and LRET combined) which amounts to 4 per cent of the total bill.

**Table 1 – Composition of Electricity Prices (National Average)
(Extract from the AEMC’s 2013 Residential Electricity Price Trends Report)**

		2012/13	2013/14	2014/15	2015/16
		Base year	Current year		
Environmental policies	c/kWh	4.56	4.49	4.48	2.91
Carbon	c/kWh	2.44	2.53	2.60	0.65
LRET	c/kWh	0.57	0.58	0.56	0.65
SRES	c/kWh	0.81	0.54	0.34	0.24
FIT Schemes	c/kWh	0.57	0.67	0.81	1.20
Other state schemes	c/kWh	0.17	0.17	0.17	0.17
Regulated networks	c/kWh	13.58	14.40	15.11	15.53
Transmission	c/kWh	2.41	2.54	2.63	2.71
Distribution	c/kWh	11.17	11.85	12.48	12.82
Competitive market	c/kWh	8.96	9.06	9.30	9.60
Wholesale	c/kWh	5.29	5.26	5.38	5.56
Retail	c/kWh	3.68	3.80	3.92	4.04
Total	c/kWh	27.11	27.95	28.89	28.04

Source: The Australian Energy Market Commission (AEMC) report “2013 Residential Electricity Price Trends” - 13 December 2013

The cost pass-through by electricity retailers to customers is only one part of the equation. To determine the real cost impact of the RET on customers we need to also account for the reduction in the wholesale price that is caused by (i) the reduction in demand caused by solar and (ii) the additional competition coming from renewable power stations. The lower electricity demand and competition from renewable power projects means that higher cost fossil fuel generators do not need to operate which means that the wholesale power price paid by all customers is lower.

As an example, the AEMC in their “2011 Residential Electricity Price Trends Report” projected that the wholesale price component for 2013/14 would be 9.33 cents per kWh (Figure 2). In their current assessment the wholesale component for 2013/14 is estimated to be 5.26 cents per kWh. This is a reduction of 4.1 cents per kWh or 44 per cent. A component of the price reduction will be as a result of the reduction in electricity demand caused by solar systems supported by the SRES.

Consulting firm SKM undertook extensive modelling of the cost impact of the Renewable Energy Target (RET) for the Climate Change Authority in December 2012. It found that wholesale prices could be up to \$7.90 per MWh lower to 2022 due to the impact of the RET (refer to Figure 1). The average over the modelling period was \$6.70 per MWh equivalent to 0.67 cents per kWh.

Wholesale prices

In the current electricity market environment with surplus capacity and low demand growth, a higher RET and higher renewable development is expected to lead to lower wholesale prices, as prices are further suppressed by this additional supply. The wholesale price reductions offset the additional RET certificate cost associated with a higher RET in the short term. In the “No RET” case the difference in wholesale prices peaked at \$18.1/MWh and then reduced once renewable development recommenced post 2023. In the “Updated 20% Target”, the modelling shows that wholesale prices could be up to \$7.9/MWh higher than under “Reference Case 1” prior to further renewable generation development post 2022.

Extract from SKM Report, Page 5

Figure 1. Extract from Climate Change Authority Report on RET Review
Change in wholesale and retail prices – no RET compared with reference case 1



Source: SKM MMA and Climate Change Authority, 2012.
 Note: A positive number indicates the value is higher in the *reference case 1* scenario than in the *no RET* scenario.

Energy-intensive trade-exposed businesses do not fully pay for the RET. These businesses are able to obtain Partial Exemption Certificates (PECs) which significantly reduces the cost of the RET for their electricity consumption. These businesses do however benefit from the lower wholesale power prices.

Impact of small-scale solar

The SRES is estimated to account for 40 per cent of the total RET impact from 2012 to 2020 and as a result might account for an average reduction in wholesale prices of \$2.70 per MWh. This is equivalent to 0.27 cents per kWh and exceeds that AEMC's estimated cost pass through in 2015/16 of 0.24 cents per kWh. The reduction in the wholesale price exceeds the cost pass-through on customer bills, which means that residential customers will be better off in future with the operation of the SRES.

The reduction in energy demand also reduces the pressure on network investment and we expect that less investment will be required in distribution and transmission infrastructure over time. Regulated transmission and distribution account for half of the delivered cost of electricity to households (Table 1). These costs have blown out dramatically over the last five years with unprecedented levels of investment. This has been the key reason for the surge in electricity price experienced by households and businesses, not the cost of the RET that have been claimed by some commentators.

There has been considerable concern that domestic gas supplies may not be sufficient in the short term and that prices will increase dramatically as we align with international liquid natural gas (LNG) prices.

Due to higher gas prices and potential gas shortages in some states, we can expect that gas will be diverted from the power generation market increasing prices (and the emission intensity) of our electricity. Gas-fired generators supplied 12 per cent of electricity in the National Electricity Market (interconnected south east Australian market, excluding Western Australia and the Northern Territory) in 2012, so the impact will be material.

The reduction in demand caused by the SRES creates some protection for electricity consumers so that higher-priced gas used for power generation will not necessarily equate to higher-priced electricity.

Distributed energy such as solar PV provides competitive pressure to network investment and fossil fuel electricity generation. As a result it will need to play an increasingly important role in protecting customers against future rises in these – the most significant segments of a customers' bill.

Network charges behind higher power prices

Regulated transmission and distribution charges amounted to 10.08 cents per kWh in 2010/11 (Figure 2) and represented 45 per cent of a customer's electricity bill. By 2015/16 these regulated charges are expected to increase to 15.56 cents per kWh, a 54 per cent increase on 2010/11 levels.

Over this same time period:

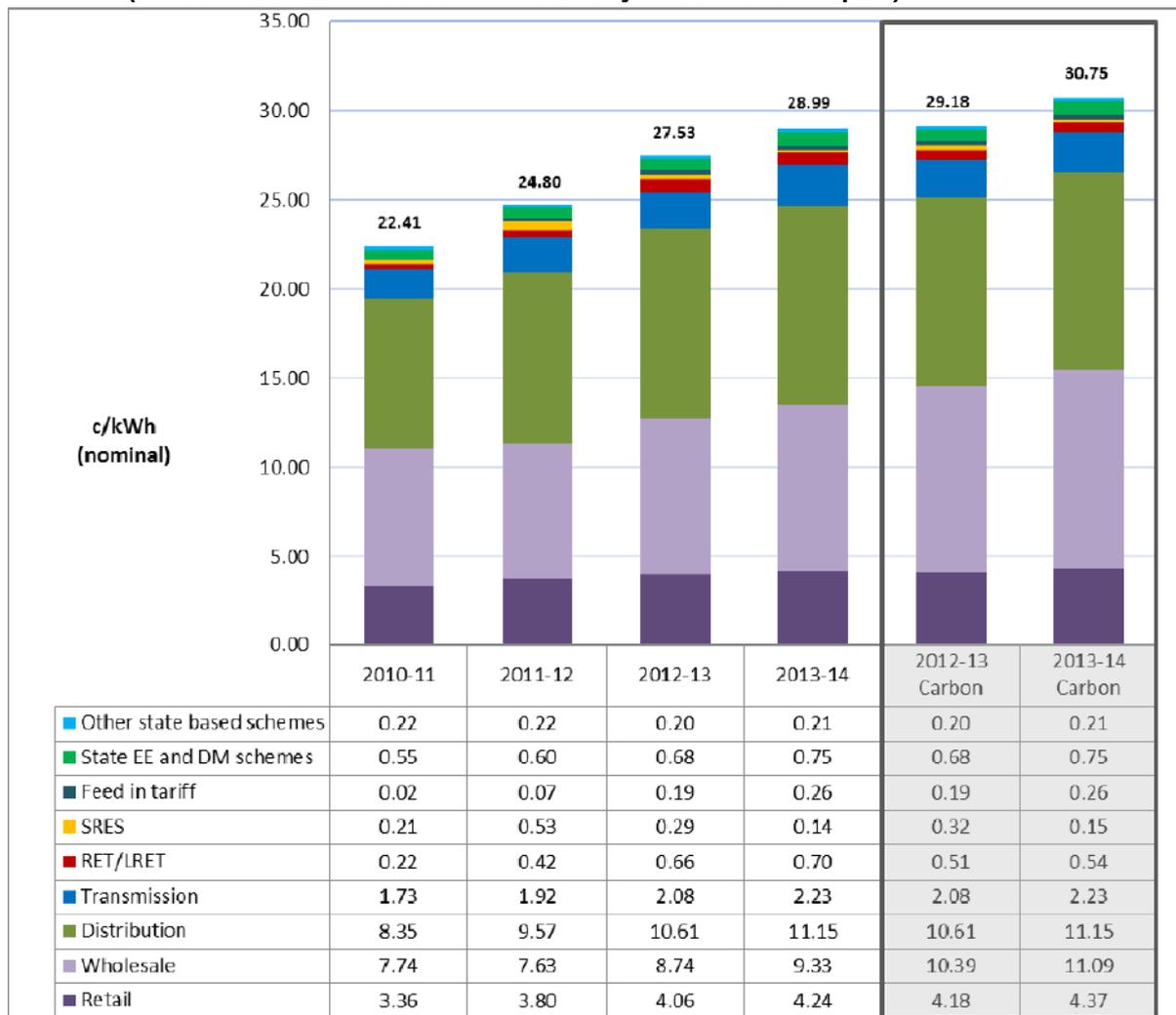
- The wholesale price is expected to fall by 2.18 cents per kWh;
- The cost of the RET (SRES and LRET combined) is expected to increase by 0.46 cents per kWh; and
- The retail component is expected to increase by 0.68 cents per kWh.

**Table 2 – Composition of National Electricity Prices (2010/11 to 2015/16)
(Cents per kWh)**

	2010/11	2013/14	2015/16	Increase from 2010/11 to 2015/16
LRET	0.22	0.58	0.65	0.43
SRES	0.21	0.54	0.24	0.03
FIT Schemes	0.02	0.57	1.20	1.18
Other state schemes	0.77	0.17	0.17	-0.60
Transmission	1.73	2.54	2.71	0.98
Distribution	8.35	11.85	12.82	4.47
Wholesale	7.74	5.26	5.56	-2.18
Retail	3.36	3.80	4.04	0.68
	22.40	25.31	27.39	4.99
Regulated Network	10.08	14.39	15.53	5.45
Share of total cost	45.0%	56.9%	56.7%	109.2%

Source: AEMC Nov 2011 and Dec 2013 Pricing Reports

Figure 2 – Composition of Electricity Prices (National Average)
(Extract from 2011 Residential Electricity Price Trends Report)



Source: The Australian Energy Market Commission (AEMC) report "Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014" – 25 November 2011