Review of the Renewable Energy Target: *Call for Submissions* Paper

CONTENTS

KEY POINTS

GENERAL

- APPEA welcomes the opportunity to provide comment on the Renewable Energy Target Review Expert Panel *Call for Submissions*.
- With a national approach to emissions reduction under development through the Emissions Reduction Fund (ERF), the continued purpose of the RET, which forces a fixed quantum of renewable energy into the supply mix, displacing lower cost non-renewable but relatively low-emission alternatives (most notably natural gas) should be the subject of rigorous assessment.
- As reviews by the Productivity Commission, Garnaut Climate Change Review and the Strategic Review of Australian Government Climate Change Programs (the Wilkins Review) have found the continuation of the RET with a national emissions reduction program in place mean that the RET will increase the costs of achieving a given level of emissions reduction.
- The Climate Change Authority's 2012 Review of the RET also found that the RET increases costs for consumers and is not a 'first best' approach to reducing greenhouse gas emissions.
- To inform its understanding of the implications of the RET for the economy, electricity market and the Australian upstream oil and gas industry, APPEA in 2012 commissioned economic advisory firm BAEconomics to analyse and model the implications for the Australian economy of the RET over the period to 2030.
- BAEconomics found that a mandated renewable energy target such as the RET is less efficient at achieving a given environmental outcome because it forces higher cost renewable energy into the electricity generation mix at the expense of exploiting lower cost emissions abatement opportunities from gas generation and elsewhere in the economy (which could, for example, be potentially harnessed through the Emissions Reduction Fund (ERF)).
- The RET has the potential to influence wholesale electricity prices as it affects the balance between electricity supply and demand by stimulating investment in renewable generation capacity that would not otherwise be forthcoming. Referred to as the 'merit order effect', the RET, particularly the LRET, is likely to adversely impact existing non-renewable generators and producers of low carbon fuels (for example, natural gas).
    - Although the RET is expected to moderate wholesale electricity prices to an extent, the cost reduction is considered significantly smaller than the direct cost of the scheme. The Expert Panel should reject assertions that the so-called 'merit order effect' is a benefit flowing from the RET. Such an effect is at best transient and, above all, is not welfare enhancing (it simply represents a transfer – a cross subsidy from one group to another). Any merit order effect is likely to be significantly outweighed by the direct costs of the RET.
- **The RET is an economically inefficient policy that should be discontinued.**
- While the RET is in place or remains in place, there are a number of elements of the operational provisions of the *Renewable Energy (Electricity) Act 2000* that are of particular importance to the upstream oil and gas industry. These include the*:*
    - 20 per cent by 2020 commitment: recent analysis (including by the Australian Energy Market Operator and the Australian Energy Regulator) suggests that the fixed annual level provided under the Act will result in a level of renewable energy generation well above 20 per cent (maybe 25 per cent or more). This means that the RET, already a costly approach to reducing greenhouse gas emissions, is imposing costs on the economy over and above the level at which 20 per cent of Australia's electricity supply is generated from renewable sources by 2020. The fixed gigawatt hour target should be revised down to reflect the level required to achieve the 20 per cent by 2020 commitment.

- Treatment of trade-exposed industries through the Partial Exemption Certificate (PEC) provisions: Australia's LNG exporters are among the most trade-exposed of all Australian exporters. They cannot pass increased costs on to consumers and any loss of international competitiveness would benefit Australia's international LNG competitors or suppliers of alternative, higher greenhouse gas emitting, energy sources. To ensure trade-exposed industries, such as LNG, have their competitive position maintained, the PEC for trade-exposed industries should be increased to 100 per cent. In addition, the current narrow definition of LNG production used for the PEC (in the *Renewable Energy (Electricity) Amendment Regulation 2012 (No. 1)*), should be amended to encompass the entire LNG production process and set on the basis of electricity use at the individual facilities.
- Self-generation provisions: the self-generation provisions contained in subsection 31(2) of the *Renewable Energy (Electricity) Act 2000* should be retained. Further, subsections 31(2)(a) and 31(2)(b) should be amended to allow for contemporary resource development projects, such as those in the upstream oil and gas industry, to also be eligible under the provisions.

INTRODUCTION

Since 1959, the Australian Petroleum Production & Exploration Association (APPEA) has been the peak national body representing the upstream oil and gas exploration and production industry. APPEA has more than 90 member companies that explore for and produce Australia's oil and gas. In addition, APPEA's more than 230 associate member companies provide a wide range of goods and services to industry. Further information about APPEA can be found on our website, at www.appea.com.au.

APPEA welcomes the opportunity to provide comment to the Expert Panel on the Renewable Energy Target (RET) Review. APPEA's submission addresses specific sections of the Panel's *Call for Submissions* paper, focussing on those areas that are particularly important for the upstream oil and gas industry. APPEA is also a member of the Australian Industry Greenhouse Network[1] (AIGN) and has contributed to, and supports, the AIGN submission to the Expert Panel.

THE RENEWABLE ENERGY TARGET: GENERAL COMMENTS

With a national approach to emissions reduction under development through the Emissions Reduction Fund (ERF), the continued purpose of the RET, which forces a fixed quantum of renewable energy into the supply mix, displacing lower cost non-renewable but relatively low-emission alternatives (most notably natural gas) should be the subject of rigorous assessment.

As reviews by the Productivity Commission, Garnaut Climate Change Review and the Strategic Review of Australian Government Climate Change Programs (the Wilkins Review) have found the continuation of the RET with a national emissions reduction program in place mean that the RET will increase the costs of reduction emissions across the economy. The Climate Change Authority's 2012 Review of the RET also found that the RET increases costs for consumers and not a 'first best' approach to reducing greenhouse gas emissions.

In addition, during 2012, as part of the Climate Change Authority's Review of the RET, APPEA commissioned independent analysis by BAEconomics that reinforces this finding. The BAEconomics report is considered further below.

RENEWABLE ENERGY TARGET: RESULTS OF PREVIOUS ANALYSIS

There has been a range of analyses of the RET (including its interaction with a national emissions reduction approach, such as carbon price mechanism) conducted in recent years.

As the Treasury economic modelling conducted in 2008 and again in 2011 shows[2], the RET costs around three times the cost of a national emissions reduction approach for the same expected

[1] AIGN is a network of industry associations and individual businesses which contribute to the climate change policy debate and see value in joint industry action on climate change in order to promote sustainable industry development. See www.aign.net.au for further information.

[2] Australian Government (2008), *Australia's low pollution future: the economics of climate change mitigation*, October and Australian Government (2011), *Australia's Low Pollution Future* and *Strong Growth, Low Pollution: Modelling a Carbon Price*, September (see archive.treasury.gov.au/carbonpricemodelling/content/report.asp).

abatement. It is also likely that, based on current expectations of renewable energy supply and costs, the RET will drive the deployment of increasingly expensive technologies.

Analysis by the Productivity Commission in 2008 clearly demonstrates the non-complementary nature of the RET, resulting among other things in an inefficiently low level of investment in gas-fired electricity generation[3]. The Commission found, in the context of a national emissions reduction approach (in its analysis, an emissions trading scheme (ETS)), that (see page XVII):

> *An MRET operating in conjunction with an ETS would not encourage any additional abatement, but still impose additional administration and monitoring costs. To the extent that the MRET is binding (which is its purpose) it would constrain how emission reductions are achieved — electricity prices would be higher than otherwise and market coordination about the appropriate time to introduce low-emissions energy technologies would be overridden. If it was non-binding, it would simply increase administrative, compliance and monitoring costs. Moreover, it would also help to foster a perception that governments are amenable to interfering with the least cost abatement objective of the ETS. This could encourage other potential beneficiaries to seek special programs that neither increase abatement nor reduce its cost.*

In its 2008 Report, the Strategic Review of Australian Government Climate Change Programs (the Wilkins Review)[4], similarly found (see page 141):

> *… the Review considers that schemes such as the RET, FITs and demand driven subsidies for the deployment of solar power are not complementary to an ETS. They will, as discussed recently by the Productivity Commission, add to the cost of achieving an abatement target rather than producing additional abatement. The Review would concur with the Productivity Commission's analysis that the RET is likely to add to the cost of abatement, and would not be complementary.*

The Garnaut Report[5] in 2008 found that (see page 356):

> *… there is an interesting and seemingly perverse consequence of expanding MRET at the same time as the emissions trading scheme is to be implemented. Having both schemes operating side by side could see an increase in coal-fired power generation (by more than 2,000 MW) as gas-fired plants are crowded out by MRET. This would not occur if the emissions trading scheme were operating without MRET.*

At least in the medium-term, the result will be a higher cost to achieve the same level of overall carbon constraint than would have been achieved in the absence of the RET.

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[3] Productivity Commission (2008), *What Role for Policies to Supplement an Emissions Trading Scheme?,* Submission to the Garnaut Climate Change Review, May (available from www.pc.gov.au/__data/assets/pdf_file/0003/79716/garnaut.pdf).
[4] Wilkins AO, R (2008), *Strategic Review of Australian Government Climate Change Programs* (available at www.finance.gov.au/publications/strategic-reviews/docs/Climate-Report.pdf).
[5] Garnaut AO, Professor R (2008), *The Garnaut Climate Change Review: Final Report* (available at www.garnautreview.org.au/pdf/Garnaut_Chapter14.pdf).

The Climate Change Authority's 2012 Review of the RET[6] was heavily influenced by a view that the RET has a continuing role to play in supporting investment in renewable generation in an "uncertain policy environment". The Review therefore focussed on possible improvements in the RET, rather than whether it represented the best policy approach. Even so, the Authority found on page 35 of its report that

> *… the RET is not a 'first best' approach to reducing greenhouse gas emissions.*

While the Authority made a number of positive recommendations for (modest) improvements to the RET (considered further below), its overwhelming focus on the "benefits" of policy stability (for those receiving the subsidy provided by the RET, rather than the costs faced by those paying for the subsidy) meant the Review failed to rigorously examine the case for the RET and whether it represents the most cost effective policy approach. This was a significant shortcoming.

The Expert Panel's Review therefore represents an opportunity to take a more rigorous – and fundamental – approach to the reviewing the RET itself.

In November 2013, the Centre for International Economics (CIE) prepared a report[7] for AIGN, *The Renewable Energy Target: How it works and what it costs*. The report explains the basic operation and policy rationale of the RET and provided an overview of the costs of the RET and how they are distributed across the economy. A copy of the report can be found at Attachment 1.

The report found:

- The RET is a policy that taxes electricity users (and in some cases non-renewable generators, such as those operating gas-fired power stations) in order to subsidise selected renewable producers.
- The policy rationale for the RET is complex, and has been expressed in multiple ways. At the simplest level, it is clear that the more expensive renewable energy would not be used without specific intervention.
- However the rationale for the RET itself has a number of elements. Most commonly, the RET is seen as a means of reducing greenhouse gas emissions; but the RET only indirectly targets emissions and is a very costly way of doing so.
- Sometimes the RET is seen as encouraging development of new technologies; but the RET is a production subsidy, not an R&D subsidy. It encourages production of the currently lowest cost existing technologies, not R&D into currently high cost potential technologies.
- The RET is often seen as an energy security measure, encouraging new techniques. However, security of energy supply is not the key policy concern with non-renewable technologies. Further, an increase in cost is not an energy security target.

The report also included an analysis of costs placed by the RET on various groups within the economy and, importantly, considered the possible downward pressure the RET can place on

[6] Climate Change Authority (2012), *Renewable Energy Target Review, Final Report, December 2012* (available at www.climatechangeauthority.gov.au/ret).
[7] Centre for International Economics (2013), *The Renewable Energy Target: How it works and what it costs*, 15 November (available at aign.net.au/file_download/1051/RET+How+it+works+and+what+it+costs+November+2013.pdf).

wholesale electricity prices that some proponents of the RET inappropriately claim is a benefit flowing from the existence of the RET. This issue, the so-called 'merit order effect', is consider further below.

To inform its understanding of the implications of the RET for the economy, electricity market and the Australian upstream oil and gas industry, APPEA in 2012 commissioned economic advisory firm BAEconomics[8] to analyse and model the implications for the Australian economy of the RET over the period to 2030.

In particular, the cost of combining this policy with a national emissions reduction approach (at that stage, through the operation of the *Clean Energy Act 2011*) was examined for the likely impacts on economic output (GDP), carbon prices, real wages, greenhouse gas emissions and the electricity sector, with a particular assessment of the likely impacts of the target on gas penetration in the electricity market. The economic implications of four policy options relative to a reference case in which no climate change policies are adopted was assessed:

- A domestic emissions trading scheme (ETS) policy scenario versus a domestic combined ETS + RET policy scenario.
- An ETS policy scenario versus a combined ETS + RET policy scenario, in which the Australian ETS is linked to the European Union ETS (ETS_EU[9].

In addition to the quantitative assessment, BAEconomics outlined the likely impacts of the RET on the electricity sector. This included the mix of generating technologies that might be used to meet the target, issues around location and number of plants needed to meet the target and the reliability of the grid, including requirements for back-up supply.

A copy of the BAEconomics September 2012 report, *Implications of the RET for the Australian economy*, can be found at Attachment 2. In summary, it found:

- That the combination of a national emissions reduction approach (the emissions trading scheme (ETS) legislated through the *Clean Energy Act 2011*) with the RET is significantly less efficient than an unadulterated ETS in achieving a given level of emissions abatement.
- To reach the emission target of five per cent below 2000 levels in 2020, the combined ETS + RET policy:
    - costs Australia $3.5 billion in today's dollars more than the ETS in GDP losses in 2020; and
    - causes substantial switching away from gas-fired generation compared with an ETS, by 3,824 gigawatt hours (GWh) in 2020.
- A mandated renewable energy target such as the RET is less efficient at achieving a given environmental outcome because it forces higher cost renewable energy into the electricity generation mix at the expense of exploiting lower cost emissions abatement opportunities from

[8] BAEconomics (2012), *Implications of the RET for the Australian economy*, September (available at www.baeconomics.com.au/wp-content/uploads/2012/09/baeconomics-appea-ret-report-8sep12.pdf).
[9] Reflecting the (former) Australian Government and European Commission announcement on 28 August 2012 (see www.climatechange.gov.au/minister/greg-combet/2012/media-releases/August/JMR-20120828.aspx and europa.eu/rapid/pressReleasesAction.do?reference=IP/12/916&format=HTML&aged=0&language=EN&guiLanguage=en for further information).

gas generation and elsewhere in the economy (which could be potentially harnessed through the Emissions Reduction Fund (ERF)).

- The larger reduction in GDP as a result of the RET is a consequence of the design of the scheme. The RET is a prescriptive technological mandate that requires renewable generation facilities to be commissioned, irrespective of whether lower cost alternatives (such as gas technologies) are available to meet the emissions objective.
- The negative GDP impacts modelled in the BAEconomics report are likely to be conservative. This is because a significant portion of the RET target will be met from high cost, small-scale domestic installations, such as rooftop solar PV and solar hot water installations, which are not explicitly modelled in this exercise. Furthermore, a high reliance on renewable generation, particularly on intermittent technologies such as wind, imposes significant additional costs on the electricity system, for instance in terms of additional stand-by capacity required.
- Similar effects arise under the scenario where the Australian ETS is linked with the European ETS. A combined ETS_EU + RET policy:
    - Reduces Australian GDP by $6.5 billion in today's dollars more than the unadulterated ETS_EU in 2020.
    - Reduces gas-fired generation compared with the ETS_EU by 2,313 GWh in 2020.

This outcome is inconsistent with the Government's policy objective to reduce greenhouse gas emissions at lowest cost to the Australian economy.

Similarly, the November 2013 CIE report found on pages 15 to 18 that, based on a review of a number of recent reports (by the Productivity Commission[10], Deloitte Access Economics[11], Australian Energy Market Commission (AEMC)[12] and Grattan Institute[13]):

- The overall RET cost of abatement ranges from $30 to $290 per tonne of CO_2.
- The cost of the Large-scale Renewable Energy Target (LRET) is lower, ranging from $37 to $111 per tonne of CO_2.
- The cost of the Small-scale Renewable Energy Scheme (SRES) is considerably higher, ranging from $152 to $525 per tonne of CO_2.

The report concluded that each of each of these costs is higher than either the current or expected carbon price. The presence of the RET therefore raises the cost of abatement to the Australian economy as a whole. The same is likely to be the case for the ERF – the costs outlined above are significantly higher than current estimates of the expected clearing price that is likely to be revealed under the ERF reverse auction process[14].

[10] Productivity Commission (2011), *Carbon Emission Policies in Key Economies,* Research Report (available at www.pc.gov.au/projects/study/carbon-prices/report).
[11] Deloitte Access Economics (2011), *Assessing the impact of key climate change policies on energy users,* Report for the Energy Users Association of Australia, June (available at www.euaa.com.au/wp-content/uploads/2011/02/EUAA-report-Final-20-June-2011-2.pdf).
[12] Australian Energy Market Commission (2011), *Impact of the enhanced Renewable Energy Target on energy markets*, Interim Report 25, November (available at www.aemc.gov.au/Markets-Reviews-Advice/Impact-of-the-enhanced-Renewable-Energy-Target-on).
[13] Grattan Institute (2011), *Learning the hard way: Australia's policies to reduce emissions – Detailed Analysis* (available at grattan.edu.au/publications/reports/post/learning-the-hard-way-australia-s-policies-to-reduce-emissions).
[14] See, for example, Reputex (2013), *Legislate or Regulate? Ready or Not the ERF is Coming*, 6 May (available at www.reputex.com/publications/latest-research/legislate-or-regulate-ready-or-not-the-erf-is-coming/#sthash.B9qiNRql.dpuf).

Recommendation: The RET is an economically inefficient policy that should be discontinued.

THE RENEWABLE ENERGY TARGET: SPECIFIC COMMENTS ON THE *CALL FOR SUBMISSIONS* PAPER

While the RET is in place or remains in place, there are a number of elements of the operational provisions of the *Renewable Energy (Electricity) Act 2000* that are of particular importance to the upstream oil and gas industry. These include the:

- 20 per cent by 2020 commitment.
- Treatment of trade-exposed industries through the Partial Exemption Certificate (PEC) provisions.
- Self-generation provisions.

THE 20 PER CENT BY 2020 COMMITMENT

The *Call for Submissions* paper on page 7 discusses the policy commitment of the Government to ensure 20 per cent of renewable energy should come from renewable energy sources by 2020 (the 20 per cent by 2020 commitment).

The phrase 'at least 20 per cent' or '20 per cent' is used in various places in the supporting materials for the *Renewable Energy (Electricity) Act 2000*. For example, the Explanatory Statement to the *Renewable Energy (Electricity) Amendment Regulation 2012 (No. 1)*[15] says:

> *The Renewable Energy (Electricity) Act 2000 (the Act) establishes a Renewable Energy Target (RET) scheme to encourage additional electricity generation from eligible energy sources. The RET scheme is designed to ensure that 20 per cent of Australia's electricity supply is generated from renewable sources by 2020.* [Emphasis added]

The *Renewable Energy (Electricity) Act 2000* does not reference this commitment. Instead, it sets out a fixed GWh target of 45,000 GWh of electricity generation should be sourced from renewable energy sources.

As the paper highlights on pages 7-8, recent analysis (including by the Australian Energy Market Operator (AEMO) and the Australian Energy Regulator (AER)) suggests that the fixed annual level provided under the Act will result in a level of renewable energy generation well above 20 per cent (maybe 25 per cent or more).

This means that the RET, as noted above already a costly approach to reducing greenhouse gas emissions, is imposing costs on the economy over and above the level at which 20 per cent of Australia's electricity supply is generated from renewable sources by 2020.

The fixed gigawatt hour target should be revised down to reflect the level required to achieve the 20 per cent by 2020 commitment.

[15] Available at www.comlaw.gov.au/Details/F2012L00399/Explanatory%20Statement/Text.

TREATMENT OF TRADE-EXPOSED INDUSTRIES

The policy intent of the treatment of trade-exposed industries and the use of the Partial Exemption Certificate (PEC) approach is set out by the Clean Energy Regulator as follows[16]:

> *In recognition that the RET scheme may increase costs to firms that carry on EITE activities, the partial exemption provisions under the Renewable Energy (Electricity) Act 2000 allow a prescribed person to apply for a partial exemption certificate (PEC) in relation to the electricity supplied to an EITE activity carried on at a site. Subject to agreement from the prescribed person a PEC may be traded to the liable entity for the electricity supplied, and provides the liable entity with exemption from liability for a certain amount of megawatt-hours of electricity in the given calendar year.*

This refers to the cost imposed on trade-exposed industries by the RET – costs that are in many cases, particularly for the production of liquefied natural gas (LNG), not borne by international competitors and which cannot be passed through to end-consumers.

Australia's LNG projects face fierce global competition. Australia's major LNG competitors include Qatar, Indonesia, Malaysia, Trinidad & Tobago, Peru, Oman, Yemen, the Russian Federation, the United Arab Emirates, Egypt, Equatorial Guinea, Nigeria, Algeria and Brunei[17]. In the future they will include PNG, the US (on their back of their enormous shale gas developments in recent years) and East Africa (with prospective gas resources in countries such as Tanzania and Mozambique).

Very few of Australia's major LNG competitors are taking on emissions reduction obligations. Indeed, none have policies in place that impose an "effective" carbon price on their LNG exporters. The prospect of the vast majority of our competitors taking meaningful action in the foreseeable future is low.

Australia's LNG exporters are among the most trade-exposed of all Australian exporters. They cannot pass increased costs on to consumers and any loss of international competitiveness would benefit Australia's international LNG competitors or suppliers of alternative, higher greenhouse gas emitting, energy sources.

This means that while APPEA supports this policy intent of the PEC approach, a partial exemption means that trade-exposed industries continue to face cost increases that inefficiently and unnecessarily reduce their international competitiveness. Indeed, the PEC is in effect, a "partial, partial" exemption, as the PEC only applies to the portion of the RET above the former Mandatory Renewable Energy Target (MRET) target of 9,500 GWh.

In the case of LNG, a PEC set at 60 per cent was included in Part 38 of the *Renewable Energy (Electricity) Amendment Regulation 2012 (No. 1)*[18], which amended the *Renewable Energy (Electricity) Regulations 2001* and was made on 22 February 2012. This means that the industry remains exposed to significant additional costs associated with the RET. This reduces Australia's

[16] See, for example, ret.cleanenergyregulator.gov.au/For-Industry/Emissions-Intensive-Trade-Exposed/PECS-carbon-units
[17] See BP (2013), *BP Statistical Review of World Energy, June 2013*, p. 28 (available at www.bp.com/statisticalreview).
[18] Available at www.comlaw.gov.au/Details/F2012L00399.

international competitiveness for LNG production and does not reduce greenhouse gas emissions in Australia. Unfortunately, because the benchmark for electricity use is based on historical projects only[19], which are offshore and use little to no electricity, the baseline is largely irrelevant for the new LNG projects in the Queensland, which may make use of grid-based power[20]. In addition, the value of the PEC is further reduced by the use of an inappropriately narrow definition of LNG which, rather than encompassing the entire production process[21], includes only the liquefaction process itself. This outcome excludes the use of power in the upstream part of the LNG production process, which involves significant power use, and therefore significantly undermines the usefulness of the PEC and imposes significant costs on LNG producers, costs not faced by Australia's global competitors.

Recommendation: The PEC for trade-exposed industries, including LNG, should be increased to 100 per cent. The definition of LNG production used for the PEC (in the *Renewable Energy (Electricity) Amendment Regulation 2012 (No. 1)*), should be amended to encompass the entire production process (where an 'LNG project' is defined as including both an 'upstream LNG facility' (a facility which extracts a gas mixture containing natural gas or a pipeline that supplies the gas mixture containing natural gas as part of an LNG project) and an 'LNG facility' (a facility where some or all natural gas handled or transported by an upstream LNG facility is liquefied).

SELF-GENERATION PROVISIONS

SELF-GENERATION PROVISIONS UNDER THE EXPANDED NATIONAL RENEWABLE ENERGY TARGET SCHEME: POLICY INTENT

The policy intent of the self-generation provisions was set out in the COAG review of specific RET issues Discussion Paper 2 *Self-generation provisions under the expanded national Renewable Energy Target scheme*[22], as

> *… supporting the development of self-generation, for which a substantial proportion uses more efficient cogeneration technologies and less greenhouse-intensive natural gas or renewables.* (emphasis added)

APPEA supports the policy intent of the existing provisions.

[19] The North West Shelf Venture (see www.woodside.com.au/Our-Business/North-West-Shelf/Pages/default.aspx for further information) and Darwin LNG Project (see www.conocophillips.com.au/our-business-activities/our-projects/Pages/darwin-lng.aspx for further information).

[20] Whilst offshore projects generally self-generate using gas-fired power for compression and other activities, onshore projects have access to the electricity grid and use this to power compression and gas processing facilities.

[21] Where an 'LNG project' is defined as including both an 'upstream LNG facility' (a facility which extracts a gas mixture containing natural gas or a pipeline that supplies the gas mixture containing natural gas as part of an LNG project) and an 'LNG facility' (a facility where some or all natural gas handled or transported by an upstream LNG facility is liquefied). This broader definition is, for example, used in the LNG 'supplementary allocation' provisions under the existing Jobs and Competitiveness Programme (see *Clean Energy Regulations 2011*, available at www.comlaw.gov.au/Details/F2013C00938).

[22] Available at www.climatechange.gov.au/sites/climatechange/files/files/reducing-carbon/consultations-submissions/coag-ret/RET-COAG-Discussion-paper-2-Self-generation-issues-PDF.pdf.

The natural gas industry, including the LNG industry, uses natural gas for self-generation purposes (or proposes to) at many facilities around Australia. All current LNG projects utilise the provisions and once all projects under construction are completed, around 70 per cent of Australian LNG produced will be produced from projects that utilise (or may utilise) the self-generation provisions.

Natural gas produces significantly fewer greenhouse gas emissions than coal when used in power generation and is generally significantly lower than the average emissions intensity of grid-based power supply. The self-generation provisions, as they apply to the natural gas industry, are important in supporting cost effective and lower emissions power generation options.

The provisions also support efficient commercial decision-making, by allowing projects, particularly those operating in rural and remote areas distant from the grid, to access the most cost effective form of power supply available to them.

Any move to limit the application of the self-generation provisions would run counter to this policy intent.

The policy intent of the self-generation provisions was considered as part of the 2003 review of the operation of the *Renewable Energy (Electricity) Act 2000*. The Review's report, *Renewable Opportunities—A Review of the Operation of the Renewable Energy (Electricity) Act 2000*[23], endorsed the provisions.

In a similar way, the Climate Change Authority Review recommended on page viii of its December 2012 report that the

> *… the self-generation exemption should continue …*

Recommendation: The provisions contained in subsection 31(2) of the *Renewable Energy (Electricity) Act 2000* should be retained. Further, subsection 31(2) should, as is considered in the next section, be amended to address the adverse impact of the strict eligibility criteria that apply under subsections 31(2)(a) and 31(2)(b).

SELF-GENERATION PROVISIONS UNDER THE RENEWABLE ENERGY TARGET SCHEME: IMPACT OF STRICT ELIGIBILITY CRITERIA AND AREAS FOR IMPROVEMENT

The self-generation provisions contain strict eligibility criteria through restrictions on the size of the generation facility (the electricity must be delivered on a grid that has a capacity that is less than 100 MW and that is not, directly or indirectly, connected to a grid that has a capacity of 100 MW or more) ownership (the end-user of the electricity must have generated the electricity), distance (the electricity is to be used less than one kilometre away from the point of generation) or line-use (there is a dedicated line between the point of generation and the point of use). These criteria limit the ability of self-generators to avail themselves of the provisions.

[23] See catalogue.nla.gov.au/Record/5037766 for further information.

By limiting access to the self-generation provisions, these criteria can impact adversely on optimal project design for a range of upstream oil and gas projects. This is particularly so in the case of a number of LNG projects currently in the planning and/or construction stages around Australia.

A number of contemporary or planned projects may not meet the strict eligibility criteria outlined above. Project proponents may then be forced to make development decisions that are non-economic, purely to meet the requirements of the Act.

Some examples illustrate relevant circumstances facing project proponents in the upstream oil and gas industry and highlight the adverse impacts of the current strict eligibility criteria:

- Three large scale LNG developments are being developed in eastern Australia. These developments essentially represent single resource projects, but in many cases production infrastructure and electricity demand is dispersed over a large area. In many cases, combined demand will be over 100 megawatts (MW) but not necessarily in any single location. In addition, if the project proponent builds a dedicated generation plant, it may be within one kilometre of one demand centre, but more distant from others.
- In areas that are relatively distant from existing generation sources, some project proponents may consider sharing a transmission line with the proponent of another resources development. In this case, the most efficient model may be for the proponents of the two projects to jointly construct a power station and invest in a transmission line they would then share (although this may be longer than one kilometre due to the factors considered in the dot point above). The self-generation provisions currently provide an incentive for each project to invest in its own separate generation, leading to duplicate infrastructure.
- All else being equal, if a project proponent invests in self-generation there may also be economic merit in investing in a grid connection to provide power in the event of an outage at their own plant. The self-generation provisions provide a disincentive for the project proponent to do this.

Whilst these examples are not exhaustive, they serve to illustrate the adverse impacts of current restrictions in the self-generation eligibility provisions on optimal project design, project viability and emissions outcomes.

The COAG RET Review's March 2012 report, *Renewable Energy Sub Group Report to the Council of Australian Governments' Select Council on Climate Change COAG Review of Specific RET Issues*[24], while noting many of APPEA observation and recommendations, made a majority recommendation for retention of the existing arrangements. Western Australia, the home of many of the relevant developments, endorsed APPEA's position and recommended changes in line with those recommended in this submission.

Recommendation: The self-generation provisions contained in subsection 31(2) of the *Renewable Energy (Electricity) Act 2000* should be amended to allow for contemporary resource development projects, such as those in the upstream oil and gas industry, to also be eligible under the provisions.

[24] Available at www.climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/COAG-RET-review-report.pdf.

OTHER ISSUES: THE RENEWABLE ENERGY TARGET AND THE 'MERIT ORDER EFFECT'

As the *Call for Submissions* notes on page 8, the RET has the potential to influence wholesale electricity prices as it affects the balance between electricity supply and demand by stimulating investment in renewable generation capacity that would not otherwise be forthcoming. Referred to as the 'merit order effect', the RET, particularly the LRET, is likely to adversely impact existing non-renewable generators and producers of low carbon fuels (for example, natural gas).

When a renewable target is imposed, it increases the supply of electricity in the national electricity market (NEM). For an upward sloping supply curve, which is shifted downwards and to the right by the introduction of additional renewable electricity supplies, this means a (transient) fall in the wholesale price of electricity. This means existing generators who are not subsidised or compensated under the scheme will find it harder to cover their fixed capital costs and may obtain lower revenues.

According to modelling undertaken by the AEMC[25], the wholesale price of electricity is forecast to be below the long-run marginal cost of production up until 2030-31 if current policy settings continue. It is important to note that even without the RET, wholesale electricity prices could still be depressed with the market oversupplied. While a low price affects all generators, it is baseload power that is most likely to withdraw from the market first, creating intermittency issues and increasing the average price. Removing or reducing the RET may have a small impact on the wholesale price, but would allow demand and supply to balance better.

The RET encourages higher cost generation, where cost is measured to include the full capital costs of renewable supply which must be recovered somehow. This means that while the RET may have a short-term effect on wholesale prices, the introduction of higher cost generation raises the average cost of supply and over time, this highest cost must be recovered. That the RET encourages higher cost generation is clearly evident in the positive certificate price. The renewable quota requirement has a positive shadow price – without the quota in place renewable energy would not be purchased. Were the renewable sources genuinely cheaper, there would be no need for the RET, and even if it were in place certificates would not have a positive price.

The merit order effect is the consequence of a subsidy to renewable production (that flows through to consumers) effectively paid by existing generators. This suppression of prices through the introduction of more costly technology will not have long-run economic benefits and indeed poses substantive risk for new (unsubsidised) investment.

Importantly, this merit order effect does not mean the RET reduces costs to consumers (particularly in the longer-term). Based on certificate prices and acquittal requirements, the direct cost of the RET in 2012 was estimated to be around $1.6 billion[26]. This cost is then divided by the total purchases of electricity (relevant acquisitions) made by electricity retailers as part of their RET liability to give an estimate of the cost per MWh faced by consumers.

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[25] Australian Energy Market Commission (2011), *Impact of the enhanced Renewable Energy Target on energy markets*, Interim Report 25, November (available at www.aemc.gov.au/Markets-Reviews-Advice/Impact-of-the-enhanced-Renewable-Energy-Target-on).
[26] ACIL Tasman (2011), *Costs of federal renewable energy targets to consumers: Comparison of costs under past and present policy settings*, February.

This means that although the RET is expected to moderate wholesale electricity prices to an extent, in the short-term[27], the cost reduction is considered significantly smaller than the direct cost of the scheme. Since retailers will continue to pass the cost of the RET onto consumers whenever possible, any gains from potentially lower wholesale prices is therefore likely to be limited. Based on adjusted relevant acquisitions of 189,189 GWh in 2011 and 196,389 GWh in 2012, ACIL Tasman's analysis estimates the per unit cost to un-exempted consumers as:

- $6.90/MWh under the LRET/SRES in 2011.
- $7.14/MWh under the LRET/SRES in 2012.

These per unit costs translate to an additional $48 in 2011 and $50 in 2012 for a 'typical' household that consumes 7 MWh/year and does not receive any partial exemptions. According to the New South Wales Independent Pricing & Regulatory Tribunal (IPART)[28] however, the RET added on average $102, or approximately 5 per cent, to a typical New South Wales customer's total electricity bill in 2012-13.

Table 1 highlights the various estimates for costs imposed on consumers by the RET, that have been prepared in recent years.

Table 1.Comparison of costs to consumers of the RET

	ACIL Tasman	IPART	CCA	AEMC
Annual cost of RET to consumers in 2012-13	$50	$102	$68	3-4% of total electricity price
% of total electricity bill	n/a	5%	4½%	as above
Annual electricity consumption	7 MWh	7 MWh	7 MWh	7 MWh

Note: ACIL Tasman annual cost estimates are based on real 2011 while IPART and CCA's estimates are believed to be in nominal terms.
Source: Centre for International Economics (2013).

As is also noted in the AIGN submission to the Expert Panel, a reduction in wholesale prices (or even consumer prices) is not a measure of the benefits of the RET.

Were prices to fall because of improvements in technical efficiency, this would be a benefit. However, in this case prices fall not because of a technical improvement, but because of a cross subsidy paid to renewable producers and ultimately consumers (and in this case paid mostly by conventional generators). Indeed, in this case, prices fall despite an increase in overall energy costs through the introduction of renewable sources.

In a cost benefit analysis, these price reductions that emerge from some electricity market models cannot be counted as a benefits of the RET. Rather, the causes and long-term consequences of the price falls must be considered in much more detail.

[27] As is noted further below, the fall is wholesale prices reflects only the lower marginal costs of renewable energy supply and makes no allowance for the large fixed capital costs that must be recovered. It cannot, thefore, be sustained over time.
[28] IPART (2012), *Renewable Energy Target review: IPART's submission to the Climate Change Authority,* September (available at www.ipart.nsw.gov.au/Home/Quicklinks/IPART_Submissions_to_External_Reviews/IPART_Submission_-_Climate_Change_Authority_-_Renewable_Energy_Target_Review_-_September_2012).

The RET cannot lead to long-term real cost reductions in the electricity market until renewables are lower cost than conventional generation (at which point the certificate price will be zero, and the RET will not be binding).

This 'merit order effect' is also examined in a comprehensive manner in the December 2012 report by Nelson, Simshauser and Nelson[29], which found (in the context of solar feed-in tariffs; the same principle applies to the RET) that the merit order effect is transient and, above all, is not welfare enhancing. They found, on page 298, that

> *The notion that suppressing wholesale prices and adversely affecting the profitability of existing producers by subsidising a sub-economic technology … and distorting an otherwise properly functioning competitive market is somehow a desirable policy outcome is not correct.*

The Expert Panel should reject assertions that the so-called 'merit order effect' is a benefit flowing from the RET. Such an effect is at best transient and, above all, is not welfare enhancing, but rather represents a cross subsidy from one group (large existing power generators) to other another group (consumers). Any merit order effect is likely to be significantly outweighed over time by the increase in average costs of supply and by the direct costs of the RET itself.

[29] Nelson, T, Simshauser, Professor P and Nelson, J (2012), *Queensland Solar Feed-In Tariffs and the Merit-Order Effect: Economic Benefit, or Regressive Taxation and Wealth Transfers?*, Economic Analysis and Policy (EAP), December (available at www.eap-journal.com/archive/v42_i3_01-T.Nelson_P.Simshauser_J.Nelson.pdf).

ATTACHMENT 1. CENTRE FOR INTERNATIONAL ECONOMICS NOVEMBER 2013 REPORT, *THE RENEWABLE ENERGY TARGET: HOW IT WORKS AND WHAT IT COSTS*

ATTACHMENT 2. BAECONOMICS SEPTEMBER 2012 REPORT, *IMPLICATIONS OF THE RET FOR THE AUSTRALIAN ECONOMY*