Dr Kerry Schott
Energy Security Board

Submitted by email to info@esb.org.au

8 March 2018

Dear Dr Schott

Submission on the National Energy Guarantee Consultation Paper

Pacific Hydro Pty Ltd, in cooperation with and on behalf of its retail business Tango Energy, welcomes the opportunity to provide comments to the Energy Security Board (ESB) on the National Energy Guarantee Draft Design Consultation Paper.

Pacific Hydro is a leading Australian renewable energy company with over 20 years' experience in project finance, development, construction and operation of hydro, wind and solar power projects in Australia, Brazil and Chile. Pacific Hydro, through Tango Energy, is also a licenced electricity retailer for commercial, industrial, small and medium enterprise (SME) and residential customers in a number of Australian deregulated energy markets.

Consultation process

Pacific Hydro acknowledges the opportunity to provide feedback on the high-level options for the National Energy Guarantee (NEG). Given the complexity of issues and fundamental disagreements about how financial contracts are ultimately backed by physical generation, the short consultation timeframes do not provide adequate opportunity for respondents and stakeholders to thoroughly consider all the current mechanisms in place and the potential impacts of such major changes.

Pacific Hydro acknowledges the potential benefits of delivering a "short and targeted" consultation process and also that this will not be our final chance to provide input to this process. Notwithstanding this, Pacific Hydro does not believe that sufficient time has been allowed to address complex matters in detail and cautions against hasty decision-making within unreasonable timeframes that could result in a suboptimal electricity industry outcome. Furthermore, Pacific Hydro fears that as a result of poor consultation in condensed timeframes, the lack of opportunity to contemplate has the potential for deep confusion and unintended consequences to be the primary outputs of this process.

Executive summary

Given the short time available to respond to the many issues raised in the Consultation Paper, Pacific Hydro's submission focuses on highlighting issues and raising questions across a limited number of topics:

1. Impact on retail competition
2. Forecasting
3. Current market operation
4. Integration with the RET

In each of these areas, Pacific Hydro has sought to raise questions and highlight issues rather than propose final solutions. Our main objective is to reflect on how we see the NEG operating, given current market realities for a company like ours, which spans renewable energy generation and retail services.

Impact on Retail Competition

Barriers to Entry and Barriers to Growth for New Entrant Retailers

Pacific Hydro is currently dedicating significant resources to growing its new entrant retail business, Tango Energy. As a small but growing retailer Tango Energy will be required to contract in its obligations under the Reliability Guarantee (RG) and Emissions Guarantee (EG).

In order to promote retail competition, Pacific Hydro would like to see an equal "playing field" for all retailers (including incumbents and new entrants). This includes existing large retailers (which may have their own portfolio of dispatchable energy within their corporate group) and small and new entrant retailers. A failure to create this level playing field will raise barriers to market entry for new retailers and barriers to competition for smaller retailers (which do not have dispatchable generation within their corporate group), both of which will reduce competition in the market.

A level playing field can be defined as:

- The ability to meet its RG and EG at a cost equal to that of incumbent retailers;
- Ensuring that the RG does not exacerbate current supply availability issues that exist in certain regions; and
- Requiring that the cost of any identified reliability shortfall does not disadvantage those smaller retailers that do not have access to existing dispatchable electricity plant.

The primary risk is that in the short term the design of the RG is likely to further exacerbate current liquidity issues that exist in certain regions. This may actually restrict competition in particular regions and ultimately lead to price increase pressures, contrary to the ESB's assertions that the NEG will increase affordability. For a business such as Pacific Hydro's, increased price pressures will need to ultimately be borne by customers, or alternatively there may be little choice but to reassess the financial implications of remaining or expanding within a region.

Credit Risk Management

Many new entrant and small retailers rely upon the Sydney Futures Exchange (SFE) or other bilateral trading relationships as the primary sources for managing the electricity price risk a retailer faces. Using these sources is a way for retailers who in of themselves are not "investment grade" to access the necessary risk management products to responsibly operate their businesses.

It is unclear from the Consultation Paper if risk management products required to meet the RG or EG will be "tradeable" through the SFE.

Any NEG structure that makes it more difficult for small retailers to contract the necessary risk management products required to meet the RG or EG will adversely impact competition, to the detriment of consumers.

Forecasting

AEMO Forecasting Bias

Inherently the greatest risk to AEMO as the market operator is for the occurrence of multiple and sustained incidents of unserved retail load (i.e. blackouts). The natural response to ensure averting an organisation's highest risk is to take prudent steps to discourage the potential event occurring.

In AEMO's circumstance, this prudent approach has been borne out by sustained and repeated over-forecasting of electricity demand.

The NEG seeks to place an increasing reliance on AEMO forecasting for measuring the need for additional reliable generation. With capital investment under the NEG to be driven by AEMO forecasting, Pacific Hydro's concern is that unnecessary capital investment will be made, with the cost of this unnecessary capital investment to be borne by energy users

Role of existing forecasts

Current market forecasting for the coming week (ST PASA) and for the longer term (MT PASA) is designed around avoiding outage conflicts for planned plant maintenance on large plant and to aid in identifying reserve shortfalls. The MT PASA was originally the long term maintenance plan to ensure that thermal plant did not plan outages that would cause a system shortfall. The market has used these tools to provide guidance for planning.

Interestingly, these forecasts really only identify "availability" of energy, they do not provide insight to the market operator of how a generator intends to allocate their availability between "energy" and provision of actual spinning reserve for the FCAS market. In the past all units had control that guaranteed a response to the system when step changes occurred, now this response is often defeated or limited to match a bid structure. This has reduced the reliability of the power system through controlling units to match with some precision their response to the system only in accordance with bids. The economic bidding has no knowledge or relationship to the physical events that can happen on the power system. In the end the bid structures that have been enforced onto the control of the units have removed capability from the power system and undermined the reliability.

Any increase in the long term forecasting of the MT PASA from 2 years out to 3 is a view of availability which would help to align and publicise an intention to withdraw or mothball plant. It will not however resolve whether sufficient "reserve" will be enabled and active on a dispatch day.

Retailer perspective

Smaller retailers are likely to experience a greater level of proportionate variance when forecasting future load volumes. This includes being susceptible to large proportionate changes in load volume due to the loss or addition of large individual customers.

Pacific Hydro is concerned that forecasting uncertainty may expose smaller retailers to under or over compliance with the NEG, both of which are problematic. Under-compliance exposes Pacific Hydro to a penalty regime or high cost fall-back compliance options, whilst over-compliance would lead to incurring unnecessary cost that will impact customer pricing or business viability.

Pacific Hydro considers it imperative that ESB updates industry on the required detail as to how the forecasting model will interact with actual forecast volumes. It also raises the issue that future load forecasting does not necessarily relate to forward contracting positions. Uncertainty also exists around interregional flows, how this will enter into forecasts, and how financial instruments used to manage risk around interregional flows will impact on the identifying of a reliability shortfall in a particular region.

Aside from the fact that considerable uncertainty remains as to the exact functioning of the reliability shortfall forecasting calculation, Pacific Hydro would like to illustrate the potential market power issues that may emerge as a result of the mechanism. An identified reliability shortfall could potentially require retailers to negotiate with existing generators which may already control a substantial share of the generation market. There is little ability for a small generator to facilitate investment in a large dispatchable source of generation when a reliability shortfall is identified. Small retailers may be captive to larger players, and have no option but to contract at higher rates, in order to meet the reliability shortfall. It is likely that small retailers will need to pass these costs on to existing customers, further eroding returns for small retailers. The real risk is that the reliability shortfall calculation further entrenches the existing players, with the result being less competition and higher prices in the long term.

Current market operations

Current Market Structure – Financial Derivatives not linked to physical supply

The current market allows parties to trade financial derivatives linked to the electricity spot price in order to manage the financial risks that arise within their businesses (whether that be generation or retail).

Whilst the settlement of these derivatives is linked to the electricity spot price, these financial derivatives have no link to the physical supply of electricity. This distinction then allows parties that do not have a physical generation or load position to create derivatives and trade them to parties that use these products to manage their risk.

Pacific Hydro believes the NEG must be structured to enable these products to continue. Where financial products are required to have a reliability element "stapled" to them, the market could lose liquidity, price transparency and competition into the wholesale electricity market.

Current Market Structure – Limited Liquidity

With the increasing level of vertical integration in the Australian Market, liquidity to access electricity financial products can be challenging (this is more pronounced in some regions – e.g. South Australia).

With reduced liquidity, there is less transparency about the true underlying cost of energy (i.e. for a scarce contract it is difficult to say what part of the price reflects underlying energy and what reflects the scarcity of the contract itself).

Pacific Hydro is concerned that the NEG will promote a disparate range of contracts (i.e. with different emissions and reliability values stapled to them). Where the current limited/scarce contract market is further fragmented, then price transparency is further clouded.

Pacific Hydro also disagrees with the emphasis placed in the Consultation Paper on the role renewables have played in reducing liquidity in the hedge market (see p.13). First, there are a number of renewable generators that have developed a portfolio of renewable assets which has allowed them to diversify their risk of intermittency, and accordingly offer firm hedges for a proportion of their generation. Secondly, this emphasis on lack of liquidity detracts from the benefits that renewables bring to the market when generation is available. When wind or sunshine is available, renewable generators provide generation into the system that puts downward pressure on the spot price while also lowering the emissions intensity of the system.

Integration with the RET

General

Pacific Hydro notes the Consultation Paper provides little comment on the interaction of the NEG and the RET.

With ~6,000MW of renewable generation having been committed or to be committed over the next 18 months in renewable energy projects to meet the RET, that equates to greater than $12 billion of investment (in addition to the ~$10 billion committed prior to 2015), the value of which is in some way impacted by the NEG outcomes.

The RET and Energy Generation

The RET is designed around the operation of the NEM as an electricity pool in which electricity trading is rarely (if ever) physically settled. The RET design therefore recognises that retailers manage their electricity price exposure through financial products, such as financially settled fixed to floating price swaps. Accordingly, Renewable Energy Certificates (RECs/LGCs) are

able to be bought and sold as separate tradeable instruments, detached from the MWhs of underlying electricity generation that allowed each REC to be created.

Unlike the RET, the proposed design of the NEG does not address the difficulty of tracing each MWh of electricity consumed from the pool back to its generation source. The assumption expressed in the Consultation Paper, that all electricity hedge contracts can be counted towards a retailer's emissions intensity because ultimately all hedge contracts are backed by generation, is simplistic. In Pacific Hydro's experience, financial products in respect of NEM electricity prices may be linked to the volume of electricity from a particular generator, but are not linked to the specific MWhs of electricity exported by that generator. Further, the assumption in the Consultation Paper's is contradicted by the fact that the "volume" of electricity represented by existing financial contracts hedging NEM pool prices is far greater than the volume of actual electricity generated in the NEM.

The Consultation Paper asserts that hedge contracts are largely backed by physical generation, because such contracts, "create a link between the needs of the system for capacity and the financial rewards that accrue to generators from being available and dispatched and the losses or penalties they incur if they are not."[1]. This assertion implies that hedge contracts are mainly offered by generators, whereas in reality they are often offered by financial parties who own no generation assets. It is perfectly possible for a retailer to have covered its financial risk of exposure to the pool price by entering into hedge contracts entirely with counterparties who do not themselves own generation, but who have taken a view on pool price forecasts and have priced into the hedge contract a calculated risk premium. It is not clear how a retailer in this position, who has responsibly managed its pool price risk, will be able to trace the emissions intensity of the electricity it has sold.

Pacific Hydro would welcome any further detail supporting this traceability that can be shared as part of the consultation process.

The following example, played out through two alternative scenarios for NEG / RET integration, illustrates the complexity of the issues to be addressed in how the RET may interact with the NEG.

Example

- *A wind farm generator has entered into a long-term LGC supply agreement to sell to Retailer A a quantity of LGCs which the generator will supply from its portfolio of assets (no electricity is sold or hedged between the parties). Even though the precise generation source is not specified, Retailer A can be entirely confident that the MWh of renewable electricity generation that gave rise to each LGC has only been counted once for the purposes of meeting its RET liability[2].*
- *Separately, the wind farm generator has entered into an energy generation-following contract for difference with Retailer B representing all the electricity generated by one of its wind farms (i.e., a financially settled hedge linked to the*

[1] P. 13 Consultation Paper

[2] We disagree with the assertion in the Consultation Paper that, "This link between the physical and the financial spot market outcomes is not as strong under any scheme that provides "certificate" revenue to generators based on a type of technology or its emission levels (i.e. the RET)." (p. 13). In fact, the certificate system of the RET provides a guarantee that each LGC is backed by, and represents, only one MWh of energy generated from a renewable source.

volume of electricity from the wind farm but not to the specific MWhs of electricity exported by the wind farm to the NEM).

- *Both contracts run until 2030. Neither contract specifies that the buyer is entitled to any other forms of emissions credit that might attach to the electricity output from the wind farm in the future.*

Scenario 1

Scenario 1 assumes that the NEG is designed so that the owner of the REC associated with renewable electricity (Retailer A in our example) is granted exclusive title over use of that REC for compliance with the emissions intensity guarantee under the NEG as well as the RET.

In this scenario, Retailer B will not be entitled to claim a zero emissions intensity for the electricity it has acquired from the wind farm as it has not acquired the associated RECs from that wind farm. Consequently, the emissions intensity attributed to that electricity will be at the highest emissions intensity level for that State.

This produces a counter-intuitive outcome, where the purchaser of energy from a renewable energy project is unable to claim a reduction in emissions intensity across their energy usage, while another purchaser can claim a reduction in emissions intensity through its purchase of the associated RECs, even if all its energy has been purchased from carbon-intensive generation sources.

If Retailer A doesn't need the zero emissions characteristic of the REC, will it be able to separately trade away that emissions intensity characteristic while still surrendering the REC to satisfy its RET liability?

That is, will the NEG interact with the RET so as to enable the emissions intensity (as regulated by the NEG) of each MWh of zero emission renewable electricity to be separated from its renewable energy characteristic (as regulated by the RET), and separately dealt with, e.g., be traded away while the LGC is surrendered for compliance?

Scenario 2

Scenario 2 assumes that the NEG is designed so that the NEG-regulated emissions intensity only attaches to the MWh of electricity sold, and not to LGCs sold separately from generation.

In this scenario, Retailer A will be able to surrender its LGCs to meet its RET liability, and separately will have to prove the emissions intensity of the electricity it has purchased, which may or may not have been purchased from zero emission renewable energy, noting that in this example Retailer has not contracted for electricity with the wind farm.

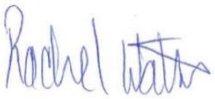
Because Retailer B's contract for difference in respect of electricity from the wind farm does not specify that Retailer B is entitled to claim the emissions intensity benefit from this electricity, Retailer B and the generator will have to re-negotiate the terms of their contract if Retailer B wishes to obtain and use this benefit.

In any event, the emissions intensity benefit of the wind farm's electricity output should only be able to be used once, i.e. by a single retailer, in determining that retailer's emissions intensity under the NEG. The NEG scheme design, and its interaction with

the RET, must ensure that there is no scope for multiple applications, i.e. double dipping, of emissions intensity benefits from wind farms or other zero/low emissions generators.

There are many other examples of existing contracts that will be impacted by the NEG design. This example is given to illustrate the importance of carefully considering the impact of the NEG and the risk of creating unintended consequences. Pacific Hydro strongly recommends that a specific consultation paper be prepared on how the NEG and the RET should be integrated so that further design options addressing the detail of this integration can be fully explored by all interested stakeholders.

Yours faithfully



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