GE
Peter Cowling
Renewables Leader – Asia Pacific

GE Energy
572 Swan Street
Richmond VIC 3121

+61 3 8807 6811
peter.cowling@ge.com

September 14, 2012

Climate Change Authority
GPO Box 1944
Melbourne VIC 3001

Email submissions@climatechangeauthority.gov.au

RE Climate Change Authority Issues Paper: Renewable Energy Target (RET) Review

General Electric (GE) welcomes the opportunity to comment on Renewable Energy Target (RET) Review Issues Paper released by the Climate Change Authority (CCA).

General Electric in Australia

GE's involvement in major projects in Australia dates back to 1896. Since then, GE has grown its presence in Australia with its Energy, Capital, Healthcare, Transportation and Aviation businesses employing almost 6000 staff in the country. In addition, GE has recently announced it would headquarter a new global GE Mining business in Australia.

GE's Energy businesses – Power and Water, Oil and Gas, and Energy Management – are engaged in many of Australia's major resource and energy sector developments.

In terms of Power Generation, GE has a broad range of technologies across the full array of fuels. These technologies generate more than 25% of the world's electricity every day.

In Australia, GE is supplying wind turbines for its first Australian wind farm project Mumbida and investing in the Greenough River solar farm (both for Verve Energy near Geraldton) in Western Australia, providing aero-derivate gas turbines for driving the LNG compression trains off the west and east coasts, generating electricity from

waste coal mine gas, and it has provided combined cycle gas turbines for Origin Energy's 630MW Darling Downs power station in Queensland.

As a major technology developer, equipment supplier, services provider and active equity investor in energy projects in Australia, GE has worked with its customers, partners and governments to deliver on the shared vision for a low carbon, more diversified, affordable and reliable energy mix for Australia.

GE approach to RET

GE is actively engaged with partners and customers on opportunities to develop wind power and solar projects and bring forward this investment; understanding the prime driver for these projects is the Large-scale Renewable Energy Target (LRET).

Hence, GE seeks future stability rather than continued change to RET policy. In addition, GE supports the development of complementary measures to improve the RETs effectiveness in delivering a low carbon energy future. Therefore, GE continues to participate in energy and climate change policy discussion on issues such as the development of the Clean Energy Future package and the introduction of a price on carbon.

While GE strongly supports the current settings of the 41,000 gigawatt hour (GWh) 2020 LRET and the interim annual targets, the frequency of amendments to the RET settings in recent years via the *Renewable Energy (Electricity) Act 2000* ("the REE Act") to achieve this outcome have, until recently, made it too risky for liable entities to offer power purchase agreements (PPAs), put downward pressure on the Renewable Energy Certificate (REC) price, and stalled investment and development of large-scale renewable energy projects.

Further amendments and frequent reviews would serve to generate more uncertainty, delay or make prohibitively risky planned investment and increase the cost of the RET scheme.

While the RET has enjoyed bipartisan support, central elements of the Clean Energy Future package do not.

In addition to the lack of bipartisan support for a carbon price, central elements of the package continue to evolve with the announcement over the last month of the abandonment of carbon floor price for the first three years of the emissions trading

scheme (ETS) and cessation of negotiations on the 2GW Contract for Closure without any retirements of coal plants.

Through its participation in the development of the Clean Energy Future package, GE argued the RET was a complementary measure to a price on carbon and strongly supported placing the condition on CCA RET review that its recommendations *"may not be inconsistent with the objects of the Act"* under Section 162(11) of the REE Act.

GE believes the maintenance of the GWh LRETs is consistent with the history of the RET policy, including the 2003 Tambling Review. The maintenance of GWh LRETs with the firm, commitment that it will ensure "*the equivalent of* ***at least 20 per cent*** *of Australia's electricity supply will come from renewables by 2020"* will provide the maximum certainty, investment and benefit for renewable energy project owners, operators, developers, investors, suppliers and employees, liable entities and consumers, as well as to underpin the goals of energy security, affordability and sustainability.

GE recommendations

Large-scale Renewable Energy Target:

1. In its Discussion Paper, the CCA should clarify its definition and measure of "economically efficient", "environmentally effective", "equitable" and "in the public interest" in undertaking the review in accordance Section 12 of the CCA Act; and release its cost-benefit analysis of any actions recommended to Government under Section 162 of the *Renewable Energy (Electricity) Act 2000* with its final report.

2. The annual interim, 2020 and 2020-30 Large-scale Renewable Energy Targets (LRETs), as legislated for in Section 40 of the REE Act (inclusive of Subsections 40(1A) for "banked" RECs and 40(1B) for existing waste coal mine gas (WCMG) generation), should be maintained.

3. The fixed GWh LRETs, as legislated, should remain the target for the market-based scheme with renewables as a percentage of total energy generation being an outcome.

4. The maintenance the LRET's GWh-based goals are consistent with the history of the policy, and the findings of the Tambling Review.

5. Options to increase the LRET beyond 2020 should be considered in a future CCA review, which should consider the status of complementary measures within the Clean Energy Future package.

6. The LRET should not be amended to cater for CEFC-supported projects as an outcome of this review, but the CCA should consider the impact with CEFC to be operational on July 1 2013 and have developed an investment mandate prior to the next biennial RET review as currently legislated. Note below GE believes biennial reviews are too frequent.

7. The LRET shortfall charge, currently pegged at $65/MWh exclusive of tax adjustment, is appropriate. Future CCA reviews may want to consider whether a reduction in the shortfall charge in real terms undermines the delivery of the LRET.

Small-scale Renewable Energy Scheme:

8. The phase-out of Solar Credits from July 2013 is appropriate. The CCA review should report on the status of "banked" or excess RECs through the LRET from the transition from the single RET to the LRET and Small-scale Renewable Energy Scheme.

Diversity of renewable energy access:

9. There should be no multipliers, capping or banding within the LRET to provide preferential assistance to emerging technologies, recognizing such measures would increase the cost of delivering the LRET and other programs (ARENA and CEFC) are available to support those technologies and projects.

Review frequency:

10. Biennial reviews of the RET are too frequent. The CCA should consider whether if biennial reviews are to undertaken if these can more focused reviews on aspects of the RET or whether they are longer lead (triennial or quadrennial) or coincide with significant developments in complementary policies and programs such as the transition to an ETS from July 2015.

Conclusion

GE has participated in discussions with customers, partners, other stakeholders and government in the development and implementation of the RET.

GE believes the raft of reviews and amendments, in recent years, have had the unintended consequence of hindering the development of renewable energy that the RET was designed to support.

Nevertheless, this has resulted in a regime in the LRET that, barring further wholesale change and regular review, can achieve significant economic, environmental and societal benefits for Australia.

Therefore, GE urges the CCA to resist the temptation, in this its first review of the RET, to prescribe further change.

At this time, further change – even of a seemingly minor nature - would destabilise the LRET, undermine renewed investment confidence, increase compliance costs and conflict with other complementary policies and programs.

GE welcomes the opportunity to comment on the CCA Discussion Paper prior to the preparation of its final report for the Minister by the end of the year.

For further information or clarification, please contact GE Energy Infrastructure Policy Director (Australia and New Zealand) Kirby Anderson on 07 3001 4339 or kirby.anderson@ge.com.

Peter Cowling
Renewables Leader – Asia Pacific
GE Energy

Background – history of RET, CCA review and GE recommendations

Australia's Renewable Energy Target

The Issues Paper provides a summary of the evolution of the RET over the last 12 years.
While the policy has enjoyed the bipartisan support over that time, it has undergone significant change and its latest iteration as two separate large-scale and small-scale schemes was activated in January last year.

In 2000, the RET was initiated by the then Howard Coalition Government as the Mandatory Renewable Energy Target (MRET) with a 2010 target of 9500GWh. It applied from January 2001 until January 2021 when no certificates can be created, and no liability arises. The shortfall charge applied was $40 per MWh.

In 2003, an independent review of MRET led by former Country Liberal Senator for the Northern Territory Grant Tambling ("the Tambling Review") made 30 recommendations to the then Government, including continue to express the MRET in GWhs and not as a percentage of overall electricity demand.

The Tambling Review also recommended that MRET targets continue to increase beyond 2010 at a rate equal to the rate before 2010, and to stabilize at 20,000 GWh in 2020. This recommendation was not accepted by the Howard Government.

At the 2007 Federal election, the Australian Labor Party committed to increase the MRET to:

> *"the equivalent of at least 20 per cent of Australia's electricity supply"*[1] and for the MRET to increase to *"45,000GWh by 2020 to ensure that together with existing renewable capacity, Australia reaches its 20 per cent target"*.[2]

In 2009, the Parliament passed the Rudd Labor Government's legislation for an enhanced RET target, increasing the established MRET from 9500GWh to "*reach 45,000GWh in 2020*…. [and] *increase the existing target by more than four times*".[3]

At that time, the Rudd Government extended the increased target to 2030, increased the shortfall penalty from $40/MWh to $65/MWh, allowed for the inclusion of existing

[1] Australian Labor Party, *"Election 2007 Policy document: Labor's 2020 target for a renewable energy future"*, October 2007, page 1
[2] Ibid, page 10
[3] The Honourable Greg Combet AM MP Minister Assisting the Minister for Climate Change, "*Second Reading speech: Renewable Energy (Electricity) Amendment Bill 2009"*, House Hansard, 17 June 2009, p 7

waste coal mine gas generators to produce RECs in addition to the enhanced RET, and provided a Solar Credits mechanism to apply a multiplier for certain small-scale technologies, including Solar PV.

Following consultation in 2009-10 regarding concerns about the crowding out of large-scale renewable energy projects and suppressed REC prices due to the oversupply of RECs, the Government legislated in June 2010 to split the RET into a 41,000GWh by 2020 LRET with annual interim targets until 2020 with a 4000GWh per annum Small-scale Renewable Energy Scheme (SRES) – at a floor price of $40/MWh for Small Scale Technology Certificates - from January 2011.

To facilitate the transition, "banked" or excess accredited RECs could be discharged against the LRET only. While the DCCEE had estimated only 16.2 million excess RECs following the February 14 2011 surrender period,[4]

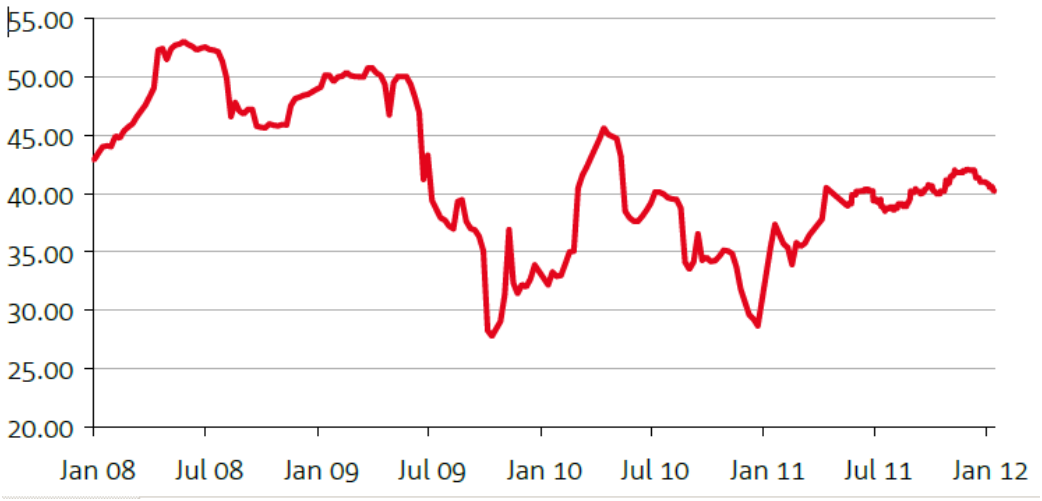
GE and other industry participants argued for and secured a safeguard for a larger stock of excess RECs.

Subsection 40(1A) provided for adjustment of the interim annual LRETs for 2012 and 2013, and by a commensurate adjustment over 2016-19 for the number of RECs registered exceeds 34.5 million (34,500GWh equivalent) at the end of the 2010 calendar year. The number of RECs was at the end of 2010 was in excess of 42.5 million RECs (42,576GWh equivalent). Thereafter in January 2011, the Office of Renewable Energy Regulator announced both LRETs for 2012 and 2013 would increase by 4,038GWh and each LRET for 2016-19 would decrease by 2,019GWh.

An illustration of the frequency of change to the RET and later LRET is the movement in REC/LGC spot price (see below table).

[4] Senate Environment, Communications, and the Arts Legislation Committee, *"Renewable Energy (Electricity) Amendment Bill 2010 Report"*, June 2010, page 15

Table 1: REC/LGC spot price movements 2008-2012



Source: National Australia Bank, *"Sector Insights: Energy and Utilities"* April 2012, page 3

In February 2011, the Government announced the formation of the MPCCC and in July it confirmed the RET would be a complementary measure to the Clean Energy Future package, including the carbon price.

In December 2011, REE Regulations were amended to prescribe the start day for (WCMG) – under Subsection 40(1B) of the Act - and increase the LRET for 2012 by 425GWh and by 850GWh for 2013 to 2020.

In summary, the RET is the prime driver for the renewable energy project investment and development in Australia.

It supports the lowest-cost renewable energy generation and overall comprises only approximately 2.2% to 3.4% of the total residential electricity price from 2011-12 to 2013-14.[5]

It has enjoyed more than a decade of bipartisan support, and it complements other measures to achieve the bipartisan national greenhouse gas (GHG) reduction target of 5% over 2000 levels by 2020.

As the Australian Energy Market Commission noted of the LRET and price on carbon:

[5] Australian Energy Market Commission, *"Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014"*, December 2011, page 15

"In respect of the large-scale renewable energy target, a price on carbon is also expected to facilitate the entry of new renewable generation into the market, since higher wholesale market electricity prices will enable renewable generators to recover a greater proportion of costs, placing counter-veil downward pressure on the large-scale renewable energy target compliance costs for retailers".[6]

Further amendments to the RET policy will undermine its cost effective delivery and delay the economic and environmental benefits of this policy for Australia.

Climate Change Authority RET review

The CCA Issues paper notes under the Section 12 of the *Climate Change Authority Act 2011* that:

"In performing its functions, the Authority must have regard to the following principles:

(a) the principle that any measures to respond to climate change should:

(i) be economically efficient; and

(ii) be environmentally effective; and

(iii) be equitable; and

(iv) be in the public interest; and

(v) take account of the impact on households, business, workers and communities; and

(vi) support the development of an effective global response to climate change; and

(vii) be consistent with Australia's foreign policy and trade objectives;

(b) such other principles (if any) as the Authority considers relevant."

However, the Issues Paper also notes Section 162 (11) of the Act and the objects of the Act set out in Section 3 are:

"- 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."*

GE notes that following the consultation on the Issues Paper, the CCA will release a discussion paper to *"set out the Authority's draft recommendations on key issues for*

[6] Ibid page 24

discussion, prior to the completion of the final report". [7] A Discussion Paper is expected to be released in October, and a final report provided to the Minister by December 31.

To facilitate comment on the Issues Paper, the CCA has listed a series of questions on the LRET and SRES as well as on the diversity of renewable energy access and frequency of RET reviews by the CCA.[8]

GE's recommendations (below) are in response to key questions in the Issues Paper.

In preparing its response, GE also noted the Minister for Climate Change and Energy Efficiency The Honourable Greg Combet AM MP's letter to the Authority Chair and the Council of Australian Governments (COAG) Select Council on Climate Change report *"COAG Review on Specific RET Issues"*, March 2012.

(a) Minister Combet's letter to the Authority Chair

Minister Combet indicated in his letter the Department of Climate Change and Energy Efficiency (DCCEE) would *"draw on the findings of the CCA RET Review to assist with completing the COAG Review of complementary measures"*.[9]

His letter stated:

> *"The carbon price will drive investment in clean energy sources such as solar and wind. However, in the near term, the RET is intended to complement the carbon price by accelerating the deployment of market-ready renewable technologies at least cost through a technology-neutral, market based scheme"*.[10]

(b) COAG Review of Specific RET Issues

The COAG Review of Specific RET Issues report by the Renewable Energy Sub-Group (RESG), March 2012, was attached to the Minister's letter to Mr Fraser.

The Report primarily deals with three issues – the eligibility of new small-scale technologies, self-generation provisions under the RET scheme and treatment of new waste coal mine gas (WCMG) power generation in the RET. GE refers to the Report's recommendations on WCMG (below).

---

[7] Climate Change Authority, *"Renewable Energy Target Review: Issues Paper"* August 2012, page 7
[8] Ibid pages 50-51
[9] The Hon. Greg Combet AM MP, *"Letter to CCA Chair"*, July 13, 2012, page 3
[10] Ibid pages 1, 2

GE recommendations

Large-scale Renewable Energy Target:

1. **Conduct of CCA RET review**

The CCA's conduct of the RET review is legislated for in Section 162 of the REE Act, including the requirement to "analyse the costs and benefits" of any actions it recommends to the Government and as aforementioned that these recommendations cannot be inconsistent with objects of the REE Act.

However, Section 12 of the CCA Act details how it should perform its functions and specifically requires it to abide by the principles of "economically efficient", "environmentally effective", "equitable" and "in the public interest".

In order to clarify how the requirements of these Acts should be read together, it is recommended that in its Discussion Paper on this review due for release in October, the CCA provide detail how it defines these principles and how they should be applied in its approach to the RET review.

On the issue of the cost-benefit analysis of any actions recommended and guarding against these recommendations being "inconsistent" with objects of the REE Act, CCA should include its explanation on these points for each recommendation in its final report.

Recommendation: In its Discussion Paper, the CCA should clarify its definition and measure of "economically efficient", "environmentally effective", "equitable" and "in the public interest" in undertaking the review in accordance Section 12 of the CCA Act; and release its cost-benefit analysis of any actions recommended to Government under Section 162 of the REE Act with its final report.

2. **41,000GWh 2020 LRET and interim annual LRET targets**

The LRET is a series of annual interim targets leading to a target at 2020 then flattening out until 2030.

The interim annual targets, as legislated in Section 40 of the REE Act, are inclusive of Subsections 40(1A) for "banked" RECs and 40(1B) for existing waste coal mine gas (WCMG) generation.

GE believes the current targets (Table 1) should be maintained. Further amendment will only serve to undermine the market and disrupt planned investments following almost four years of significant change.

Table 2: LRET as per REE Act Subsections 40(1A) and 40(1B)

LRET year	LRET (GWh)
2012	16,763
2013	19,088
2014	16,950
2015	18,850
2016	21,431
2017	26,031
2018	30,631
2019	35.231
2020	41,850
2020-2030	41,000

GE believes changing the above LRET targets would have a series of implications for economic efficiency, environmental effectiveness and equity.

Any reduction in the 41,000GWh target in 2020, or to the trajectory through reductions in interim annual targets, risks damaging confidence in the Large-scale Generation Certificate (LGC) market and delivery of the REE Act objects.

Specific consequences of reductions to the 2020 LRET and its annual interim targets include:

- reduction in liquidity in the LRET market;
- re-assessment and likely rejection of finance for projects operating on a merchant basis, putting further pressure on the limited power purchase agreement (PPA) market;
- liable parties will be significantly less likely to enter in to the long-term PPAs required to commence most projects;
- put back efforts to offer LGC futures and related derivatives now evolving, which reduce risk and improve certainty for investors and liable parties – all of which reduce the cost of delivering the LRET;
- reduce the value of existing registered generators, impacting of investors, and raising return expectations and hence costs of future projects given the risk;
- damaging uncertainty about future LGC revenue;
- a perception of sovereign risk;

- compound the uncertainty surrounding the future of the carbon price, its impact on energy prices and investment in the future, just as Australia needs to focus investment in efficiently moving to a low carbon generation future; and
- if energy demand projections of change and the target needs to be increased again before 2020, there may not be time nor the investment available for the development of projects shelved due to an earlier reduction.

GE expects these factors would conspire to reduce the pipeline of development options which could lead to a shortage of projects, and hence inflated prices.

There is a significant pipeline of wind projects. The Australian Energy Market Operator (AEMO) 2012 Electricity Statement of Opportunities report identified:

> *"Current investment interest is focused on renewable and peaking generation, with publicly announced proposals involving over 13,000 MW of wind generation.... Wind generation makes up the majority of new committed projects, with investments being primarily driven by the Large-scale Renewable Energy Target (LRET) and GreenPower schemes"*.[11]

GE is also concerned the inherent "staggered" nature of the required build, due to the trajectory of the interim targets and the fact many projects will derive a large portion of their income after 2030, means a reduction in the GWh target will have a disproportionately negative impact on the level of investment in projects. For example, cutting the 2020 target to as low as 27,000GWh would reduce the total number of remaining LGCs to be surrendered from 2013 to 2030 by about 25%. Considering the generally flat LGCs prices expected, due to the quality of the Australian wind resource, this would reduce the real cost to consumers for the period by up to about 28%. However, it would reduce the total investment in renewable energy by up to 50%. This would be a poor policy outcome and inconsistent with the object of the REE Act to encourage the additional generation of electricity from renewable sources.

This effect is exacerbated by the stall in new large scale renewable power investment caused by the "bubble" in banked or excess RECs due to small-scale rooftop applications and Solar Credits.

This sort of uncertainty also makes it harder for original equipment manufacturers (OEMs) and balance of plant contractors, banks and other financiers, legal firms,

[11] Australian Energy Market Operator, *"2012 Electricity Statement of Opportunities for National Energy Market"*, August 2012, page iv

engineers, advisers, to maintain the skills, presence and expertise to enable investment to flow efficiently.

In terms of **economic efficiency** a floating stop-start target makes development in-efficient. Delivery teams lose continuity and in very practical terms, cranes and construction teams are de-mobilized to other industries. Additionally, any shaving of the target will disproportionally affect the volume of renewable energy projects which proceed, leading to a considerable drop in the efficiency of the LRET in generating investment, especially in the later years of its trajectory.

The **environmental effectiveness** of a reduction to the target would be to reduce the effectiveness of the LRET. It would cause a disproportionate reduction in impact on the volume of clean energy generating capacity built, and hence leave Australian stationary energy emissions higher than could otherwise be achieved by 2020.

In **equity** terms, there are serious issues of fairness involved in changing a long-mandated fixed target, aimed to give investors long-term confidence to invest - value in projects constructed and planned - will be lost. In consumer terms, a reduction in the target would fail the "value test", in that it would cause a disproportionate reduction in investment, effectively increasing the cost in LGCs per MW of renewable energy installed.

Recommendation:
The annual interim, 2020 and 2020-30 Large-scale Renewable Energy Targets (LRETs), as legislated for in Section 40 of the REE Act (inclusive of Subsections 40(1A) for "banked" RECs and 40(1B) for existing waste coal mine gas (WCMG) generation), should be maintained.

3. Fixed GWh target

(i) drives investment in renewable energy capacity

It is well understood that investment in large scale renewable projects stalled as a consequence of the bubble of RECs from solar hot water and rooftop PV prior to the last amendment of the REE Act.

This surplus of RECs has sated much of the short-term demand for LRETs under the scheme. Most large liable parties will not require significant new volumes of LGCs until 2015.

However given the average 20 to 32-month duration from financial commitment to COD (and LGC generation) of larger projects, GE has observed that many new large-scale wind farm projects are now being entered in to, to ensure that the 2015 LGC demand is met.

While there is an element of pent-up demand being released in these numbers, GE believes this level of investment is sustainable, with a substantial and diverse pipeline of follow-on projects able to be brought to market in subsequent years, if investment signals remain clear.

Even allowing for changes in planning regimes for wind farms in various jurisdictions, based on GE's global experience of wind resources and project development pipelines, and given our knowledge of industry capability, the target can be comfortably met. While many of those planning changes are unwelcome and may increase the cost of wind development, alternative resources are available. Additionally, the technology is responding to produce wind generation technology capable of high capacity factors in relatively low winds, which is making lower-wind areas more viable.

While uncertainty over the target is causing market concern and limiting investment in the tranche of development projects, a clear outcome of this Review, rejecting any changes to the target, will quickly see the remaining required projects (wind and solar) move into advanced development.

GE is confident there will be more than enough opportunities, though some may require significant grid augmentation. Furthermore, GE is satisfied that complementary measures in the Clean Energy Future package and the creative response of the market will see these assets delivered also.

(ii) required capacity needs for delivery

In line with the global experience, GE expects wind power to make up the majority of LRET capacity added to 2020, though it will be joined later in the decade by large-scale Solar PV and possibly solar thermal as these technologies become increasingly cost-effective. In GE's view this outcome should not be a surprise or a concern. With a wind resource as impressive as Australia's wind power is not surprisingly the most cost–effective renewable energy available – it is the most cost-effective globally. It is also well within the capability of the Australian electricity grids to manage, especially given advances in digital grid management, gas turbine ramping capability and demand management.

It should also be noted the strong Australian dollar and the highly competitive global market for wind turbines makes this time an excellent opportunity for Australia to invest in wind power, resulting in historically low costs per unit of energy produced.

Australia is fortunate to be able to install such a strategic volume of generating capacity in these circumstances.

Based on 35% net wind farm capacity factor (increasingly possible regardless of site wind speeds given the diversity of wind turbines available on the Australian market) industry estimates approximately an additional 8GW of wind farms would be required to 2020 to meet the target. More PV is expected to come into the mix as the price of utility-scale PV continues to reduce, and because solar power typically commands higher power prices due to its time-of-day characteristics.

The combined action of the LRET, and electricity markets will change the geographic spread of projects. GE is already witnessing this, with market location and time of day of generation starting to become significant drivers of wind farm investment decisions – not just wind speed. This is healthy for the grid and the electricity market, and demonstrates the ability of the LRET to deliver the cheapest and best projects in the market.

(iii) current commitments

In addition to approximately 2550 MW of operational wind farms nationally, and 660MW of projects under construction, GE is aware of:

- 430MW of wind farms that have reached financial close in recent months
- 564MW of wind farms in the advanced finance phase, expected to reach financial close in coming months.
- approximately 1320MW of projects in the advanced procurement phase, likely to reach financial close before the end of 2013.

This would result in 5500 of operational or committed wind farm capacity by the end of next year.

(iv) drives investment in skills positioning Australia for the future

The MRET and LRET have driven significant investment in skills that will be strategically significant in delivering a low carbon future for Australia.

Key areas include:

- Project Development: Engineering (especially new skills in electrical and power systems engineering, mechanical engineering and fluid dynamics modeling) commercial (finance, legal);
- Project Construction: Specialist cranage and rigging, commissioning, and other activities; and
- Project Operation: - On average every 10-15MW of wind turbines requires one long-term full time maintenance worker. These are typically certificate level electricians and fitters. For example, GE is has recently trained its long-term maintenance team for the Mumbida project. These are quality, long-term regional jobs with the opportunity for apprenticeships.

(v) Interaction with other climate and renewable policies

At this point it is not possible to predict whether the carbon price will be at a sufficient level by 2020 to drive the on-going uptake of low carbon generation in its own right. Additionally, the extra semi-scheduled generation required to meet the LRET may depress wholesale electricity prices around Australia in the 2020s and 2030s. While this wholesale price reduction would be a boon for consumers, and would significantly offset the cost of the RET, it may make it more difficult for investors to continue to invest in renewing Australia's generation infrastructure with low-carbon solutions.

While GE does not think it is necessary to address this issue in this review, higher subsequent targets may well need to be considered in future, and this submission addresses this point below.

GE also notes the market dynamics for the domestic gas market are altering with the development of the export market for coal seam gas-to-liquefied natural gas (LNG). As Gas Market Report, released by Australian Government's Bureau of Resources and Energy Economics (BREE) in July, stated:

> *"While a tightening gas market is likely in the short to medium term, increased access to international markets and higher gas prices are likely to encourage the further development of reserves and increase production over the medium to longer term.... Over the longer term, the linkage between the Eastern market and international markets and a competitive domestic gas market should support investment and, ultimately, increase production of gas in Eastern Australia".*[12]

[12] Bureau of Resources and Energy Economics (Cth), *"Gas Market Report"*, July 2012, pages 66-67

This coupled with the cessation of the Australian Government's Contract for Closure program makes the shift from baseload coal to baseload gas generation less likely. That may mean Australia medium-term energy mix is more likely to lock in coal longer with renewables, reducing the opportunities for gas beyond peaking plants. If Australia is to reduce carbon load, it will need more renewables than if gas played more of a role as a transitional fuel than expected. The failure to switch from coal should be the subject of further investigation.

(vi) with percentage of renewable energy generation being an outcome

As Minister Combet stated in his letter to Mr Fraser:

> *"The RET scheme, as an integral part of the Government's plan, is designed to deliver the Government's commitment that the equivalent of at least 20 per cent of Australia's electricity supply will come from renewable sources by 2020. Renewable energy investors have been assured by the Government of our ongoing commitment to this target, to provide confidence for their investment decision making"*.

While the 20% 2020 RET has been used in public communications about the aim of the REE Act, the legislation for the eRET (as for the MRET) stipulated a fixed GWh target.

The Issues Paper refers to the Tambling Review and the MRET. It states:

> *"The MRET 9500GWh target supported a policy commitment of an additional two per cent of electricity supply from renewable generation by 2010. A number of factors such as higher GDP growth resulted in electricity supply in 2010 being greater than originally expected. Because of this, 9500GWh equated to less than two per cent of supply in 2010. The percentage could have been around 1.4 per cent or 0.1 per cent depending on the 2010 electricity supply figures used"*.[13]

Recommendation:
The fixed GWh LRETs, as legislated, should remain the target for the market-based scheme with renewables as a percentage of total energy generation being an outcome, noting the investment in project development, building industry capacity, creating new employment, interacting other public policy to reduce GHG emissions in electricity generation and use.

[13] Issues Paper, pages 23-24

4. LRET and changes based on energy forecasts

Similarly, on the question of amending the LRET based on variances in energy forecasts, GE urges the CCA to adopt the conclusion of the Tambling Review which found:

> *"By their nature, projections of electricity demand contain a degree of uncertainty. The changes in projected electricity demand that have occurred since the MRET was announced demonstrate that a percentage-based target would require the corresponding generation level to be regularly revised. This would adversely impact on market certainty. Risk is a key factor in investment decision making, so that any changes to the MRET that would reduce market certainty would also reduce the prospect of attracting the required financial backing for projects. The Review Panel considers that a fixed target is more compatible with market certainty, with MRET's industry development objective, which defines a level of renewable energy generation rather than a percentage of a fluctuating electricity market over which the industry has no control".*[14]

Numerous factors influence forward estimates of energy demand. Some factors may be permanent, some could reverse, and some simply cannot be accurately predicted:

- recent weather patterns are very likely to reverse well before 2020. For instance, the Bureau of Meteorology currently monitoring climate models for the probability of an El Nino;
- significantly higher network charges impacting on the retail price of, and hence demand for electricity, should reduce as prices in real terms stabilize, and impact of renewables in the market further reduce wholesale electricity prices;
- accurately measuring the impact of PV is difficult if not impossible. The majority of generation is netted against demand before it can be measured. Future PV installation levels are extremely difficult to predict, with countervailing influences from reduced cost of technology and higher retail electricity prices on the one hand, and reductions in the SRES multiplier and significant reductions in FITs on the other.

GE notes that to expose the LRET to the variability in electricity demand caused by future residential PV, and the variability in actual volumes of installed PV, when calculating achievement of the target, would be to expose the LRET to precisely the

[14] MRET Review Panel, *"Renewable Opportunities: A Review in the Operation of the Renewable Energy (Electricity) Act 2000"*, September 2003, pages 119-120

uncertainty caused by small-scale technologies which the 2011 separation of large and small-scale technologies was intended to prevent.

GE also notes experience from other jurisdictions where proportional targets like "20%" look like being exceeded (due to the unexpected success of incentives, or reductions in demand) the headline target percentage is increased. For example, in California, where its 2020 20% target looked like being exceeded, that target was instead increased to 33% by 2020.

Recommendation: The maintenance the LRET's GWh-based goals are consistent with the history of the policy, and the findings of the Tambling Review.

5. LRET beyond 2020

The 41,000GWh LRET is maintained from 2021 to 2030.

There is an opportunity to elevate LRET's flat trajectory over this period. However, this should not occur before then there is planned implementation of the Clean Energy Future package including the establishment of the Australian Renewable Energy Agency from July 2012, the operation of the Clean Energy Finance Corporation from July 2013 and the transition to an emission trading scheme (ETS) from July 2015.

Recommendation: Options to increase the LRET beyond 2020 should be considered in a future CCA review, which should consider the status of complementary measures within the Clean Energy Future package.

6. LRET interaction with Clean Energy Finance Corporation

The $10 billion Clean Energy Finance Corporation (CEFC) promises to significantly support the development of renewable energy and low emission projects.

The CEFC Expert Review Panel recommendation, later accepted by the Government, was that:

> *"Any investments by the CEFC will not impact on the project's eligibility for large scale generation certificates under the Renewable Energy Target. The CEFC will*

be cognisant of the potential impact on other market participants when considering investment proposals".[15]

As Minister Combet noted:

> *"The RET scheme will work alongside the carbon price, the Australian Renewable Energy Agency and the $10 billion Clean Energy Finance Corporation (CEFC) recently established through legislation, to speed up the deployment of renewable energy technologies, helping smooth Australia's transition to a clean energy future. These policies and institutions are intended to be mutually supportive and work together to enhance clean energy outcomes for all Australians".*[16]

Recommendation:
The LRET should not be amended to cater for CEFC-supported projects as an outcome of this review, but the CCA should consider the impact with CEFC to be operational on July 1 2013 and have developed an investment mandate prior to the new biennial RET review. Note below GE believes biennial reviews are too frequent.

7. LRET shortfall charge

The shortfall charge was increased from $40/MWh to $65/MWh with the transition from the MRET to the eRET in 2009.

It is GE's observation that the present level of the charge is adequate to incentivise large volumes of renewable energy projects given current wholesale power and carbon prices. The continuing high compliance with the LRET is further evidence that the charge is pegged appropriately.

Nevertheless, the charge should be reconsidered by a future CCA review of the effectiveness of the RET, especially if uncertainty regarding the future level of a carbon price persists or if the Clean Energy Future program is amended or withdrawn.

Recommendation: The LRET shortfall charge, currently pegged at $65/MWh exclusive of tax adjustment, is appropriate. Future CCA reviews may want to consider whether a reduction in the shortfall charge in real terms undermines the delivery of the LRET.

[15] Clean Energy Finance Corporation Expert Review Panel, *"The Report"*, April 2012, page
[16] Minister Combet, *"Letter to CCA Chair"*, page 1

Small-scale Renewable Energy Scheme:

8. Small-scale Renewable Energy Scheme

In response to then Department of Climate Change's 2009 *"Discussion Paper 5 – The Treatment of 'Solar Credits' Renewable Energy Certificates under the RET"*, GE indicated it shared the concerns of other industry stakeholders, as identified in the discussion paper, that the treatment of Solar Credits under the RET scheme at that time could have the unintended consequence of crowding out renewable electricity generation and reducing the projected level of generation from renewable sources.

Minister Combet has stated:

> *"In response to the unsustainable growth in small-scale solar, driven by declining system costs, the strong Australian dollar and economy, and incentives such as state and territory feed-in tariff schemes, the Government has brought forward the phase-out of Solar Credits by two years to mid-2013.... In light of the above, the Government is continuing to monitor the efficiency of the SRES and the clearing house which operates to cap the price of certificates in the small-scale market."*[17]

The transition to a separate LRET and SRES has resulted in "banked" or excess RECs being discharged against the LRET only. As aforementioned, provisions were made to increase the LRET for 2012 and 2013 (and commensurately decrease the 2016 to 2019 LRETs) if total RECs exceeded 34,500GWh-equivalent.

Recommendation: The phase-out of Solar Credits from July 2013 is appropriate. The CCA review should report on the status of "banked" or excess RECs being flushed through the LRET from the transition from the single RET to the LRET and Small-scale Renewable Energy Scheme.

Diversity of renewable energy access:

9. Other renewable energy sources

The Issues Paper refers to *"various mechanisms... available to preference particular technologies, including multipliers, caps and banding"*.[18] While the Issues Paper also

[17] Minister Combet letter, page 2
[18] Issues Paper, page 44

identifies the SRES as a *"band within the RET as it provides a separate incentive for small technologies*.... [such measures] *are all likely to increase the overall cost of the RET as more expensive technologies displace cheaper ones*".[19]

GE believes the RET, as a market-based mechanism, incentivizes lowest cost generation. To complement the RET, the Australian Government has established the $3.2 Billion Australian Renewable Energy Agency to support the development and demonstration of renewable energy and enabling technologies and from July 2013, the $10 Billion Clean Energy Finance Corporation will fund projects.

Recommendation: There should be no multipliers, capping or banding within the LRET to provide preferential assistance to emerging technologies, recognizing such measures would increase the cost of delivering the LRET and other programs (ARENA and CEFC) are available to support those technologies and projects.

Review frequency:

10. Future CCA reviews

GE shares the industry sentiment identified in Minister Combet's letter to Mr Fraser where the Minister stated that:

> *"I note that some renewable energy industry stakeholders have expressed the view that the statutory requirement for the Authority to review the RET scheme every two years is inappropriate and contributing to uncertainty for investors*".[20]

GE also agrees with the statement in the CCA Issues Paper that *"frequent reviews may also create uncertainty, negatively affecting the investment climate*".[21]

Scheduled reviews by an dedicated body, such as the CCA, are preferred to ad hoc examinations of the RET, which have resulted in more than eight amendments in less than four years leading to market uncertainty, undermined investor confidence and delayed project development.

However, CCA should consider whether the frequency of reviews set out in the Act are necessary or whether more focused examination on a specific aspect of the RET could be considered in subsequent reviews.

[19] Issues Paper, page 45
[20] ibid
[21] Issues Paper, page 46

Perversely, under the REE Act provisions for biennial reviews the CCA could start undertaking a second review in the second half of 2014 before the Government has taken any action on the findings of the first review and within 12 months of the Government tabling its response to the first review.

Section 162 stipulates the first review report to be completed and presented to the Minister by December 31 2012 and the second (and subsequent) reviews must be completed within two years of the report being provided to the Minister. However, Subsection 162 (13b) requires only that "*within 6 months after receiving the report the Minister must cause copies of the statement* [of the Government's response] *to be tabled in each House of the Parliament*".

Recommendation:
Biennial reviews of the RET are too frequent. The CCA should consider whether, if biennial reviews are to undertaken, these review can be more focused reviews on aspects of the RET or whether the reviews are less frequent (triennial or quadrennial reviews) or specifically timed to coincide with significant developments in complementary policies and programs such as the transition to an ETS from July 2015.