
ROAM CONSULTING

ENERGY MODELLING EXPERTISE

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Report (CEC0002) to



Clean Energy Council

Implications of the LRET and SRES modifications to the RET

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EXECUTIVE SUMMARY

On 26 February 2010 the Government announced changes to be made to the Renewable Energy Target scheme. From January 2011, the existing scheme will include two parts – the Small-scale Renewable Energy Scheme (SRES) and the Large-scale Renewable Energy Target (LRET).

This study explores implications of the LRET/SRES under a wide variety of possible future conditions, as a guide to policy design. In particular, the following questions are explored:

1. **Banked RECs currently in the market** - Banked RECs can be surrendered against liability for the LRET without limitation. How many banked RECs are there already in the market, and how long could this completely satisfy the LRET?
2. **Banked RECs created from SWH and SGUs in 2010** - The RECs market is currently experiencing a massive influx of RECs from SWH (solar water heating) and SGUs (small generating units), far in excess of the RET requirement. How many banked RECs could potentially be created in 2010 from this source, and for how long could these completely supply the LRET? How would this be impacted if the LRET/SRES were to begin 6 months earlier?
3. **Feasibility of build rates for large-scale renewable generation under the LRET** - If there are sufficient banked RECs available to satisfy the LRET for several years, there may be a sudden shock to the RECs market when a very large quantity of large-scale renewable generation is suddenly required. How much new capacity could potentially be required in a single year, and is this feasible?
4. **Cost of the SRES to consumers** - The SRES is currently uncapped, suggesting an unlimited liability on electricity consumers. How much is the cost of the SRES likely to be for consumers? Should this unlimited liability be a cause for concern?
5. **Impact of the RET on retail electricity prices** - How much could the LRET and SRES cost consumers, as a proportion of the total cost of electricity supply?

Banked RECs currently in the market

Historical RECs registration was analysed and compared with historical MRET targets. It was found that 12,500 GWh of RECs are likely to be banked in the market, available for surrender against LRET liability. This is a substantial quantity, being sufficient to completely fill the remaining LRET requirement for several years (RECs from new large-scale renewable generation would not be required until 2013).

RECs from solar water heating and solar credits

Several trajectories for future RECs creation from SWH (solar water heating) and solar credits (created under the solar multiplier mechanism for small generating units, SGUs) were considered, as illustrated in the figures below. In a Low trajectory the recent sharp increase observed in installation of SWH and SGUs falls away immediately as the market is rapidly saturated. In a High trajectory the recent sharp increase is only the beginning of a continued rapid increase that then gradually decreases and approaches an equilibrium level. These are not intended to be forecasts, but rather represent the diversity of

possible trajectories for the purposes of exploring the wide range of potential impacts that may occur as a result of various policy decisions.

Figure 1 – Possible trajectories for installation of solar water heating (SWH)

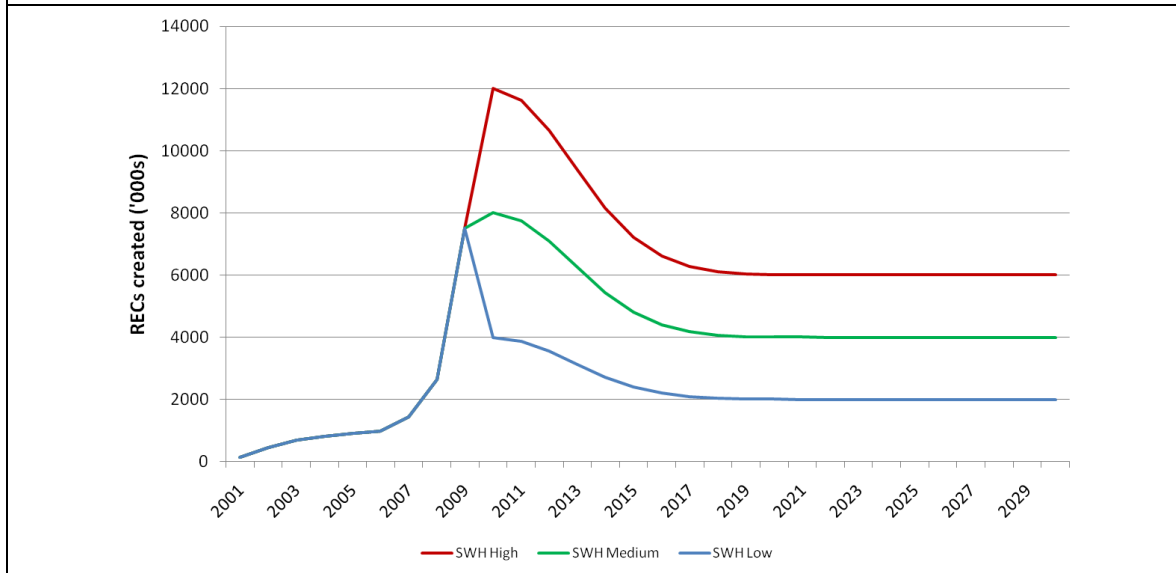
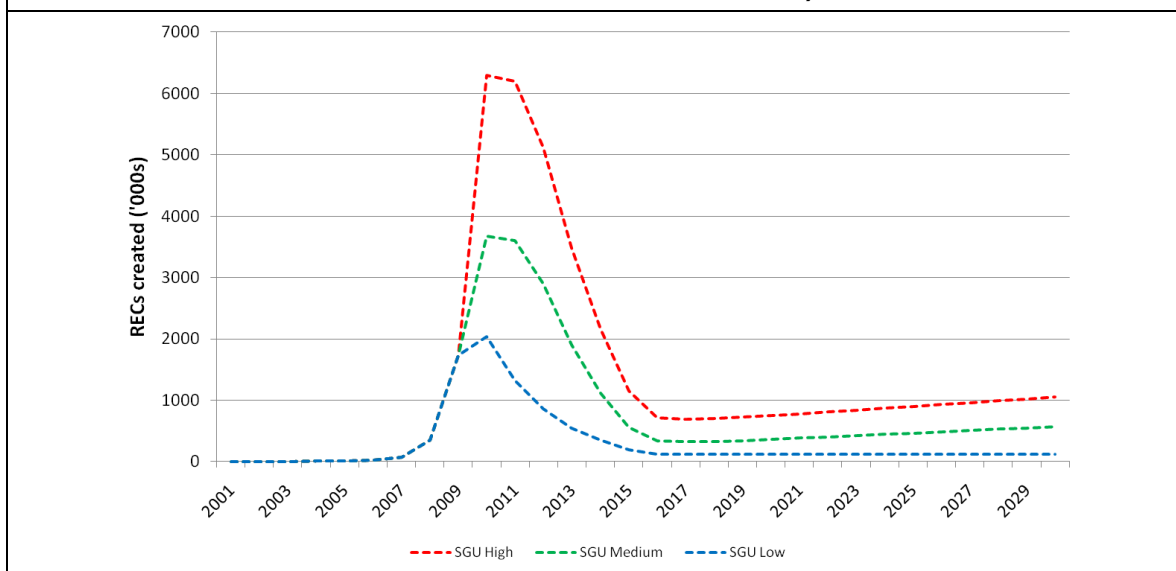


Figure 2 – RECs resulting from SGU installations (including impact of multiplier under solar credits mechanism)

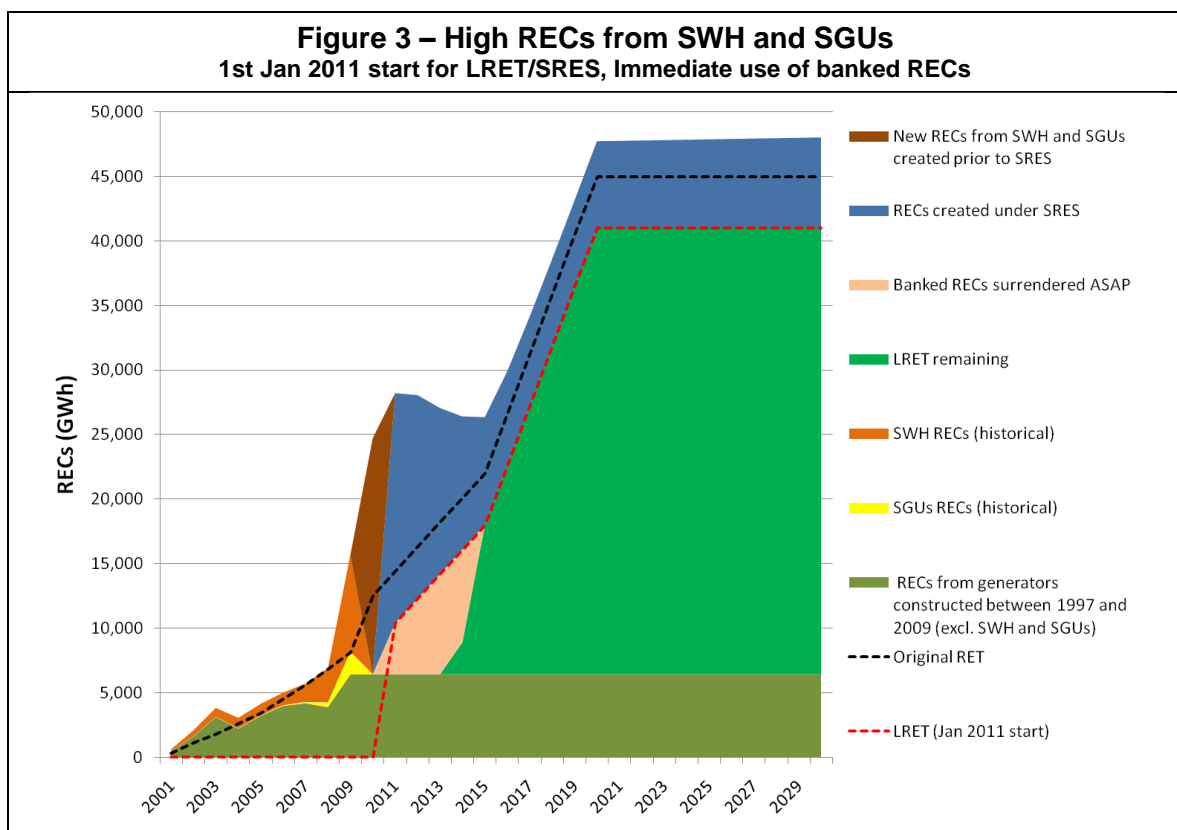


ROAM's data shows that in the scenario of High RECs creation from SWH and SGUs 12,000 GWh of RECs could be banked in 2010. This is a very substantial quantity, being close to the amount of RECs currently banked in the market. Very few RECs would be banked in the Low scenario, since all the RECs are required to meet the annual target.

If the LRET/SRES is started 6 months earlier on 1st July 2010 then only 6,000 GWh of RECs would be banked in 2010 in the High scenario. A reduction in banked RECs of 6,000 GWh is substantial; this is equivalent to the output of more than 2000 MW of wind generation for a year, and is sufficient to supply the LRET entirely in 2011 and 2012.

Implications for SRES and LRET

If all of the available banked RECs are surrendered as soon as possible, no new RECs are required under the LRET until 2014 in the High and Medium scenarios, and 2013 in the Low scenario (Figure 3). If banked RECs are instead surrendered around 2020 (when the liability for RECs is highest) new RECs are required under the LRET from 2011 in all three scenarios. Reality is likely to lie within these extremes, perhaps with the RECs banked under the earlier MRET being surrendered at a later date, and those created in 2010 being surrendered as soon as possible due to concerns around liquidity for small traders. RECs from new large-scale renewable generation would then be required from 2013 in the High scenario, 2012 in the Medium scenario and 2011 in the Low scenario (these dates are listed in Table 1).



Starting the LRET/SRES on 1st July 2010

Regardless of the manner in which banked RECs are surrendered, it was found that starting the LRET/SRES 6 months earlier had an impact upon the first date when RECs from new large-scale renewable generators are required. In most cases new large-scale

renewable generation is required one year earlier, or a significantly larger quantity is required in that year. Dates in each case are summarised in Table 1. This suggests that starting the LRET/SRES 6 months earlier could assist in smoothing the entry of new large-scale renewable generation over the early years of the LRET/SRES.

	LRET/SRES start on 1st Jan 2011			LRET/SRES start on 1st July 2010		
	High	Medium	Low	High	Medium	Low
RECs creation from SWH and SGUs:						
Surrendered as soon as possible	2014	2014	2013	2014	2013	2013
Surrendered around 2020	2011	2011	2011	2010	2010	2010
Surrender depending upon creation date	2013	2012	2011	2012	2011	2010

Build rates for new large-scale generation

If all banked RECs are surrendered as soon as possible, this could depress the RECs price significantly until 2014/15, potentially to levels where large-scale generation could not be supported. If in response no new large-scale renewable generation is installed until all available banked RECs are entirely surrendered, 2776 MW of wind, 221 MW of schedulable renewables and 125 MW of solar generation could be required to be installed in a single year (2014) to meet the LRET. This is likely to be challenging. However, with sufficient foresight and planning it is possible that this quantity of renewable generation could be brought online in a single year, provided that limitations around availability of parts (eg. supply of turbines) and skills shortages are addressed.

Since this generation is not required for several years, a progressive ramp-up could occur over the preceding years. This would equate to an annual installation rate of 800 MW of wind per year (or less in some scenarios). This equates to one large wind farm installed per state, per year, and is considered feasible based upon announced projects and historical build rates. ROAM's analysis of large-scale renewable projects that are currently under construction or in late stages of development suggests that there is 680 MW of wind generation available that is likely to be operational by mid-2010. There is an additional 1140 MW that could be available at the start of the LRET in January 2011.

The RECs market has been demonstrated to be far from a perfect market, so behaviour can be very difficult to predict. However, it is unlikely that large-scale renewable generators will be installed progressively if the RECs price remains at current levels, which is a possibility if the large supply of banked RECs is utilised to fulfil the LRET in the short term. To avoid sudden very High RECs prices when banked RECs are exhausted, it may be desirable to explore policy options to manage the large supply of banked RECs.

Cost of the LRET/SRES

In the early parts of the scheme the SRES contributes 0.6 - 2% of the total cost of electricity, even in scenarios where the installation rate of SWH and SGUs is very High. In the later parts of the scheme, the SRES only contributes 0.1 - 0.6% of the total cost of electricity. The highest cost of the SRES in any year in any scenario is \$3.40/MWh. This includes a scenario where the installation rate of SWH and SGUs under the SRES is very high.

The LRET contributes up to 6% of the total cost of electricity in scenarios where REC prices are very High (at the ceiling). This is relatively independent of the amount of RECs produced by SWH and SGUs, due to the design of the LRET. This is likely to be an overestimate, since a High wholesale electricity price is likely to be associated with a lower REC price (the sum of the two being sufficient to support the long run marginal costs of renewable generators).

Therefore, despite large proportional increases in the cost of the RET relative to current levels, the total cost of electricity is likely to remain dominated by the cost of distribution, and the cost of wholesale electricity (elevated by the carbon cost under the CPRS).

