19 February 2016

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Climate Change Authority

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Dear Shayleen,

Submission on Special Review Second Draft Report – Australia's climate policy options

Origin Energy Limited (Origin) welcomes the opportunity to make a submission to the Climate Change Authority's draft report on Australia's climate policy options.

Origin recognises that climate change is a global challenge and unequivocally supports measures to progressively reduce carbon emissions. We support the global target of no more than two degree temperature change and note the strong intention of the Paris Agreement to pursue efforts to a 1.5 degree scenario. We support Australia's announced 2030 target as a minimum goal for the nation and believe that greater ambition is possible.

Key points

Origin has the following key points to highlight:

- ***Appropriate policies for each sector*** – we support the Authority's pragmatic "toolbox" approach which examines the most appropriate key policies or group of policies required for each sector.
- ***Electricity sector policy*** - we believe this involves three interlinked issues:
  - support for the deployment of renewable energy at significant scale, including consideration of how such support evolves in the period after 2020;
  - closure of highly emissions intensive coal-fired power stations; and
  - an explicit cost of carbon abatement, possibly through a baseline and credit approach for the sector.
- ***Staged transition*** – it is crucial that the transformation of the electricity sector is managed so that the impact on consumers and investors is kept to a minimum.
- ***Transport and electric vehicles*** – we support measures to increase the deployment of electric vehicles in Australia, and note that associated emissions reduction benefits will grow as the electricity sector is progressively de-carbonised.
- ***International units*** - access to genuine, independently verified, international emission reductions as a cost effective means of meeting national targets should be considered in any future policy design.
- ***Trade exposed industries*** – it is important that the impact on trade exposed industries is considered in the design of any future policy and that this preserves the incentive to reduce emissions over time.
- ***Voluntary measures*** – we support the continued access to voluntary measures such as GreenPower.

Policy approach

Australia's stated 2030 emission reduction target is significant. In order to achieve it, the nation's annual emissions will need to be reduced from current levels of about 545 $MtCO_2$ to about 440 $MtCO_2$in 2030[1], or a bit over 100 $MtCO_2$ in terms of an annual point in time difference[2].

If the nation is serious about meeting this target and the even deeper reductions that will be required over the longer term then a suite of comprehensive policies will be required. Whilst Origin has consistently supported a broad-based carbon pricing scheme of some form, for practical reasons we recognise that this may take time to develop.

We therefore support the Authority's pragmatic "toolbox" approach which examines the most appropriate key policies or group of policies required for each sector. As the Authority points out, circumstances differ across sectors.

This is especially important to the electricity sector which involves large long-term capital investments. Ideally, a long term policy would be in place already to 2030 and beyond, so investment decisions in renewable energy developments could be made now with increased confidence.

Electricity sector policy

Electricity is the largest source of emissions in Australia, at about a third. Using the electricity sector as an example and assuming it makes a proportional contribution to the reductions mentioned above, then this is about a 33 $MtCO_2$ reduction on current levels. To put this in context, this is equivalent to closing two of the most emissions intensive brown coal-fired generators in Victoria plus another one or two further coal-fired generators in other states and replacing it completely with renewable energy. This illustrates the scale of the challenge ahead for both the nation and the electricity sector. We note that the Paris Agreement envisages increasing the ambition of national targets over time.

Origin supports the progressive decarbonisation of the electricity sector in Australia and an eventual goal of net zero emissions by 2050 or earlier. At the highest level this involves the substitution of high emissions sources of electricity for lower ones. Whilst this sounds simple, it involves three key and interlinked policy considerations:

- the promotion of renewable energy at significant scale;
- the staged closure of the most highly emission intensive generation plant; and
- an explicit cost of carbon abatement.

These three issues are discussed below.

1) Promoting renewable energy

Origin supports the progressive decarbonisation of the electricity sector in Australia and views the increased deployment of renewable energy such as solar and wind technologies as a key part of this transition. Our philosophy is that this deployment should be underpinned by long term sustainable policy that encourages the commercial uptake of renewable generation sources, without excessive cost subsidisation.

Currently the industry is concentrating on meeting the Large-scale Renewable Energy Target (LRET), with a focus on the period up to 2020. The LRET of 33 TWh by 2020 is a significant challenge for the energy industry which we estimate will require about 5,000 MW of new renewable capacity to be built over the next four years. To put this in context, we have contracted to receive

[1] This assumes all reductions are made domestically.

[2] We note that consideration of cumulative emission reductions is also important, but this simple example is used for illustrative purposes.

the full output of the 270 MW Snowtown II windfarm, the second largest in the country. To achieve the new build under the LRET target will require about another 18 large wind farms like Snowtown II to be built over the next few years.

Origin is committed to meeting our obligation under the RET and can achieve this through various options including building projects directly, underwriting projects through power purchase agreements (PPAs), or by purchasing certificates on market. We are currently considering the potential development of our 400 MW Stockyard Hill Wind Farm development option in Victoria, and the potential for utility scale solar plants to help meet the target. For example, our proposed 100 MW solar farm at Darling Downs in Queensland was recently shortlisted for grant funding under ARENA's Large Scale Solar PV competitive funding round, and also in December received Development Approval from the Western Downs Regional Council.

Whilst the RET is expected to drive investment in the period up to 2020, we believe the new 2030 emission reduction target will require significant new investment in renewable energy over the longer term. However, the problem we face as an investor is that there is very little policy clarity on which to bank investments in the longer term. This is an issue that needs to be addressed as soon as possible if the industry is to have a chance of meeting the 2020 LRET target, let alone the more ambitious investments that will be required to 2030 and beyond.

Consider a new wind or solar farm which is built in the period prior to 2020. Whilst historically these have been made possible by a 15 year PPA, uncertainty over how the RET will evolve means that the appetite for long term contracting is limited. Instead, the market is negotiating around contracts with a 5 year firm pricing period and various options to extend this period. This is significantly shorter than the assets expected 20–25 year lifetime. This is resulting in developers encountering numerous challenges to secure financial support, with an increased cost of funding pushing up PPA price requirements and ultimately costs for consumers.

Regarding small-scale systems, Origin is also one of the largest installers of rooftop solar systems in Australia, having directly installed about 80,000 systems to date. In total, about 390,000 of Origin customers have solar systems. In 2015, Origin launched a new solar leasing product, which allows more customers to access the benefits of solar without having to purchase the system. We are also exploring new battery technologies and just installed our first Tesla Powerwall. We believe that the small-scale market will continue to evolve and it is important that retail offerings are allowed to develop to serve consumer demand, with minimal impact from regulatory intervention.

On a related issue, Origin supports the move towards more cost reflective network prices that will provide customers with better investment and energy usage signals. The transition to more cost reflective prices must be balanced with customer's ability to understand and respond to new network tariffs. We encourage networks and governments to work together on an appropriate reform pathway.

2) Standards for power stations

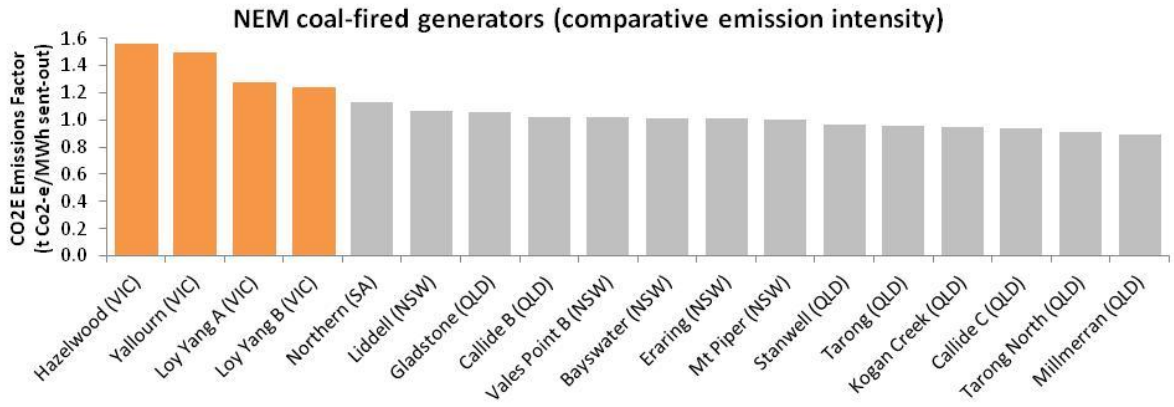
With electricity demand subdued over recent years and with additional renewable generation being required by the LRET, the NEM is experiencing a significant oversupply of generation and a number of marginal coal-fired plants have recently been mothballed or retired. This has generally been smaller black coal stations[3]. For a combination of reasons, including the very low marginal costs of existing local brown coal reserves and ownership structure, large brown coal fired generators in Victoria are still running at high capacity factors. Without policy intervention of some sort, this situation is not expected to change for a number of years. From a greenhouse gas perspective this is a perverse situation.

Whilst the LRET will underpin some new investment in renewable energy, the transition to lower emission generation would be accelerated if there was room in the market for this. As recommended in our recent submission to the review of the Victorian *Climate Change Act 2010*, we

[3] We note that some smaller power stations in Victoria such as Anglesea and Energy Brix have been retired/mothballed.

suggest that standards be considered to progressively phase out the most highly emissions intensive generators in Australia. Standards are currently being implemented in North America with the US basing theirs on emissions intensity and Canada on the age of its generators. Either policy could be applied in Australia. In comparison to a carbon tax or emission trading scheme, standards are simple to communicate to the public and their results are more tangible.

The chart below lists the coal-fired generators in the NEM by carbon intensity (sent-out basis).



Source: AEMO. Note that Northern is scheduled to close in April 2016.

The emissions intensity of the Victorian brown coal generators stand out in the chart above. Whilst Victoria is part of the National Electricity Market (NEM) it has a heavy reliance on relatively old, highly emissions intensive brown coal-fired generation for the majority of its electricity.

We note also that the four large Victorian brown-coal generators received the vast majority of compensation under the Carbon Pricing Mechanism (over $1.5 billion), even though it was only in place for two years and has now been repealed. Some of this money has been reinvested in the plant to potentially extend their life.

A recent proposal by ANU[4] to conduct a tender process for the closure of coal-fired generators and fund this through a carbon pricing scheme also has some merit and is worth exploring further. Whilst Origin does not support the paid closure of power stations, funding allocated for the purposes of structural adjustment for affected communities may be appropriate.

3) Cost of carbon abatement

Origin has historically supported carbon pricing of some form as the most efficient means to reduce carbon emissions over the longer term. However, as the above discussion of renewable and coal generation shows, we are open to a more pragmatic approach to emission reductions to achieve the nations stated long term reduction goals.

The current Safeguards Mechanism covers the electricity sector as an industry, with separate baselines for each major grid. For example, the NEM has its baseline set at 198 Mt CO_2 per annum. One logical evolution of this policy is to reduce the baseline over time.

A recent suggested policy approach along these lines was proposed by the AEMC[5] in their submission to consultation on the Safeguards Mechanism in 2015. This was described as a "closed system

[4] Jotzo, F and Mazouz, S (2015), Brown coal exit: a market mechanism for regulated closure of highly emissions intensive power stations.
[5] http://www.aemc.gov.au/getattachment/5f6f00b4-709e-47c7-8daa-5bcdf31cfacd/Submission-to-Emissions-Reduction-Fund-Safeguard-M.aspx

emissions intensity" approach to the electricity sector. Essentially it is a type of baseline and credit scheme where the baseline is set as an emissions intensity measure (tCO_2/MWh). Generators below the baseline could earn credits and those above the baseline would have to purchase them. The baseline could be reduced over time to gradually reduce the emissions intensity of the electricity sector. The major advantage of such an approach is that as a form of marginal pricing it will have minimal impact on wholesale and retail electricity prices. Another advantage of having it apply only to the electricity sector is that it will not be impacted by changes in other sectors. This will tend to promote more confidence in financing long-term investments, leading to lower cost for the consumer. Limited access to domestic or international offsets could be added on to the scheme as a way of giving flexibility to manage costs.

One of the key considerations for such a policy is how it would interact with the current LRET. The AEMC suggest that a transition period could occur where renewable generators could opt into either scheme. Another option would be to allow renewable generators to access both schemes at the same time. Ideally, the sector would transition to the one form of carbon pricing over the longer term.

As discussed above, these are real issues being faced now by investors in renewable energy as they are looking to the period beyond 2020 to bank their investments.

Managing the transition

Carbon and energy policy must balance the often competing priorities of reliability, affordability and sustainability. This requires policy that is long term, integrated and both robust and responsive to changing market conditions.

South Australia has attracted more investment to meet the Renewable Energy Target than any other state and now sources around 40% of its electricity from wind and solar. Recent Deloitte Access Economics analysis[6] found that the high level intermittent generation is adding risks and costs to the system.

Conventional coal and gas plant are exiting South Australia in response to the increased supply from renewables and this is making South Australia more reliant on the interconnector with Victoria. This makes firm electricity contract hedges more difficult to attain and is resulting in electricity prices faced by commercial and industrial customers increasing significantly. It also increases the amount of Ancillary Services or system support services that AEMO, the market operator, needs to acquire for South Australia. These also add costs that are ultimately borne by customers.

As noted elsewhere in this submission plant exit is an important part of the policy and market response required to decarbonise our electricity generation mix over time. However this needs to be done in a way that ensures customers continue to access reliable and affordable electricity supply. South Australia is pushing the boundaries of current market responsiveness and resilience and now needs to be closely monitored. Other states are likely to face similar unintended consequences unless carbon and energy policy are better integrated.

Origin recommends further targeted consultation to ensure appropriate policies are in place to minimise the impact on consumers as this transition to a lower carbon intensive electricity supply takes place.

Transport sector and electric vehicles

Origin supports the Authority's current approach to suggested policies for the transport sector which includes the consideration of mandated improvements in vehicle and fuel standards. By way of comparison, the electricity industry has experienced the long-term results of improvements in energy efficiency brought about by mandatory performance standards for electrical appliances. It

[6] Deloitte Access Economics, *Energy Markets and the implications of renewable: South Australian Case Study*, November 2015

should be noted however that these policies take time to implement and flow through to emission reductions. So if they were desired to contribute towards the 2030 target in a meaningful way then such standards should be implemented soon.

A specific overlap between the transport and electricity sector involves the support for electric vehicles. As the electricity sector progressively decarbonises, it will increase the abatement potential of electric and hybrid electric vehicles. Further, with an already high penetration of residential solar PV systems in Queensland and South Australia and the emergence of home battery technologies, there is an exciting opportunity for Australia to be a market leader in electric vehicles powered by solar energy.

We suggest that policies be examined which support the cost effective uptake of new technology in Australia. We note the recent report for the Electricity Supply Association of Australia[7] which seeks to promote debate about effective policy measures to promote the uptake of electric vehicles in Australia. Policies examined in this report include supporting infrastructure such as charge points; stamp duty and registration reductions; and preferential parking and traffic lane treatment.

Another issue to consider is how to bring increased volumes of electric vehicles to Australia, which will tend to reduce their price. Generally Australia is viewed as a small market and product offerings will lag other markets such as North America and Europe. One way to make Australia more attractive would be to aggregate the demand from a number of fleet buyers.

Electric vehicle sales can also be coupled with GreenPower or similar products so that they are powered by fully renewable electricity generation now. Further, there are opportunities for Australian industry to become involved in the manufacture and support of electric vehicle components and the charging infrastructure.

International emission reductions

In the Targets and Progress Review Final Report 2014 the Authority made a strong recommendation to allow access to genuine international emission reductions as a cost effective means of meeting national targets. Whether this involves the Government setting up a fund to purchase such units or more direct access by Australian firms, we believe it is prudent to retain the flexibility provided by using international permits.

To counter concerns around the credibility of international offset projects strict qualitative criteria could be placed on the types of units that could be allowed for Australian purposes. Quantitative limits on the amount of permits purchased could also be used as a further safeguard, and as a way of limiting concerns about the outflow of Australian funds. Direct links with other schemes would not be necessary in the first instance. Rather, international units could be a form of third party offset. This would mitigate the policy risk faced by Australian purchasers of international units.

We understand that future market mechanisms to promote international emissions reductions may look very different to the current Clean Development Mechanism. This is because most nations are likely to have their own targets under the Paris Agreement and be reluctant for abatement projects to be sold to other parties. This suggests that international units may move to a focus on facilitating technology transfer to developing nations, or to specific parts of the land use sector such as protecting forests.

We support the Australian Government encouraging the development of future international market mechanisms, for example by signing the New Zealand led declaration to support carbon markets at the Paris COP.

[7] Energia, *Review of Alternative Fuel Vehicle Policy Targets & Settings for Australia*, July 2015.

Trade exposed industry

It is important that the impact on trade exposed industries is considered in the design of any future climate change policy in Australia. Whilst the Paris Agreement is likely to sustain ongoing action to reduce emissions, it does not mean that issues facing trade exposed industries will be automatically removed. Rather, it suggests that with nations determining their own targets and the policies to deliver these, the difficult issue of impacts on trade exposed industries will remain for the foreseeable future.

Our experience of various climate change mitigation policies including the previous Carbon Pricing Mechanism and the RET is that it is very important to understand the detailed design of assistance measures for trade exposed industry. In particular, it is imperative that the means of assistance maintains an incentive to abate.

As noted above, one important way to reduce the impact on trade exposed industry is to include access to low cost offsets including international units.

Voluntary measures

Voluntary measures will also have an important role to play in Australia meeting its emission reduction targets. One example of a successful voluntary measure in the electricity sector is GreenPower.

GreenPower is a voluntary, government accredited, program that supports the production of electricity from renewable sources over and above the mandatory targets set under the RET. GreenPower has proved to be a very popular scheme and Origin believes that GreenPower should continue to be an important mechanism as it allows those customers who choose to make an additional contribution the opportunity to do so. Importantly, it does not involve a cross subsidy and does not force other customers to pay for this additional support. In this way it is an equitable, market driven product.

It is important that voluntary measures like GreenPower are encouraged and allowed to evolve to changing consumer preferences.

If you have any questions regarding this submission please contact Matthew Kaspura (Manager Climate Change Policy) on (02) 8345 5287.

Yours sincerely,

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About Origin

Origin Energy (ASX: ORG) is the leading Australian integrated energy company with market leading positions in energy retailing (approximately 4.3 million customers), power generation (approximately 6,000 MW of capacity owned and contracted) and natural gas production (1,093 PJ of 2P reserves and annual production of 82 PJ). Through Australia Pacific LNG, its incorporated joint venture with ConocoPhillips and Sinopec, Origin is developing one of Australia's largest CSG to LNG projects based on Australia's largest 2P CSG reserves base.

Origin also aspires to be the number one renewable and low carbon energy company in Australia. Origin is one of the largest installers of solar systems in Australia, having directly installed about 90,000 systems to date. In total, about 400,000 of our retail customers have solar products. This year, Origin launched a new solar leasing product, which allows more customers to access the benefits of solar without having to purchase the system. We are also exploring new opportunities to invest in utility scale solar projects.