

# Submission to the Renewable Energy Target review Issues Paper

I am a concerned citizen (university science student) with no investments in any energy technology. My interest in the Renewable Energy Target (RET) relates to its effectiveness as a policy to address climate change.

In this submission I will argue the following:

- Avoiding dangerous climate change requires urgent and radical change to the global and Australian economy.
  - Unilateral action by Australia can make a difference.
- All aspects of the policy should be designed to accelerate deployment of renewable energy.
  - The RET is intended to increase the amount of renewable energy, not limit it.
  - The Authority should look critically at advice from those invested in fossil fuels.
  - Environmental effectiveness must be prioritized over economic efficiency.
- The RET must not be weakened.
  - The RET complements other climate policies.
  - The RET is efficient. The Productivity Commission's analysis is wrong.
  - Falling demand is not a reason to lower the RET.
  - Renewable energy decreases wholesale electricity prices.
  - The RET will protect Australia's future competitiveness.
  - Renewable energy subsidies are appropriate.
- The LRET should be strengthened.
  - The 2020 target should be increased by as much as possible, and continue to rise thereafter toward 100% renewable energy as soon as possible.
  - The LRET must not limit renewable energy.
  - All fossil fuel technologies should be ineligible.
- The SRES should remain separate from the LRET, to ensure the RET supports both large-scale and small-scale technologies.
- The Authority could consider recommending bands for emerging renewable energy technologies, which need government support to reduce their costs.
- Emissions reductions achieved by the RET should be additional to Australia's emissions targets.
- This submission explains what is wrong with fallacious arguments by certain organizations, which the Authority should debunk when reporting to COAG.
  - The same principles should be applied to any other climate policies reviewed.
- Future reviews should focus on strengthening climate policies to accelerate the transition to a zero-carbon economy, not weakening them to delay it.

## 1. The big picture

It is important that members of the Climate Change Authority not merely follow their mandate, but do so with an understanding of how the recommendations fit into the bigger picture. Australia needs a respected independent body which advocates for the long-term national and global interest in avoiding catastrophic climate change, as opposed to sectional interests or short-sighted interpretations of the national interest. I hope the Climate Change Authority will play that role.

To be sure of preserving a stable, habitable climate, avoiding tipping points, humanity must rapidly phase out fossil fuels globally, leaving the vast majority in the ground.<sup>1</sup> The world's governments have agreed to prevent "dangerous anthropogenic interference with the climate system"<sup>2</sup> and "hold the increase in global average temperature below 2°C above pre-industrial levels".<sup>3</sup> To achieve these goals requires urgent and radical change to the global and Australian economy.

Because of the long lifetime of CO<sub>2</sub> in the atmosphere, the extent of climate impacts centuries and millennia from now will be determined by policy decisions taken in the near future. The Government's own Climate Commission has identified the 2010s as the "Critical Decade" for climate change mitigation. The world is on track to build, by 2017, sufficient carbon-intensive infrastructure to lock in enough emissions to miss the 2°C target (let alone a truly safe target).<sup>4</sup> The central solution is to switch from fossil fuels to renewable energy as quickly as possible.

### 1.1. Australian action matters

It is often claimed that Australia's actions can make no difference to global warming. On the contrary, Australia is far from insignificant. Australia's fossil fuel CO<sub>2</sub> emissions are the 15<sup>th</sup> highest of over 200 countries.<sup>5</sup> Australia's per capita emissions are the 13<sup>th</sup> highest in the world.<sup>6</sup> Australia generates 77% of its electricity from coal.<sup>7</sup> Australia has contributed the 14<sup>th</sup> highest amount of historical emissions<sup>8</sup>, and so bears considerable responsibility for the greenhouse gases already in the atmosphere.

Australia has both the moral obligation and the capability to lead the world on climate action. A foundational principle of the United Nations Framework Convention on Climate Change, to which Australia is a signatory, is "common but differentiated responsibilities".<sup>9</sup> In other words, because developed countries have the means to act and because they are

responsible for most of the CO<sub>2</sub> already in the atmosphere, they should act first and assist developing countries to follow in their footsteps. Australia is among the wealthiest countries in the world, with the 12<sup>th</sup> largest GDP<sup>10</sup> and 6<sup>th</sup> highest GDP per capita.<sup>11</sup> The mining industry's contribution to the Australian economy is much smaller than is generally assumed.<sup>12</sup> Australia has vast solar and wind energy resources to draw on.

Contrary to the Government's policy, Australian action should not be conditional on international action. Any country on Earth could make an argument, in one form or another, that its actions do not matter. If every country followed that reasoning then no country would ever do anything. The ideal solution to climate change is a global binding treaty in which national targets add up, but unilateral action is needed to get a momentum for a multilateral agreement.

## **2. Guiding principles**

As a layperson, I will not comment on every technical detail of the RET policy's design. However, I will outline some general principles which explain where I am coming from and which the Authority should bear in mind.

### **2.1. Policy intent**

As noted in the Issues Paper, the Authority's recommendations must be consistent with the objects of the *Renewable Energy (Electricity) Act 2000*: "to encourage the additional generation of electricity from renewable sources", "to reduce emissions of greenhouse gases in the electricity sector", and "to ensure the renewable energy sources are ecologically sustainable."<sup>13</sup> Furthermore, the Government states the intent of the policy as ensuring "the equivalent of at least 20 per cent of Australia's electricity supply comes from renewable resources by 2020".<sup>14</sup> It is clear that the intention has always been to increase, not limit the amount of renewable energy.

### **2.2. Potentially untrustworthy organizations**

I would caution the Authority to look critically at advice from those invested in fossil fuels, because their interests directly conflict with the intent of the RET. Based on media reports,<sup>15</sup> I expect the Australian Industry Greenhouse Network (AIGN), Origin Energy, TRUenergy, and possibly others to argue for weakening the RET to limit the amount of renewable energy deployed, a move which would be at odds with the policy intent as explained above. Given their fossil fuel investments, I fear these organizations are not acting in good faith to help design an effective RET, but instead seeking to sabotage its aims.

While it could be argued these organizations have a right to lobby in their self-interest, their interests should not be put ahead of the public interest. They have known for many decades about climate change and the risk it poses to fossil fuel investments, and they should now face the consequences of the investment choices they have made without special treatment by governments.

### **2.3. Effectiveness must be the priority**

Where environmental effectiveness is perceived to conflict with economic efficiency, environmental effectiveness must be the overriding consideration. Arguments for economic efficiency are often used as excuses to undermine the intent of climate policies. Economic analysis includes only narrowly-defined short-term costs and benefits, and fails to take into account long-term, unquantifiable, worst-case, and non-market costs and benefits. Most of the benefits of climate action (or in other words, costs of inaction) fall into the latter category.<sup>16</sup>

Even if they prove to be real, the alleged "costs" of climate policies like the RET are by far cancelled out by the benefits of avoiding the very high external costs of CO<sub>2</sub> emissions, which could be up to US\$893/tonne (AU\$854/tonne).<sup>17</sup> In other words, there is a significant risk the damage is so high that practically any measures to move to a zero-carbon economy are worth taking.

The Authority should ask not "how can the policy be designed to minimize short-term costs in dollars per tonne of CO<sub>2</sub>e abatement?" but instead "how can the policy be designed to contribute most to long-term decarbonization of the economy?" Given the most urgent environmental challenge is to replace fossil fuels with zero-carbon energy sources, the environmental implications of changing the RET are simple. Increasing or otherwise strengthening the RET would be positive; decreasing or otherwise weakening it would be negative.

Therefore all aspects of the policy should be designed to accelerate deployment of renewable energy.

## **3. The RET must not be weakened**

### **3.1. The RET complements other climate policies**

AIGN is expected to argue the RET is ineffective.<sup>18</sup> They will probably claim it has been made redundant by the carbon price. On the contrary, as the Authority acknowledges, the carbon price and RET complement each other.<sup>19</sup> In particular, the RET ensures emissions cuts occur domestically. This is important because domestic action is fundamental to decarbonizing the Australian economy, whereas international offsets hinder domestic decarbonization and potentially lack credibility (consider the scandals surrounding the Clean Development Mechanism<sup>20</sup>). Also, by encouraging the

deployment of renewable energy technologies, the RET helps to bring down their prices and increase their rollout everywhere.

Even if the RET was not complementary, an inherent advantage of having multiple climate policies working alongside each other is that success in cutting emissions does not depend on the survival and effectiveness of any single policy.

### **3.2. The RET is efficient**

AIGN is expected to argue the RET is inefficient, and merely increasing the cost of meeting the Government's emissions target.<sup>21</sup> AIGN and other opponents of the RET are likely to quote the Productivity Commission, which argues policies supporting renewable energy are expensive and emissions trading schemes the most cost-effective way of cutting greenhouse gas emissions<sup>22</sup>, and has called for the RET and many other Australian climate policies to be terminated.<sup>23</sup> The Productivity Commission's argument is wrong in every way.

Firstly, as explained in section 2.3 of this submission, contribution to long-term decarbonization should be prioritized over apparent short-term cost-effectiveness. Secondly, as explained in section 3.1, the RET and carbon price complement each other. Thirdly, the Government's emissions reduction target of 5% by 2020 is nowhere near ambitious enough given the urgency of rapid emissions cuts, so debate should not be limited to how to implement that inadequate target. Fourthly, the RET will make the emissions target easier to meet, and thus make it easier for the emissions target to be increased.

Fifthly, the Productivity Commission admits its analysis compares apples with oranges.<sup>24</sup> Sixthly, some countries with supposedly inefficient policies (particularly Germany and the UK) have achieved far more than Australia.<sup>25</sup> Seventhly, the Productivity Commission does not account for the technology cost reductions resulting from renewable energy deployment; which in the case of solar PV is occurring so rapidly it is likely to outweigh all other factors. (In a response to the solar PV industry,<sup>26</sup> the Productivity Commission again failed to account for falling prices.)

Eighthly, the Productivity Commission's claim that emissions trading schemes are cost-effective is on the basis that they drive investment in gas-fired electricity generation.<sup>27</sup> As a fossil fuel, gas is part of the problem, not the solution. The International Energy Agency warns new investment in gas would divert investment away from renewable energy and lock in fossil fuel infrastructure for decades, leading to dangerous global warming.<sup>28</sup> Worse still, the IEA analysis did not account for leaked emissions of methane, which could make the climate impact of unconventional gas worse than coal in the medium term.<sup>29</sup>

### **3.3. Falling demand is no reason to lower the RET**

As discussed in the Issues Paper, projected electricity demand in 2020 has been revised downward in recent forecasts, implying the 45,000 GW to be delivered by the RET could potentially amount to more than 20% of Australia's power in 2020.<sup>30</sup> Origin Energy<sup>31</sup> and TRUenergy<sup>32</sup> argue this is a reason to reduce the RET to 20% of the revised demand projection for 2020. In TRUenergy's "Real 20%" scenario, no new renewable energy would be deployed after 2016.<sup>33</sup> Their argument ignores both the urgency of decarbonization, and the intent of the RET to increase the amount of renewable energy, not limit it. Overachieving would be a good thing.

There are a number of other problems with Origin's and TRUenergy's argument. The impact of falling demand may not be as large or as sustained as they claim. Demand projections could change again; it would be impractical to constantly adjust the RET accordingly. And installation of solar PV is double-counted as both an increase in renewable energy and a reduction in demand, so lowering the RET on that basis could make it *less* than 20%.<sup>34</sup>

### **3.4. The RET will decrease electricity prices**

Origin argues the RET increases electricity prices and thus costs consumers.<sup>35</sup> In reality, the major factor driving up prices is ill-advised investment in the electricity grid. As recognized by the Issues Paper, the LRET actually reduces wholesale electricity prices.<sup>36</sup>

Replacing fossil fuels with renewable energy will lead to cheaper energy in the long run. While the costs of fossil fuels will ultimately rise because of carbon pricing and because they are non-renewable resources, the costs of renewables are falling rapidly as they are deployed, and – crucially – can be further reduced by scaling up deployment. The Bureau of Resources and Energy Economics (BREE) projects wind and solar PV will be the cheapest energy technologies within 10-20 years.<sup>37</sup>

### **3.5. The RET will protect Australia's future competitiveness**

AIGN is expected to argue the RET will negatively affect Australia's competitiveness.<sup>38</sup> Ironically, however, continuing to rely on fossil fuels will in fact damage Australia's competitiveness. The fact that most fossil fuels are unburnable implies the global economy contains a "carbon bubble".<sup>39</sup> The valuation of fossil fuel companies is based on the assumption that their reserves will be burned. If we wish to avoid unimaginable global catastrophe, that bubble must burst abruptly and within years.<sup>40</sup> When it does, those reserves will become stranded assets and the companies' values will plummet. Those countries least reliant on fossil fuels will be the most competitive. Therefore shifting investment from fossil fuels to renewable energy is not only the right thing to do: it is also in Australia's long-term economic interest.

Instead of being weakened, the RET should be strengthened, as proposed in the remainder of this submission.

### **3.6. It is appropriate to subsidize renewable energy**

Opponents of the RET are likely to argue that government investment in renewable energy distorts the market. Given the long-term subsidies that the fossil fuel industry has benefited from, such an argument is unworkable.

## **4. The LRET should be strengthened**

### **4.1. The target should be increased**

The Large-scale Renewable Energy Target (LRET), in its present form, is nowhere near what is required. Australia and the world need to get to 100% renewable energy as soon as possible. The Zero Carbon Australia 2020 Stationary Energy Plan by Beyond Zero Emissions shows it is feasible for Australia to achieve 100% renewable energy within ten years, by rapidly scaling up existing technologies.<sup>41</sup> Contrast this with the RET's present ambition of 20% by 2020.

As if this were not enough, there are several more immediate reasons to strengthen the LRET:

- The LRET should be increased to ensure the Clean Energy Finance Corporation (CEFC) delivers investment that would not have occurred otherwise. I suggest increasing the LRET by, at the very least, the uppermost estimate of CEFC's impact on generation.
- The introduction of the carbon price, far from being a reason to weaken or scrap the LRET, is actually another reason to increase it. By increasing the price of fossil-fuel-fired electricity generation, the carbon price should make it much easier to meet the LRET than was envisaged in 2009.
- The rapid reduction since 2009 in the prices of many renewable energy technologies has similarly made the LRET cheaper to achieve.
- Australia's RET is not world-leading when compared to, for example, Germany's target of 35% renewable energy by 2020.<sup>42</sup>

Therefore the 2020 target should be increased by as much as possible, and continue to rise thereafter toward 100% renewable energy as soon as possible.

### **4.2. The LRET must not limit renewable energy**

The LRET should be designed in such a way that it does not inadvertently limit the amount of renewable energy that can be deployed, which would conflict with the intent of the policy. Any possibility of overshooting or oversupply of certificates should be welcomed as an opportunity to increase the target.

The target for each year should be higher than the preceding year. It makes no sense for the target to go backwards from 2013 to 2015, as in the present response to oversupply. The issue of oversupply would be more fully addressed by increasing targets for all years. Figure 5.2 in the Issues Paper<sup>43</sup> suggests that making the 2014 target higher than 2013 would, by bringing the 2016 target forward to 2014, allow the 2020 target of 41,000 GWh to be achieved two years earlier.

The review could also consider recommending a floor price for Large-scale Generation Certificates (LGCs) to ensure the LRET continues to drive investment.

A fixed gigawatt-hour target is probably better than a fixed percentage of demand, as a fixed gigawatt-hour target means demand-side management can help to further increase the proportion of Australia's electricity generated by renewable sources.

### **4.4. Eligibility of technologies**

All fossil fuel technologies conflict with the policy intentions of the RET in two fundamental ways: they are not renewable, and their use results in greenhouse gas emissions. Therefore waste coal mine gas should immediately be made ineligible, and all other fossil fuels should continue to be ineligible.

## **5. Small-scale Renewable Energy Scheme**

The Small-scale Renewable Energy Scheme (SRES) should remain separate from the LRET. Origin is expected to argue the SRES only increases the cost of achieving the RET.<sup>44</sup> On the contrary, having two separate schemes ensures the RET supports both large-scale and small-scale renewable energy technologies, which are both needed to play different roles in a zero-carbon economy.

The uncapped nature of the SRES has the advantage of not limiting the amount of small-scale renewable energy that can be deployed. As with the LRET, any possibility of exceeding the 4,000 GWh target should be welcomed.

However, the SRES should be improved so that it continues to accelerate deployment of small-scale renewable energy. This might be done by reinstating the Small-scale Technology Certificate (STC) multiplier, introducing other policies (eg. a feed-in tariff) to complement the SRES, or by other means.

## 6. Diversity of renewable energy

As noted in the Issues Paper,<sup>45</sup> the LRET as it currently stands supports only the cheapest renewable energy technologies (mainly wind and biomass). The Authority could consider recommending bands for emerging technologies, which need government support to help them bridge the “valley of death” in which costs exceed available capital.<sup>46</sup> Although other policies like CEFC may have the potential to support emerging technologies, it is appropriate for the RET to also play a role as much more investment is needed, and so success does not depend on any single policy.

Concentrated solar thermal (CST) is a particularly promising technology for which a band should be considered. CST has the storage capacity to provide power continuously throughout the day and year, analogous to (and more flexible than) the “baseload” power provided by coal-fired plants. CST could supply 60% of Australia’s electricity.<sup>47</sup>

## 7. Additionality

The RET in its present form complements the carbon price for the reasons explained in section 3.1. However, to ensure emissions reductions achieved by the RET are additional to Australia’s emissions targets, the Clean Energy Act should be amended so that verifiable abatement by the RET (and other complementary policies) is subtracted from future emissions caps in the same way as household actions. This subtraction should occur in the very next year instead of five years later, to prevent inertia.

## 8. Input to COAG review

In sections 2 and 3 of this submission I have shown the arguments of AIGN, Origin, TRUenergy, and the Productivity Commission to be misleading. Those organizations are likely to repeat the same fallacious arguments to the Council of Australian Governments (COAG) review of climate change policies. In reporting to COAG on the RET in February 2013, the Authority should focus particularly on explaining what is wrong with those arguments.

### 8.1. Policies other than the RET

If, as recommended by the Australian Industry Group (AIG),<sup>48</sup> the Authority decides to review other climate policies in the leadup to the COAG review, the same principles outlined in this submission should be applied (where relevant).

## 9. Future reviews

Regular reviews are a double-edged sword: they provide opportunities to strengthen the policy and respond to changing circumstances, but also risk undermining investor certainty by weakening the policy or constantly changing it on whims. To ensure the intent of the RET policy is not forgotten, this review should rule out any future decreases in the RET, and future reviews should focus on accelerating deployment of renewable energy, as opposed to economic efficiency. Similarly, future Climate Change Authority reviews on all matters should focus on strengthening climate policies to accelerate the transition to a zero-carbon economy, not weakening them to delay it.

Yours faithfully,  
James Wight

I can be contacted via the email address on the cover sheet.

## 9. References

1. J Hansen, P Kharecha, M Sato, F Ackerman, PJ Hearty, O Hough-Guldberg, S-L Hsu, F Krueger, C Parmesan, S Rahmstorf, J Rockstrom, EJ Rohling, J Sachs, P Smith, K Steffen, LV Susteren, K von Schuckmann, JC Zachos, ‘Scientific case for avoiding dangerous climate change to protect young people and nature’, *Proceedings of the National Academy of Sciences*, in press, viewed 12 August 2012, <http://arxiv.org/abs/1110.1365v3>
2. United Nations, *United Nations Framework Convention on Climate Change*, 1992, viewed 9 September 2012, <http://unfccc.int/resource/docs/convkp/conveng.pdf>, p. 4.
3. United Nations Framework Convention on Climate Change, ‘The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention’ in *Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010*, United Nations, viewed 12 August 2012, <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>
4. F Harvey, ‘World headed for irreversible climate change in five years, IEA warns’, *Guardian*, 9 November 2011, viewed 14 September 2012, <http://www.guardian.co.uk/environment/2011/nov/09/fossil-fuel-infrastructure-climate-change>
5. S Rogers & L Evans, ‘World carbon dioxide emissions data by country: China speeds ahead of the rest’, *Guardian*, 31 January 2011, viewed 9 September 2012, <http://www.guardian.co.uk/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2>
6. *ibid.*
7. US Energy Information Administration, *Australian Energy Data, Statistics, and Analysis*, 2011, viewed 9 September 2012, <http://www.eia.gov/cabs/Australia/Full.html>
8. S Lewandowsky, ‘Historical responsibilities: carbon emissions in context’, *Shaping Tomorrow’s World*, weblog, 1 June 2011, viewed 9 September 2012, <http://www.shapingtomorrowworld.org/lewandowskyHistoresponse.html>
9. United Nations, *United Nations Framework Convention on Climate Change*, 1992, viewed 9 September 2012, <http://unfccc.int/resource/docs/convkp/conveng.pdf>, p. 1.
10. International Monetary Fund, *Report for Selected Countries and Subjects: Gross domestic product*, 2012a, viewed 9 September 2012, <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/weorept.aspx?pr.x=48&pr.y=8&sy=2010&ey=2012&scsm=1&ssd=1&sort=countr y&ds=.&br=1&c=512%2C941%2C914%2C446%2C612%2C666%2C614%2C668%2C311%2C672%2C213%2C946%2C911%2C137%2C193%2C962%2C122%2C674%2C912%2C676%2C313%2C548%2C419%2C556%2C513%2C678%2C316%2C181%2C913%2C682%2C124%2C684%2C339%2C273%2C638%2C921%2C514%2C948%2C218%2C943%2C963%2C686%2C616%2C688%2C223%2C518%2C516%2C728%2C918%2C558%2C748%2C138%2C618%2C196%2C522%2C278%2C622%2C692%2C156%2C694%2C624%2C142%2C626%2>

[C449%2C628%2C564%2C228%2C283%2C924%2C853%2C233%2C288%2C632%2C293%2C636%2C566%2C634%2C964%2C238%2C182%2C662%2C453%2C960%2C968%2C423%2C922%2C935%2C714%2C128%2C862%2C611%2C716%2C321%2C456%2C243%2C72%2C248%2C942%2C469%2C718%2C253%2C724%2C642%2C576%2C643%2C936%2C939%2C961%2C644%2C813%2C819%2C199%2C172%2C184%2C132%2C524%2C646%2C361%2C648%2C362%2C915%2C364%2C134%2C732%2C652%2C366%2C174%2C2734%2C328%2C144%2C258%2C146%2C656%2C463%2C654%2C528%2C336%2C923%2C263%2C738%2C268%2C578%2C532%2C537%2C944%2C742%2C176%2C866%2C534%2C369%2C536%2C744%2C429%2C186%2C433%2C925%2C178%2C869%2C436%2C746%2C136%2C926%2C343%2C466%2C158%2C112%2C439%2C111%2C916%2C298%2C664%2C927%2C826%2C846%2C542%2C299%2C967%2C582%2C443%2C474%2C917%2C754%2C544%2C698&s=NGDPD&grp=0&a=](#)

11. International Monetary Fund, *Report for Selected Countries and Subjects: Gross domestic product per capita*, 2012b, viewed 9 September 2012, [https://www.tai.org.au/file.php?file=/media\\_releases/Mining the truth IP7.pdf](http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/weorept.aspx?pr.x=27&pr.y=7&sy=2010&ey=2011&scsm=1&ssd=1&sort=country&ds=.&br=1&c=512%2C941%2C914%2C446%2C612%2C666%2C614%2C668%2C311%2C672%2C213%2C946%2C911%2C137%2C193%2C962%2C122%2C674%2C912%2C676%2C313%2C548%2C419%2C556%2C513%2C678%2C316%2C181%2C913%2C682%2C124%2C684%2C339%2C273%2C638%2C921%2C514%2C948%2C218%2C943%2C963%2C686%2C616%2C688%2C223%2C518%2C516%2C728%2C918%2C558%2C748%2C138%2C618%2C196%2C522%2C278%2C622%2C692%2C156%2C694%2C624%2C142%2C626%2C449%2C628%2C564%2C228%2C283%2C924%2C853%2C233%2C288%2C632%2C293%2C636%2C566%2C634%2C964%2C238%2C182%2C662%2C453%2C960%2C968%2C423%2C922%2C935%2C714%2C128%2C862%2C611%2C716%2C321%2C456%2C243%2C72%2C248%2C942%2C469%2C718%2C253%2C724%2C642%2C576%2C643%2C936%2C939%2C961%2C644%2C813%2C819%2C199%2C172%2C184%2C132%2C524%2C646%2C361%2C648%2C362%2C915%2C364%2C134%2C732%2C652%2C366%2C174%2C2734%2C328%2C144%2C258%2C146%2C656%2C463%2C654%2C528%2C336%2C923%2C263%2C738%2C268%2C578%2C532%2C537%2C944%2C742%2C176%2C866%2C534%2C369%2C536%2C744%2C429%2C186%2C433%2C925%2C178%2C869%2C436%2C746%2C136%2C926%2C343%2C466%2C158%2C112%2C439%2C111%2C916%2C298%2C664%2C927%2C826%2C846%2C542%2C299%2C967%2C582%2C443%2C474%2C917%2C754%2C544%2C698&s=NGDPDPC&grp=0&a=</a></li><li>12. D Richardson & R Denniss, <i>Mining the truth: The rhetoric and reality of the resources boom</i>, Australia Institute, 2011, viewed 10 September 2012, <a href=)
13. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, p. 7.
14. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, p. 12.
15. D. Palmer, 'TRUenergy and Origin vs renewables', *Climate Spectator*, 7 September 2012, viewed 13 September 2012, <http://www.climatespectator.com.au/commentary/truenergy-and-origin-vs-renewables>
16. R Garnaut, *The Garnaut climate change review*, Cambridge University Press, 2008, viewed 10 September 2012, [http://www.garnautreview.org.au/CA25734E0016A131/WebObj/GarnautClimateChangeReview-FinalReport-30September2008\(Fullversion\)/\\$File/Garnaut Climate Change Review - Final Report – 30 September 2008 \(Full version\).pdf](http://www.garnautreview.org.au/CA25734E0016A131/WebObj/GarnautClimateChangeReview-FinalReport-30September2008(Fullversion)/$File/Garnaut%20Climate%20Change%20Review%20-%2030%20September%202008%20(Full%20version).pdf), p. 250.
17. F Ackerman & Stanton, E, *Climate Risks and Carbon Prices: Revising the Social Cost of Carbon*, Economics for Equity and Environment, 2011, viewed 14 September 2012, [http://www.e3network.org/papers/Climate Risks and Carbon Prices executive-summary\\_full-report\\_comments.pdf](http://www.e3network.org/papers/Climate_Risks_and_Carbon_Prices_executive-summary_full-report_comments.pdf)
18. M Priest, 'Polluters target overthrow of RET', *Australian Financial Review*, 5 April 2012, viewed 13 September 2012, [http://afr.com/p/national/polluters\\_target\\_overthrow\\_of\\_ret\\_AGsK3hRvmtoruPu6IyjTCI](http://afr.com/p/national/polluters_target_overthrow_of_ret_AGsK3hRvmtoruPu6IyjTCI)
19. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, pp. 17-18.
20. E Rosenthal & Lehren, AW, 'Incentive to slow climate change drives output of harmful gases', *New York Times*, 9 August 2012, viewed 13 September 2012, [http://www.nytimes.com/2012/08/09/world/asia/incentive-to-slow-climate-change-drives-output-of-harmful-gases.html?\\_r=1](http://www.nytimes.com/2012/08/09/world/asia/incentive-to-slow-climate-change-drives-output-of-harmful-gases.html?_r=1)
21. M Priest, 'Polluters target overthrow of RET'.
22. Productivity Commission, *Carbon Emission Policies in Key Economies*, Research Report, 2011, viewed 14 September 2012, [http://www.pc.gov.au/\\_data/assets/pdf\\_file/0003/109830/carbon-prices.pdf](http://www.pc.gov.au/_data/assets/pdf_file/0003/109830/carbon-prices.pdf)
23. Productivity Commission, *COAG's Regulatory and Competition Reform Agenda: A high level assessment of the gains*, Research Report, 2012, viewed 14 September 2012, [http://pc.gov.au/\\_data/assets/pdf\\_file/0006/118977/regulatory-competition-reform.pdf](http://pc.gov.au/_data/assets/pdf_file/0006/118977/regulatory-competition-reform.pdf), p. 24.
24. Productivity Commission, *Carbon Emission Policies in Key Economies*, Research Report, 2011, viewed 14 September 2012, [http://www.pc.gov.au/\\_data/assets/pdf\\_file/0003/109830/carbon-prices.pdf](http://www.pc.gov.au/_data/assets/pdf_file/0003/109830/carbon-prices.pdf), p. XIX.
25. Productivity Commission, *Carbon Emission Policies in Key Economies*, Research Report, 2011, viewed 14 September 2012, [http://www.pc.gov.au/\\_data/assets/pdf\\_file/0003/109830/carbon-prices.pdf](http://www.pc.gov.au/_data/assets/pdf_file/0003/109830/carbon-prices.pdf), p. XXXVII.
26. Productivity Commission, *Carbon Emission Policies in Key Economies: Responses to Feedback on Certain Estimates for Australia*, Supplement to Research Report, 2011, viewed 14 September 2012, [http://www.pc.gov.au/\\_data/assets/pdf\\_file/0016/114244/carbon-prices-supplement.pdf](http://www.pc.gov.au/_data/assets/pdf_file/0016/114244/carbon-prices-supplement.pdf)
27. Productivity Commission, *Carbon Emission Policies in Key Economies*, Research Report, 2011, viewed 14 September 2012, [http://www.pc.gov.au/\\_data/assets/pdf\\_file/0003/109830/carbon-prices.pdf](http://www.pc.gov.au/_data/assets/pdf_file/0003/109830/carbon-prices.pdf), p. XXX.
28. J Romm, 'International Energy Agency Finds "Safe" Gas Fracking Would Destroy A Livable Climate', *Climate Progress*, weblog, 30 May 2012, viewed 14 September 2012, <http://thinkprogress.org/climate/2012/05/30/491970/international-energy-agency-finds-safe-gas-fracking-would-destroy-a-livable-climate/>
29. RW Howarth, Santoro, R & Ingraffea, A, 'Methane and the greenhouse-gas footprint of natural gas from shale formations', *Climate Change*, 2011, viewed 14 September 2012, [http://www.eeb.cornell.edu/howarth/Howarth et al 2011.pdf](http://www.eeb.cornell.edu/howarth/Howarth%20et%20al%202011.pdf)
30. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, pp. 23-24.
31. A Macdonald-Smith & Priest, M, 'Push to rein in high-cost green power', *Australian Financial Review*, 10 July 2012, viewed 13 September 2012, [http://www.afr.com/p/national/push\\_to\\_rein\\_in\\_high\\_cost\\_green\\_GiHfQcHh4EEOsq4L6JtCK](http://www.afr.com/p/national/push_to_rein_in_high_cost_green_GiHfQcHh4EEOsq4L6JtCK)
32. G Parkinson, 'Snubbed on coal buyout, TRUenergy turns on IRET', *Renew Economy*, 7 September 2012, viewed 13 September 2012, <http://reneweconomy.com.au/2012/snubbed-on-coal-buyout-truenergy-turns-on-iret-83111>
33. *ibid.*
34. T Edis, 'Origin's fickle renewables outlook', *Climate Spectator*, 4 May 2012, viewed 13 September 2012, <http://www.climatespectator.com.au/commentary/origins-fickle-renewables-outlook>
35. A Macdonald-Smith, 'Push to rein in high-cost green power'.
36. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, p. 43.
37. Bureau of Resources and Energy Economics, *Australian Energy Technology Assessment 2012*, Commonwealth of Australia, viewed 14 September 2012, [http://www.bree.gov.au/documents/publications/aeta/Australian Energy Technology Assessment.pdf](http://www.bree.gov.au/documents/publications/aeta/Australian_Energy_Technology_Assessment.pdf)
38. M Priest, 'Polluters target overthrow of RET'.
39. Carbon Tracker Initiative, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?*, 2011, viewed 9 September 2012, <http://www.carbontracker.org/linkfileshare/Unburnable-Carbon-Full1.pdf>
40. P Gilding & Preston, P, *Carbon-Induced Financial Disruption: Linking climate science to investment risks and opportunities*, 2010, viewed 14 September 2012, <http://paulgilding.com/fileshare/Carbon-Induced-Financial-Disruption-Gilding-and-Preston.pdf>

41. Beyond Zero Emissions, *Zero Carbon Australia Stationary Energy Plan*, 2010, viewed 9 September 2012, [http://media.beyondzeroemissions.org/ZCA2020\\_Stationary\\_Energy\\_Report\\_v1.pdf](http://media.beyondzeroemissions.org/ZCA2020_Stationary_Energy_Report_v1.pdf)
42. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, p. 15.
43. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, p. 2.
44. S Vorrath, 'Is the solar multiplier doomed?', *Renew Economy*, 3 May 2012, viewed 13 September 2012, <http://reneweconomy.com.au/2012/is-the-solar-multiplier-doomed-93631>
45. Climate Change Authority, *Renewable Energy Target Review: Issues Paper*, Commonwealth of Australia, 2012, <http://climatechangeauthority.gov.au/sites/climatechangeauthority.gov.au/files/RET-Review-20120820.pdf>, p. 44.
46. F Green & R Finighan, *Laggard to Leader: How Australia can lead the world to zero carbon prosperity*, Beyond Zero Emissions, 2012, viewed 9 September 2012, [http://media.beyondzeroemissions.org/Laggard\\_Leaderv1.pdf](http://media.beyondzeroemissions.org/Laggard_Leaderv1.pdf), p. 55.
47. Beyond Zero Emissions, *Zero Carbon Australia*.
48. I Willox, *Australian Industry Group submission to the review of the Renewable Energy Target*, Australian Industry Group, 2012, viewed 17 September 2012, [http://www.aigroup.com.au/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/LIVE\\_CONTENT/Policy%2520and%2520Representation/Submissions/Environment%2520and%2520Energy/2012/Ai\\_Group\\_submission-RET\\_review-14\\_September\\_2012.pdf](http://www.aigroup.com.au/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/LIVE_CONTENT/Policy%2520and%2520Representation/Submissions/Environment%2520and%2520Energy/2012/Ai_Group_submission-RET_review-14_September_2012.pdf), p. 6