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GE Submission:

Energy Security Board National Energy Guarantee - Consultation Paper

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About GE

GE is one of the world's leading suppliers of power generation and energy delivery technology. We provide our customers with equipment, service and management solutions across the power generation, transmission and distribution, distributed power and energy rental industries.

Executive Summary

GE supports the National Energy Guarantee (the Guarantee) as a policy to encourage new investment in clean and low emissions technology, while allowing the National Electricity Market (NEM) to operate reliably.

The following recommendations will assist in improving the efficacy of the Guarantee.

- A stronger emissions reduction target within the NEM, that will allow Australia to take full advantage of lower-cost generation as technology improves;
- clearer long-term signals to provide retailers with sufficient time and incentives to invest in cost effective dispatchable generation;
- confidence that the Guarantee captures all market participants, and only provides exemptions where international competitiveness is substantially threatened and/or there is a genuine potential for carbon leakage;
- deferring the introduction of certain design elements, such as offsets, that may dilute investment signals until the scheme is well established;
- improving forecasting capability using digital tools and technology to enable greater control and network coordination to manage higher penetration of variable renewable energy and mitigation of the risk posed by more extreme weather events;
- supporting flexibility in the emissions contracting market that allows for emissions to be separated from generation sources;
- increasing transparency around the operation of the Guarantee and the emissions registry;
- where possible, allowing renewable energy target policies and emissions reductions programs of State and Territory Governments access to the Guarantee's policy architecture to increase coordination, reduce compliance costs and support a nationally consistent approach to energy policy; and
- ensuring the implementation and integration of the Guarantee does not adversely impact existing or future investments in renewable energy made under the Renewable Energy Target (RET).

Introduction

GE welcomes the opportunity to comment on the Energy Security Board's National Energy Guarantee Draft design consultation paper. With the right design features, the Guarantee can support investment in new generation capacity to help deliver improved affordability, increased reliability and lower emissions.

Key to the Guarantee's success is ensuring that the design elements for both the emissions, and reliability requirements, are sufficiently calibrated to drive new investment in lower emissions technology and allow the market to develop new dispatchable generation within the NEM.

As a relatively new policy instrument, the Guarantee does contain areas of complexity and uncertainty, most notably, the requirement for augmenting existing contracting arrangements and the establishment of qualifying instruments. While these present some challenges, the Guarantee also provides the opportunity for financial markets to be more closely aligned to the changing needs of the NEM.

It will take time for industry participants to work through the finer details and implications of the Guarantee, however, this should not be a barrier to the CoAG Energy Council considering the Energy Security Board's (ESB) design recommendations at its April meeting.

This submission provides feedback on specific design elements, which are important to meeting the Guarantee's objectives, and will support investment in new generation technology and the orderly transition of the NEM.

Investment uncertainty

Ongoing uncertainty around Australia's energy and emissions reductions policy has acted to dampen normal market signals. As a result, new investment in dispatchable generation has become increasingly difficult to achieve within the NEM.

The Guarantee provides an opportunity to strengthen the market fundamentals that support investment in the NEM, through the development of financial markets and qualifying instruments that are more closely aligned to the needs of the system. The Guarantee's contracting framework thereby provides an opportunity for a market mechanism that can improve affordability, increase reliability, and lower emissions.

The success of the market response to the 2020 Renewable Energy Target (RET) demonstrates the importance of policy stability in attracting new investment in low emissions generation. While there is a need to consider the interaction between the RET and the emissions requirement, the ESB should exercise caution to ensure existing and pending investments under the RET are isolated from any potential adverse effects associated with implementation of the Guarantee.

The window available for policy makers to implement NEM reforms, well before 2020 expiry of the RET, has contracted as earlier policy proposals such as an emissions intensity scheme and clean energy target have failed to gain the necessary political support. The Guarantee represents the latest in a series of energy and climate policy proposals that require endorsement by the CoAG Energy Council. If the Guarantee fails to secure the necessary support, the window available to finalise a suitable energy and climate policy framework will become more difficult to achieve. The worst outcome for consumers would be a policy vacuum where piecemeal interventions become normalised, and the investment environment within the NEM further deteriorates. The result is likely to further erode investor confidence in the NEM, and potentially lead to higher cost Government interventions that may be at odds with market based solutions, and result in reductions in international competitiveness for Australian industries.

NEM reform blueprint and the Guarantee

GE welcomes the ESB's consideration of the interaction between the Guarantee and existing reliability and security work programs. While securing agreement of the Guarantee design framework is important, there are several elements of the NEM reform blueprint recommended by the Finkel Review that also need to be advanced. The implementation of the Finkel Review recommendations remains an important foundation to the NEM reform process, and should continue to be progressed in parallel with the design of the Guarantee.

In addition to the issues highlighted in Appendix B of the consultation paper, the ESB should consider how the systems planning recommendations from the Finkel Review may interact with the design features of the Guarantee. For example, the timing of the development of renewable energy zones will potentially provide more cost-effective emission reduction opportunities if they are aligned to a strong long-term emissions reduction trajectory that supports their development. Similarly, installation of new dispatchable generation may require complementary transmission upgrades. To facilitate this, the development of reliability triggers needs to provide adequate time to support this outcome. Without consideration of how the objectives of the Guarantee might be constrained, or alternatively supported as the network evolves, and the NEM reform blueprint is implemented, potential synergies may be overlooked.

Distributed energy resources and the Guarantee

The significant growth in behind-the-meter distributed energy resources (DER), such as rooftop solar and batteries has assisted in ameliorating day-time demand peaks. In doing so, DER also presents challenges in managing the network. This challenge is already acknowledged by AEMO, which noted, that if the opportunities presented by DER are not taken up in a coordinated way, large penetrations of DER that are being installed “behind-the-meter” are likely to be “invisible” to AEMO.¹ The consequence of this is that it will become increasingly challenging to produce accurate regional forecasts and thereby determine any reliability gap.

The system-wide effects of DER require further consideration as part of the design of the Guarantee. While the need for visibility of DER is already recognised as a high priority challenge, how the reliability costs of DER are equitably shared amongst all energy consumers, requires further consideration. Failure to do so might exacerbate social inequality or adversely impact the cost competitiveness for energy consumers that cannot take advantage of “behind the meter” technologies.

GE’s approach to energy and climate policy

GE supports energy and carbon policies that aspire to reduce emissions and encourage businesses to innovate and compete to create and disseminate new technologies and solutions at lower cost. Specifically, GE supports policies that:

- reduce emissions in ways that do not jeopardize energy security;
- encourage early adoption of cleaner technologies and energy efficiency in a way that does not “pick winners” or distort energy markets;
- reward research and development, innovation and private risk-taking;
- set realistic timetables for reductions with periodic reviews as our knowledge of the science of climate change evolves and technology improves; and
- provide long-term investment signals to minimise the cost of investment in new low-emission technologies.

Emissions requirement: ESB design elements

While several ESB design elements of the emissions requirement are mechanical in nature, GE would encourage the ESB to avoid the adoption of those design elements that weaken investment signals, or the integrity of the emissions requirements. Comments on specific ESB design elements are outlined below.

Contracting and emissions

GE broadly supports the adoption of a flexible contracting mechanism as outlined in the draft design consultation paper. The use of flexible contracting mechanisms, particularly the establishment of contracts that separate emissions from a physical generation source, will support the establishment of new contracts that are better aligned to the Guarantee’s emissions objectives. An approach that allows for the separate settlement and contracting of emissions from the sale of power is also an important design element for linking contracting with emissions.

¹ AEMO, ‘Visibility of Distributed Energy Resources’, Future Power System Security Program, January 2017.

Flexible compliance options

GE acknowledges the need for compliance options that minimize costs but maximize the integrity of the Guarantee's emission requirement. Allowing retailers to carry forward a reasonable proportion of a previous year's over-achievement is constructive as this is likely to assist investment decisions and reduce compliance cost. To complement any carry forward option, consideration should also be given to measures that discourage excessive hoarding of surplus emissions requirements.

In the early years of the Guarantee's formation, GE suggests limiting the use of any deferral of compliance mechanism. Allowing the deferral of compliance may have the result of delaying investment and, overtime, add additional compliance costs to the Guarantee.

The use of offsets poses a significant risk to the efficacy of the establishment of the emissions requirement and is likely to add additional complexity to compliance. The consultation paper recognises that compliance would become more complex and challenging, should the Commonwealth Government establish an absolute limit on the use of offsets within the electricity sector, that would need to be proportionately allocated to retailers. Offsets also risk dampening investment signals and overall confidence in the Guarantee in the early years of its establishment. GE recommends that the use of offsets to meet emissions requirements be deferred until the first periodic review of the Guarantee.

Interaction with voluntary "green" programs

The draft design consultation paper recognises the need for the Guarantee to account for voluntary "green" programs. The Guarantee should recognise the early adoption of programs that encourage emissions reductions as additional to the emissions requirement.

Reporting & Compliance

GE supports the need to establish a compliance registry as described in the consultation paper. The use of external data sources should support a more dynamic registry that can assist in reducing compliance costs. The establishment of the registry should also support the uptake of digital solutions at a generation level that help optimise plant management and automated reporting.

While GE recognises the need for commercial information held by the registry to remain confidential, this should not prohibit the publication of anonymous regional level data. Providing the maximum level of transparency, without compromising the commercial information of retailers will assist in building public confidence in the operation of the Guarantee.

Other considerations

Potential concerns around competitive markets and the establishment of the emissions requirement should be managed by design features that help maintain or complement the contracting market. Ensuring liquidity in these markets will ultimately support competitive markets.

The consultation paper provides little guidance on how the emissions requirement may operate within State jurisdictions. The treatment of jurisdictional targets and policies to reduce emissions and increase renewable energy uptake is likely to be a significant issue for the COAG Energy Council. While a single national emissions and renewables targets would provide the lowest cost pathway to decarbonising the NEM, it appears unlikely that agreement can be reached around this ambition. One alternative approach is to use the Guarantee's policy architecture to provide a future opportunity to incorporate renewable targets and emissions reductions programs of State

and Territory Governments. Such an approach would increase policy coordination, reduce compliance costs and support a nationally consistent approach to energy policy as recommended by the Finkel Review.

Emissions requirement: Commonwealth design elements

The Commonwealth Government's design elements for the emissions requirements are critical to driving the pace of new investment in lower emissions technology. Design elements that deliver weak investment signals will mean that the NEM may fail to utilise new lower emissions technology opportunities as they become available to the Australian market.

Sectoral emission reduction target

GE believes that stronger emissions reduction targets within the NEM will allow the Australian economy to take full advantage of lower-cost generation as technology improves. The Commonwealth Government's moderate target of 26 per cent emissions reductions on 2005 levels by 2030 for the electricity sector will place a high cost burden on other sectors of the Australian economy that have less technological options to reduce emissions. The pace of improvements in low-emissions generation technology in energy markets is unlikely to be matched by technology opportunities that may serve to reduce emissions in other sectors of the economy. As an example, from 2015 to 2017 the rotor diameter of a typical GE wind turbine sold in Australia increased by 33 per cent from 103m to 137m. This was accompanied by a 19 per cent increase in megawatt rating from 3.2MW to 3.8MW. Over the corresponding period Power Purchase Agreement (PPA) rates (a proxy for Levelised Cost of Energy, LCOE) for wind farm projects have decreased by approximately 25 per cent. Moving forward, GE's next generation wind turbine will have a 158m rotor diameter with a 4.8MW rating. Given the rapid improvements in technology, the electricity sector is capable of reducing emissions well beyond the nominated 26 per cent emissions reduction target, without impairing reliability. This would unburden other sectors of the economy, thereby achieving the overall target at a lower national cost.

Whether Australia shares in the next wave of lower emission energy technology will depend on the strength of investment signals that reflect the level of ambition to reduce emissions. In addition to the absolute level of ambition to reduce emissions, a predictable and long-term emissions trajectory, where periodic changes to established targets are avoided, will help support investment in lower emissions technology.

The discussion paper's commentary around geographic neutrality supports a nationally consistent approach to energy policy as recommended by the Finkel Review. The proposed approach to setting the electricity emissions targets and interaction with state renewable energy schemes is likely to be contentious. In the absence of stronger national emissions reduction target within the NEM, the Guarantee's policy architecture should provide a future opportunity to incorporate renewable targets and emissions reductions programs of State and Territory Governments. Addressing Commonwealth, State and Territory emission reduction and renewable energy goals, through one policy instrument, is likely to deliver reduced compliance costs.

Treatment of EITE activities

GE recognises the concerns of EITE industries around reducing domestic emissions and exposure to international competition. To preserve Australia's international competitiveness, GE supports EITE activities being exempt from the emissions requirement of the Guarantee. This would however require the EITE load to be reallocated to the remaining liable load, to make up the difference in overall emissions reductions.

External Offsets

As noted earlier, the use of offsets poses a significant risk to the efficacy of the establishment of the emissions requirement and, as recognised in the discussion paper, is likely to add additional complexity to compliance. The use of offsets risks damping investment signals and overall confidence in the Guarantee in the early years of its establishment. GE recommends that the use of external offsets to meet the emissions requirements should be deferred until after the first periodic review of the Guarantee and only when there is greater clarity around the future of international units.

Reliability requirement

The capacity of a reliability requirement to incentivise the market to develop additional dispatchable generation is uncertain given the largely passive design elements articulated in the consultation paper. GE would encourage the ESB to pursue more proactive design elements that encourage long-term investment in lower-cost dispatchable generation should a reliability gap be forecast. Given the recent lack of investment in dispatchable generation in the NEM, the reliability requirement needs to be more than a passive policy instrument.

The role of AEMO as the “generator of last resort” could also be more clearly codified under the reliability guarantee, and the Guarantee designed in a way that minimises the likelihood of this role being performed. This will assist in ensuring the market operator can deliver on the system-wide reliability targets, while the market maintains primary accountability for meeting any forecasted reliability gap.

Forecasting the reliability gap

The consultation paper notes that the medium-term projected assessment of system adequacy (MTPASA) and Electricity Statement of Opportunities (ESoO) processes already provides market participants with information on the outlook for supply and demand, and probability of breaching the reliability standard in each region over two years for the MTPASA and 10 years for the ESoO.

The forecasting period should continue to seek to provide market participants with information about medium to longer terms reliability gaps up to a 10-year horizon. Regular annual updates would allow the forecast to be adjusted as the market changes. Providing the market with longer-term visibility of reliability gaps is the first step to encouraging the market to respond by investing in new dispatchable power generation. The other steps, that form part of the reliability requirement, should then act to refine and inform the market’s response and seek to support lower cost dispatchable energy investments.

Greater transparency around forecasting models and underlying assumptions would also support market understanding and acceptance of any reliability gap which is forecast.

Triggering the requirement

GE is concerned that the introduction of a short-term trigger period may inadvertently exclude certain forms of dispatchable generation that require longer-lead times for installation. Large pumped hydro power projects for example, can provide both dispatchable power and cost-effective utility scale storage. Significant time however is required to secure planning and environmental approvals for these types of projects, given they typically require detailed studies and community consultation before development consent and project conditions can be issued.

As the consultation paper acknowledges, a short-term trigger may in fact result in higher cost generation outcomes. This situation could arise where AEMO is left with limited time and generation options, in the event that retailers do not respond to the reliability gap as intended.

Given the need to ensure generation technologies are not inadvertently excluded from responding to the reliability gap, GE would recommend the ESB consider a five-year trigger period. Sufficient deterrents need to be established with the reliability requirement to avoid a situation where retailers wait to see if the forecast changes, or defers to AEMO to close the gap. This may require calibrated performance based penalties in the event retailers do not act to close the reliability gap and AEMO is required to intervene in the market.

Qualifying instruments

GE acknowledges the needs for flexibility in the scope of qualifying instruments that will be eligible to meet the reliability requirement. The approach outlined in the consultation paper highlights the establishment of new qualifying instruments and the options for physically backing of contracts where necessary. Importantly, the consultation paper recognises that the establishment of specific physically backed contracts should not proceed as stand-alone qualifying instrument options given they would impose significant costs on participants and reduce liquidity.

Allocating the requirement

GE supports the direct allocation of the reliability gap to retailers. This will support a clearer market signal for retailers with insufficient qualifying instruments, to invest in new dispatchable generation.

The consultation paper appropriately acknowledges that irrespective of the preferred design of the Guarantee, AEMO's role as the generator of last resort will be maintained through the existing Reliability and Emergency Reserve Trader (RERT) in the NEM. The proposed book-build option extends the role of AEMO to a market intermediary. This may provide benefits in terms of imposing greater coordination and certainty around closing the reliability gap. Conversely, the proposal may alter the market dynamics in ways that dampen what would otherwise be market-oriented responses to the reliability gap.

While AEMO fulfils a necessary role as the procurer of last resort, this role could also be more clearly codified under the reliability guarantee. This will assist in ensuring the market operator can deliver on the system-wide reliability targets, while the market maintains primary accountability for meeting any forecasted reliability gap.

To simplify compliance concerns, any reliability gap should be expressed as a "total" obligation rather than as an incremental shortfall. This position reflects compliance concerns expressed in the consultation paper if the shortfall was to be expressed incrementally.

The application of the reliability guarantee to large energy users appears to be necessary given the significant role they play in the NEM. GE supports the conclusion reached in the discussion paper that the efficacy of the reliability guarantee would be materially affected if large energy users were exempt.

Procurer of last resort

GE recognises the need for AEMO to maintain its role as procurer of last resort. As outlined above, the desired policy objective should be to support the market to maintain primary accountability for meeting any forecasted reliability gap. In conjunction with a longer-term reliability requirement trigger, a one-year trigger before AEMO acts as the procurer of last resort would provide retailers with more time to respond to the reliability gap. This should support orderly investments in lower-cost dispatchable generation that will offset the costs of AEMO meeting any shortfall.

EITE exposed business

GE recognises that in order to meet the reliability objectives of the Guarantee, it is necessary that all market customers are covered, including EITE businesses. This should not affect the exemption of EITE businesses from the emissions requirements under the Guarantee.

Governance

GE supports the proposed governance model outlined in the discussion paper.