PacificHydro

12 October 2011

Suzanne Frame
General Manager Development
Independent Market Operator
PO Box 7096
Cloisters Square
PERTH WA 6850

By email: troy.forward@imowa.com.au

Dear Ms Frame

Re: IMO Board's proposed decision to accept RC_2010_25, as modified following the first submission period

Pacific Hydro (PH) is a wholly Australian owned renewable energy company that has been successfully developing and operating renewable energy assets for over 20 years. Through our owners, Industry Funds Management, approximately 5 million Australians are shareholders in our company.

Within Western Australia Pacific Hydro owns and operates the 30MW Ord Hydro power station located in the East Kimberley region. We also own a number of wind farms and hydro assets on the eastern seaboard. While PH does not currently have an operational plant in the South West Interconnected System (SWIS), we are in the latter stages of developing a large scale SWIS connected wind farm. As such, we are keenly interested in the proposed rule change.

Pacific Hydro has been an active member of the IMO's Renewable Energy Generation Group since April 2009. This working group has considered the proposed rule changes covered by this submission.

Investment in wind power is more efficiently brought forward in the SWIS when the market arrangements are equitable and provide revenue predictability. First and foremost generators should be fairly remunerated for the underlying capacity they provide. Wind, despite being intermittent, can and does provide reliable capacity. With this in mind capacity payments have historically represented a reasonably predictable and stable cash flow and have been equitable. Any change to the current methodology has the potential to have a disproportionate impact on project financing and delivery.

Given the importance of certainty over price and simplicity over complexity PH supports the original proposal developed by McLennan Magasanik Associates (MMA) in January 2010. In our opinion the MMA approach was based on a systematic and well-resourced study and their methodology delivered credible and stable results.

PacificHydro

Please note that the MMA January 2010 proposal referred to above was not adopted by either the IMO or Griffin Energy under the Rule Change Proposals RC_2010_25 (IMO) and RC_2010_37 (Griffin Energy) and so in our previous submission on this issue (4 February) we were recommending no change to the existing rule.

It is also worth noting System Management's concerns around the 2010 MMA proposal – in particular that the MMA methodology delivers capacity values above 35% of rated output for wind farms that showed good correlation to system demand. We understand System Management prefers that the maximum capacity that should be awarded to wind energy is capped at 20% of rated output. While we hold a different view, we accept that System Management has a clear view on this issue based on operating experience.

In light of the clear rejection of the preferred MMA proposal, and in the interests of alleviating System Management's concerns and assisting the IMO Board resolve this issue, Pacific Hydro can support the methodology proposed in the Sapare Report, subject to the following changes:

1. Modelling should include Collgar Wind Farm within the Sapare methodology (thereby allowing industry to consider the impacts);
2. Provide greater certainty and transparency around the formulation and setting of the adjustment factors; and
3. Change the methodology to use Operational Load instead of Load for Scheduled Generators when considering trade intervals.

These are discussed in more detail in the attachment to this letter.

In our view, unless the proposed changes are made, the rule change currently under consideration will result in an unfair bias against investment in renewable energy technologies.

Successful new wind farm developments of scale will require a bankable off-take agreement from a retailer. The retailer will pay a bundled price for the output of the wind farm which includes the energy, the capacity credits and renewable energy certificates.

Energy and certificates form a predictable part of the bundle. However, the lack of transparency in the proposed methodology and subsequent lack of predictability around the capacity payments will result in a limited retail market for wind generated energy.

It is our opinion that accepting RC_2010_25 as modified by the Sapare Report is not consistent with the overall market objective of avoiding discrimination in the market against particular energy options such as intermittent wind facilities.

Yours sincerely

John Vendel
Market Operations Manager
Pacific Hydro Australia

PacificHydro

For enquiries regarding this letter, please contact:
John Vendel
jvendel@pacifichydro.com.au
Tel. 03 8621 6380

PacificHydro

PROPOSED CHANGES TO THE METHODOLOGY PROPOSED IN THE SAPARE REPORT

1. Include Collgar Wind Farm

The IMO Board's proposed modified rule change is heavily influenced by the recommendations contained in the Sapare Report (*Capacity value of intermittent generation: August 2011*). The Sapare report did not consider the impact of the Collgar wind farm in its modelling. This is causing concern within the renewable energy industry as it is believed that the inclusion of the Collgar data will have a material impact on the modelled outcomes.

The Sapare report should be updated to include the Collgar projected generation outputs (calculated using historic wind speed data sets that will accurately determine the historic generation at outputs over the peak periods covered in the report). Subsequent to this, industry should be granted time to review the new results before the IMO take a decision.

Key reasons why the Sapare report should be updated include:

- Collgar wind farm is now operational and the most dominant wind farm going forward. Collgar by itself represents 50% of the wind capacity in the SWIS.
- Collgar is inland where all other wind capacity of significance is located in coastal environments. The coastal wind farms are dominated by local coastal effects (sea breeze) the drivers of the Collgar wind farm are not understood by the market participants as the wind data has not been included in the modelling. If the wind farm is operating in a complementary mode to the rest of the fleet this needs to be understood.
- The Collgar wind farm contains 50% of the installed wind generation in the SWIS in one wind farm. Geographic diversity amongst wind farms improves the likelihood that wind farms will be operating at different levels of output at different times of the day as wind changes both with time and location.

2. Provide improved certainty, predictability and transparency

Certainty and predictability are key elements of a successful business case for any wind farm development. While wind is a stochastic variable, uncertainty is managed through the collection and analysis of historic hub height wind speed data from the location under development. Known relationships are used to predict future generation within known bounds of certainty. Notwithstanding the above the stochastic nature of wind does mean that a successful wind farm business case is less able to bear additional uncertainties than schedulable fossil fuel generation.

With the above in mind the out-workings of the methodology recommended in the Sapare report are strongly influenced by the K and U "adjustment factors". Where K is to introduced to reflect the known variability and U reflects the uncertainty of the output of the facility. These values will be fixed for three years and then reviewed. Unfortunately the adjustment factors are not explained in a sufficiently transparent manner that would enable them to be replicated.

An inability to replicate variables or methodology or to have important variables that can be calculated in a non-transparent, ad hoc way will lead to the value of Capacity payments being

heavily discounted by potential investors. Wind farm developers need to be able to build a transparent capacity payment methodology into their models for two reasons:

(A) At the development stage, it will help determine whether a wind farm is economically viable or whether another option should be pursued;

(B) Once operating, it will enable the generator to check the accuracy of the capacity payments they are receiving.

It is recommended that the adjustment factors contained in the proposed methodology be formulated in a way that allow them to be replicated going forward.

3. Use of operational load instead of load for scheduled generators

Operational Load is preferred over the Load for Scheduled Generators (LSG) that is used in the Sapare report as discussed below.

It appears that the LSG methodology acts to remove from the calculation high demand intervals when the intermittent fleet is operating at high capacity while keeping intervals of when the intermittent plant has low output. This acts to introduce an inherent bias against intermittent generation.

The LSG methodology was introduced by MMA to reduce volatility however there is no confidence that this remains the case with detailed modelling undertaken by industry participants using their operational data seeing that volatility remains in the methodology.

Furthermore the LSG concept to the Rules as LSG is unique to this calculation with no historic data (unlike Operational Load which is the Market standard and well documented) and so introduces another layer of complexity and uncertainty to the Market Rules.