

Energy Security Board  
[info@esb.org.au](mailto:info@esb.org.au)

20 July 2018

**Submission to Energy Security Board on the National Energy Guarantee Consultation  
Regulation Impact Statement (29 June 2018)**

The Voluntary Carbon Market Association (VCMA) is making this submission in response to the Energy Security Board's (ESB) Consultation Regulatory Impact Statement (RIS). The substantive part of our submission is focussed on the emissions reduction component of the National Energy Guarantee (NEG).

Our submission is attached, our key issues are:

- The ESB has not made the case for implementing its proposed NEG design. The RIS as tabled by the ESB on 29 June 2018 has used vastly out of date assumptions and data to justify the policy intervention.
- When we consider the level of large-scale renewables that have been committed, contracted or subject to tenders, the level of emissions from the NEM is expected to significantly lower than the 26% target;
- We believe that the NEG as designed will lead to higher greenhouse emissions than would otherwise be the case; and
- We believe that the ESB could readily make changes to the design to address some of these issues, however the problem still remains that emissions reduction initiatives already in place are sufficient to exceed the 26% emission reduction target.

As a result, the NEG as proposed does not deliver any greenhouse reductions beyond what would happen in its absence. In fact, there is a real risk that the added complexity and constraints that the NEG imposes will make matters worse.

We remain happy to discuss our submission with you at your convenience.

Yours sincerely

Ric Brazzale

**President  
Voluntary Carbon Markets Association Inc.**

0419 522 659

This paper has been developed to consider the level of emission reductions from the electricity sector and explore the impacts on the Voluntary market of the proposed NEG Design.

In particular, this paper considers:

1. The implications of actual electricity emissions being well below the proposed NEG Target;
2. The impact on the GreenPower market of the surge in renewable investment and how a future GreenPower scheme might adapt;
3. The role of the ACCU market in providing a long-term support mechanism for new renewable investment; and
4. How the NEG as currently designed limits the scope for voluntary action and reduces the level of renewable investment and greenhouse reductions.

We conclude that:

- The ESB has not made the case for implementing its proposed NEG design in its Regulatory Impact Statement (RIS);
- The ESB has used vastly out of date assumptions and data to justify the policy intervention. When we consider the level of large-scale renewables that have been committed, contracted or subject to tenders, the expected level of emissions from the NEM is significantly lower than 26% target;
- We believe that the NEG as designed will lead to higher greenhouse emissions than would otherwise be the case; and
- There are a number of changes that could be made to address some of these issues, outlined below, however the problem still remains that emissions reduction initiatives already in place are sufficient exceed the 26% emission reduction target.

The following changes to the NEG design would go some way to address some of the identified shortcomings:

- Any entity, including renewable generators and other registered parties should be capable of registering and banking emission reductions (Under-achievement), not just Electricity Retailers;
- There should be no discrimination between emission reductions sourced from behind the meter actions (eg. embedded generation or energy efficiency) and if end consumers wish to separately register their abatement (and either use it for the voluntary market or the ACCU market) they should be able to do so without penalty;
- Any emission reductions that are so registered should be extinguished under the NEG and not used by Retailers in meeting their NEG liability, in this way additionality can be maintained by parties seeking to undertake voluntary action or claim ACCUs.

These changes have been addressed in detail in the Voluntary Carbon Markets Association and the REC Agents' Association submissions to the ESB on the NEG design.

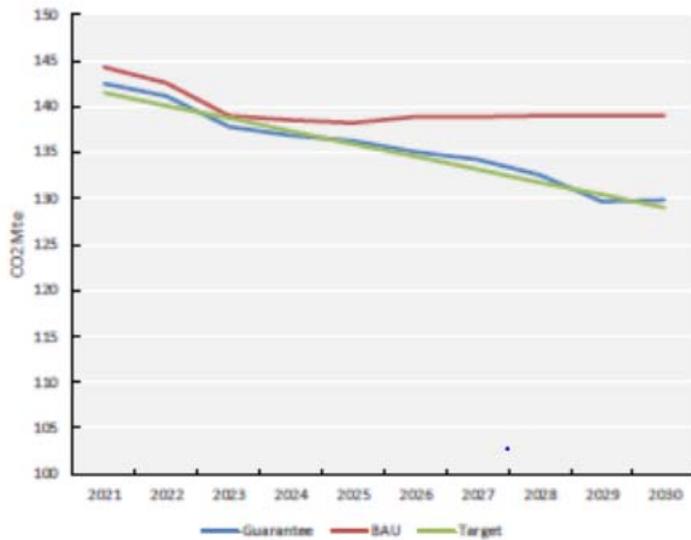
### **Emissions from the National Electricity Market (NEM)**

AEMO publishes emissions intensity of electricity supply in the NEM through its Carbon Dioxide Equivalent Intensity Index. In 2005 the emission intensity index was 0.9803 tonnes per MWh. This was based on Sent-out electricity of 180.8 TWh. Total NEM emissions in 2005 were 177.3 million tonnes.

The Government's target of a 26% reduction on 2005 emissions by 2030 means that total NEM emissions can be no more than 131.2 million tonnes. AEMO's latest electricity projections, included in their Integrated System Plan (ISP) released on 17 July 2018, forecast that electricity demand would be 183.9 TWh by 2030. This means that the emission intensity target for 2030 would be 0.7134 tonnes per MWh.

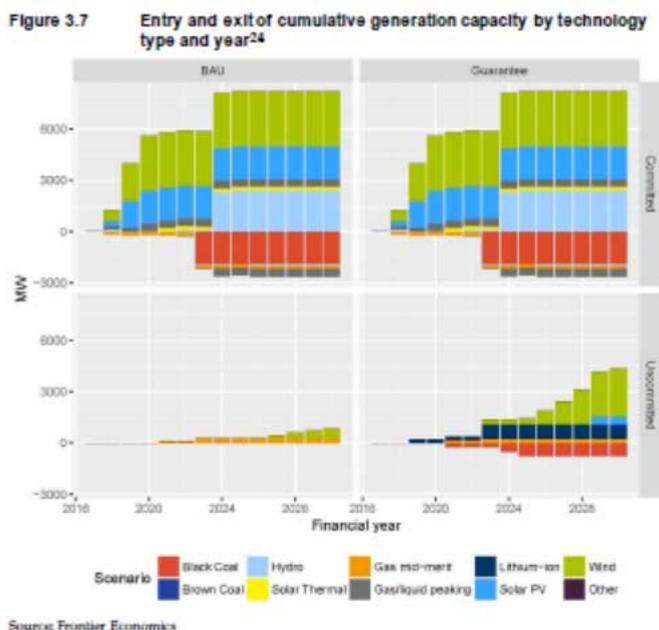
The ESB released its Modelling report (ESB Advice, 20 November 2017) to determine the impact that the NEG Target would have. This modelling has been used in the Regulation Impact Statement released on 29 June 2018. The ESB made an estimate of what the “Business as usual” (BAU) emissions would be without the NEG (Figure 1). The ESB estimates that emissions would otherwise be 139 million tonnes by 2030 and that the NEG would result in emissions falling to approximately 129 million tonnes. We assume that the difference between the ESB’s 129 million target and the 131.2 million target that we have calculated is the impact of voluntary surrender under the GreenPower program.

**Figure 1 – Extract from the ESB Modelling Report (20 Nov 2017, page 16)**



The modelling used by the ESB in its RIS, is woefully out of date. The November 2017 modelling significantly underestimated the level of large-scale renewable energy investment that will take place. It appears that they had assumed that under a BAU scenario only an additional 597 MW would be built in addition to the level of renewables that had already been committed under the Renewable Energy Target. They had then assumed that a further 2,674 MW would be committed under a NEG scenario. (Refer to Figure 2 and 3 below)

**Figure 2 – ESB Cumulative Generation**



**Figure 3 – ESB Investment in Uncommitted Plant**

**Table 3.3 Investment in uncommitted plant (MW)**

	Coal	Gas	Dispatchable renewable (incl. batteries)	Intermittent renewable
BAU	0	263	0	597
Guarantee	0	251	835	3,271

Source: Frontier Economics

The ESB report includes only a limited level of new renewable generation in the BAU assessment. From the comment on Page 9 of the report (extract below), it appears that the ESB’s modelling limited the level of renewables to no more than the 33,000 GWh RET target level.

*The announced state renewable energy targets in Victoria (VRET) and Queensland (QRET) and the South Australian security target are assumed to only include already committed investment in generation, that is, 400MW of capacity in Queensland and 650MW of capacity in Victoria. This pre-determined entry of generation capacity is referred to below as ‘committed’ capacity. No additional capacity is assumed to be encouraged by these policies. (Page 9, ESB Modelling Report)*

The level of projects that are currently under construction, are currently contracted or are to be committed under various contracting initiatives will mean that we will likely get to 40% renewables market share by 2030. Refer to Tristan Edis’s analysis published in Renew Economy- <https://reneweconomy.com.au/how-australia-will-get-to-33-renewable-electricity-by-2020-2030/>.

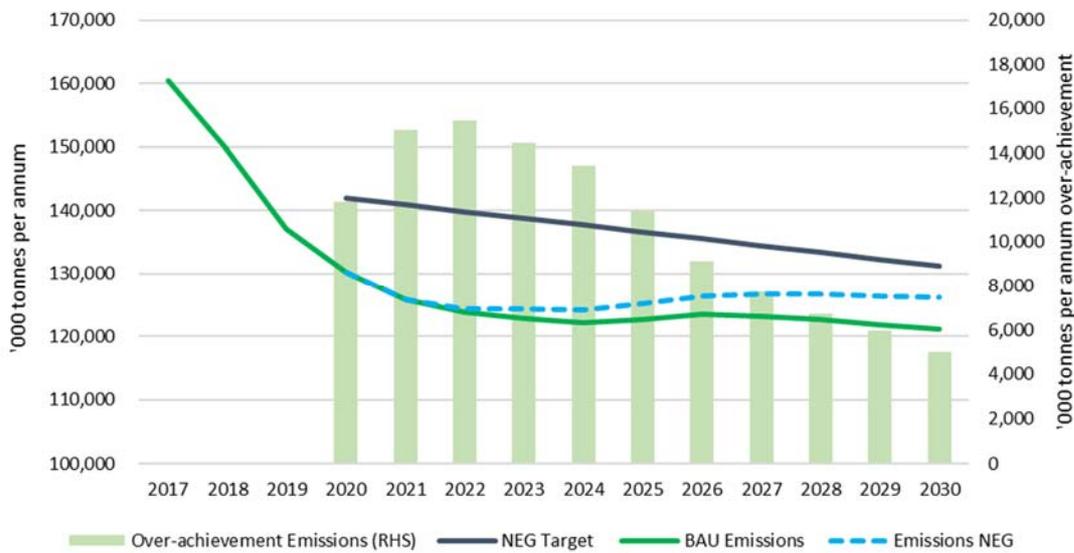
This assessment includes the Victorian and Queensland tender programs as well as tenders from AGL (500 MW) and Snowy (800 MW). The additional renewable generation that will come on line from 2018 to 2022 amounts to nearly 30,500 GWh which is addition to the level of renewables that was generating in 2017 and producing LGCs. By 2022 more than 45 million LGCs will be produced on an annual basis, significantly exceeding the mandated RET target of 33 million.

The Clean Energy Regulator tracks the progress in new large-scale project commitments in meeting the 2020 Renewable Energy Target. 8,309 MW of new renewables capacity is expected to be built to meet an expected requirement of 6,400 MW (refer to Attachment 1). When we allow for the renewables capacity to be implemented from the Government, AGL and Snowy tenders identified above, we arrive at a further 2,350 MW. This amounts to more than 4,200 MW in excess of the 6,400 MW the CER estimates is required to meet the RET.

The implications of this surge in renewables investment is that the level of NEM emissions will drop significantly from 2018 onwards. The 30,500 GWh of additional renewable generation from 2018 will result in emission reductions of 30 million tonnes per annum by 2022 (Refer to Figure 4). AEMO is also expecting a reduction in sent out electricity over the next 4 years which will result in emission reductions of a further 4 million tonnes per annum by 2022.

Compared to the NEG target that had been assumed by the ESB in its RIS (based on their November 2017 modelling report) the level of over-achievement that is locked-in grows to more than 14 million tonnes per annum by 2021 (refer to Figure 4). Under the ESB’s NEG design only Electricity Retailers are able to carry forward the “Over-achievement” as tonnes of CO2. This Over-achievement may become extremely valuable if a future government legislated a more ambitious emissions reduction target. Furthermore, as the Over-achievement can be rolled forward to meet future liabilities, this will result in higher emission levels in the future as Liable Parties will need to do less in future.

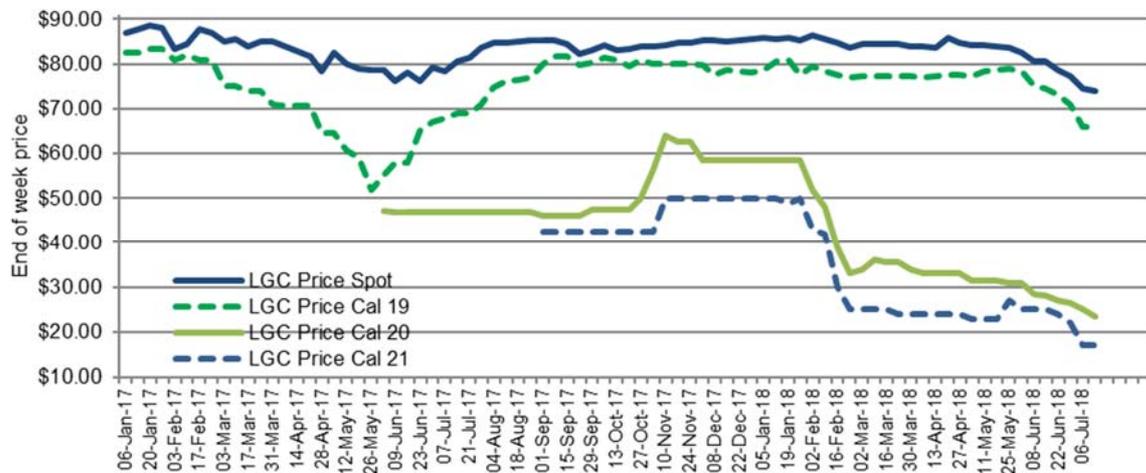
**Figure 4 – Electricity Sector emissions**



Source: Green Energy Markets

As the level of additional renewable energy to be produced from these projects significantly exceeds the RET target, the forward price of LGCs has dropped to very low levels (refer to Figure 5). Forward price indications beyond 2021, where they exist are considerably lower than the \$17 Calendar 2021 price.

**Figure 5 – LGC price history (from Jan 2017)**



Source: Green Energy Markets

**Australian Carbon Credit Unit (ACCU) Market**

The spot market for ACCUs is currently trading at \$15 per tonne (\$12.30 per MWh assuming 0.82 t/MWh emission intensity). The demand for ACCU's is primarily determined by the Government's purchasing requirements under the Emission Reductions Fund, the Voluntary market and the compliance market under the Safeguard mechanism. Longer term, the demand for ACCUs may also be determined through international carbon markets where the Government seeks to link with other countries. This market could over time become quite large and much more liquid (Refer to the

Energetics Report for the Queensland Department of Environment and Heritage Protection on “Global carbon offset markets analysis”)

Under a BAU scenario demand through the ACCU market could provide support for renewable power projects and could underpin a reasonable level of new projects. As well as renewable energy projects, there are several methodologies where energy efficiency projects have been registered and have started to create ACCUs. Several power generation projects have also been registered under the Industrial Electricity and Fuel Efficiency Methodology and have created ACCUs. A separate methodology for grid-based renewable power generation has not yet been developed as the support provided by LGCs exceeded the value available through ACCUs. As the price of LGCs has plummeted the ACCU pathway becomes a viable option for renewable power projects.

The development of the future ACCU market and price is uncertain and difficult to forecast. We have conservatively assumed that the ACCU market could support the equivalent of 250 MW of zero emissions renewables per annum from 2021 onwards and have included this in our BAU scenario. We expect that this level could be supported over time without having a material impact on the ACCU price. It is worth recognising however that with effective international linkages considerably more capacity could be supported.

### **The GreenPower Market**

Worldwide convention currently allows for the environmental attribute of electricity to be recognised and traded separately from the power attribute. In Australia, Renewable Energy Certificates (RECs, a generic term for STCs and LGCs) are the instrument used to trade the environmental attribute. These RECs can be either coupled to or decoupled from the electricity supply contracts to meet a consumer’s mandatory or voluntary environmental targets.

The national GreenPower® program which has existed for two decades administers the voluntary scheme. Increasingly over the life of the program, large consumers such as property trusts, government authorities and large infrastructure projects have found it more convenient and more economical to purchase these attributes as separate (decoupled) transactions.

Where the actual level of renewable generation significantly exceeds the mandated target, as we expect will occur with the RET by 2020 to 2021, then any voluntary surrender of LGCs under the GreenPower or other schemes will no longer support additional renewable generation.

The desire for the community to voluntarily reduce emissions is not expected to recede, in fact given the heightened community concern over climate change and the lower cost of taking action we expect growth in the voluntary market. We expect that the GreenPower market will adapt to the changing market circumstances and will need to be seen to be supporting new renewable energy projects that would not otherwise have proceeded.

### **Implications of the NEG Design**

The current design of the NEG is highly problematic as it doesn’t appear to accommodate the numerous activities that currently occur through what is termed Voluntary Action. These are activities and transactions which occur outside of government mandated targets and can be driven by personal or community desire for a better environment, altruism, environmental branding of products to either meet internal corporate philosophy or external customer requirements.

In particular, under the current ESB NEG design it appears that this decoupling will no longer be possible and that only voluntary action through market customers (i.e. Electricity Retailers) will be additional.

*The ESB proposes to facilitate the treatment of GreenPower in the emissions reduction requirement to allow consumers to make an additional contribution to emissions reduction beyond that required by the target.*

*Conceptually, this would be achieved by deducting a market customer's GreenPower load and associated renewable generation occurring in the compliance year from its total load and allocated generation. Similar to the wholesale pool purchases, transmission and distribution loss factors will be applied to GreenPower loads.*

Under the current functionality of the Renewable Energy Target, consumers are free to purchase renewable energy in the form of GreenPower®, independent of their electricity retailer. They can then have the corresponding RECs retired to the CER, to ensure they cannot be used by anyone else to meet legal emission reduction obligations. In the original RET design, individuals were not able to retire RECs – a change to the regulations was made to do so. Addressing this in the current NEG design avoids creating the need for future 'fixes'.

The current NEG design allows only Electricity Retailers to carry-forward "over-achievement" and to voluntarily surrender emission abatement. Further the NEG does not recognise abatement that has occurred "behind the meter" which will have implications for claims of additionality which parties may want to make if they seek to have their abatement activities registered under any existing or future ACCU methodologies<sup>1</sup>. At present there are a diverse range of projects that have been registered to create ACCU's (Refer to Attachment 2. A large number of these projects involve a reduction in emissions from activities that reduce electricity consumption in the NEM. Under the current NEG design these activities would not be additional and their status as ACCU projects would be in doubt.

Under the current NEG design it is not clear how (i) the GreenPower scheme can adapt in future to support new renewable projects or (ii) how future abatement activities can demonstrate additionality and register for ACCUs. The implications for the National Carbon Offset Standard (NCOS) as a framework for voluntary abatement is also unclear.

The level of renewable generation coming on line over the next few years will easily swamp the NEG target and will mean that it will not deliver any reduction in emissions beyond what would have happened away. As such there is no net benefit in its implementation.

More problematic however is (i) the uncertainty and restrictions that it results for the voluntary GreenPower market and its development and (ii) restrictions that it places on renewable energy and energy efficiency projects accessing the ACCU market. The result of both of these impacts is that the NEG actually delivers a worse outcome for greenhouse gas emissions than doing nothing.

---

<sup>1</sup> Refer to Voluntary Carbon Markets Association and REC Agents Association submissions to the ESB on the detailed NEG design.

### Clean Energy Regulator assessment of Progress to meeting the 2020 RET

The Clean Energy Regulator tracks the progress in new large-scale project commitments in meeting the 2020 Renewable Energy Target. As of June 2018, probable capacity of 8309 MW had been committed to meet an expected requirement of 6400 MW. An extract from their website is set out below:

### Progress towards the 2020 Renewable Energy Target

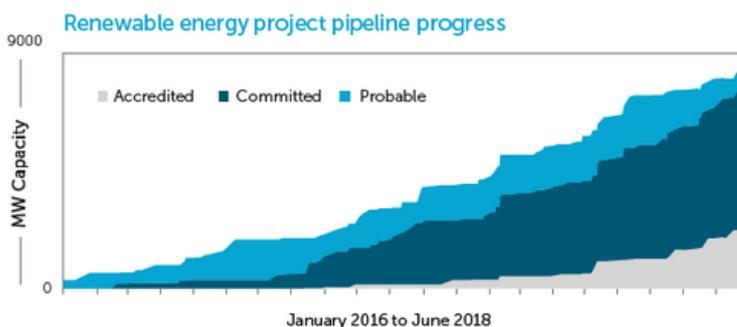
The Australian Government has set a [Renewable Energy Target](#) of 33,000 gigawatt hours of additional renewable energy generation by 2020.

In 2016 the Clean Energy Regulator estimated that for the 2020 target to be reached the total new capacity of renewable energy power projects required to be committed through to the end of 2018 was 6000 MW. Due to a higher proportion of solar projects in the pipeline than expected the Clean Energy Regulator estimated that 6400MW would now be required to reach the target.

The infographic below tracks project developments since 1 January 2016. Probable, committed and accredited projects are included to show progress towards the 2020 Renewable Energy Target.



The chart below tracks project developments since 1 January 2016. Probable, committed and accredited projects are included to show progress towards the 2020 Renewable Energy Target.



Source:

<http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/Large-scale-Renewable-Energy-Target-market-data>

## Energy Efficiency and Generation Projects Registered for ACCUs

Methodology / Project	Project location	Year Registered	ACCUs Issued
<b>Aggregated Small Energy Users Methodology</b>			
UE Energy Reduction Project	Victoria	2017	
<b>Commercial and Public Lighting Methodology</b>			
Clean Energy Technology Lighting	Nation Wide	2015	
Energy Efficient Lighting Project	Nation Wide	2016	
Environmental Markets Australia Lighting Project	Nation Wide	2017	
National Carbon Bank Lighting Projects 2016	Nation Wide	2015	
Out Performers Aggregated Lighting Project	Nation Wide	2015	
Public Lighting Upgrade Project	Victoria	2015	
Smart Lighting Upgrade Project	Nation Wide	2018	
Street smarts	Northern Territory, Queensland, South Australia, Western Australia	2017	
Wesfarmers LED Lighting Project	Nation Wide	2015	10771
<b>Commercial Buildings Methodology</b>			
COzero Building Energy Efficiency Aggregation Project	Nation Wide	2015	
The Stamford Land Corporation HVAC and Control System Upgrade	Nation Wide	2016	
Victoria Hotel HVAC system upgrade project	Victoria	2016	
<b>Facilities Methodology</b>			
Fuel Substitution project	New South Wales	2016	
<b>High Efficiency Commercial Appliances Methodology</b>			
EA 1003 High Efficiency Refrigerated Cabinets	Nation Wide	2016	
Wesfarmers Energy Efficiency Commercial Appliance Project (Revoked)	Nation Wide	2016	
<b>Industrial Electricity and Fuel Efficiency Methodology</b>			
Aggregated Bio-energy Boiler Project	New South Wales, Tasmania	2017	
ATP - 690 Geelong Road Plant Upgrade	Victoria	2016	
Beoefficiency Project at the Oxenford Tavern	Queensland	2016	
Biobased Emissions Reduction Project	Victoria	2017	
Birkenhead additional wood firing project	South Australia	2015	
BlueScope Port Kembla Steelworks Installation and Commissioning of 22 Turbo Alternator	New South Wales	2016	
Borg Panels Energy and Greenhouse Reduction Project	New South Wales	2015	
Chichester Hub Emissions Reduction Project - Option 1	Western Australia	2017	
Chichester Hub Emissions Reduction Project - Option 2	Western Australia	2017	
Continuous Drying Kiln Upgrade - Dardanup Mill	Western Australia	2018	
Devil Creek Gas Plant Power Optimisation Project	Western Australia	2018	
Devondale Murray Goulburn Project to Maximise the Fuel Economy of Making Steam	New South Wales, Tasmania, Victoria	2016	
Dyno Nobel Moranbah Deaerator Energy Recovery Project	Queensland	2017	
Gove Alternate Power Generation Project	Northern Territory	2015	215602
Granny Smith Gas Power Station	Western Australia	2015	20985
HDS2 Cold Feed/Stripper Bottoms Exchanger Upgrade at Geelong Refinery	Victoria	2016	
Industrial Carbon Emissions Reduction	Nation Wide	2015	
Kilcoy Pastoral Company Limited Emissions Reduction Project	Queensland	2016	
Maryvale Mill High Pressure Header Elimination and Stripper Heat Exchangers Replacement Project	Victoria	2015	
Norske Skog Boyer Mill Heat Recovery Project	Tasmania	2016	
Project Enlighten	Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Western Australia	2015	67156
Redundant Furnace Tie-Out Project at Geelong Refinery	Victoria	2016	
Smithton abattoir boiler fuel replacement	Tasmania	2015	9623
Solomon Emissions Reduction Project	Western Australia	2017	
Sun Metals Pneumatic Conveyor System Replacement	Queensland	2016	
SVHA National Energy Action Plan	New South Wales, Queensland, Victoria	2016	
Teys Wagga Biogas to Boiler Reuse	New South Wales	2015	
The Oaks Group HVAC & Energy Management System Upgrade	Nation Wide	2016	
Ultrasonic Scale Prevention on Heat Exchangers at Geelong Refinery	Victoria	2016	
Van Wyk Biomass Plant	Victoria	2017	
Visy Paper Reservoir Energy Efficiency Project	Victoria	2015	3254
Yarra Valley Water Aggregated Energy Efficiency Project	Victoria	2018	