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Dear Mr Pierce

## FREQUENCY CONTROL FRAMEWORKS REVIEW – DRAFT REPORT

Origin Energy Limited (Origin) welcomes the opportunity to comment on the AEMC's Frequency Control Frameworks Review Draft Report. The Report is a thorough examination of the issues affecting frequency and Origin commends the AEMC for their diligence and consultation with industry throughout the review.

The AEMC highlights that the NEM's frequency performance has been deteriorating in recent times as evidenced by a flattening of the frequency distribution within the normal operating frequency band. One of the drivers of this change has been generators adjusting their settings which reduces responses to frequency within the normal operating frequency band. A lack of compensation for the provision of this service and potential additional costs associated with the Causer Pays arrangement have driven this behaviour.

Origin believes that a market based mechanism which appropriately prices primary frequency control (PFC) will incentivise generators to reintroduce the service and deliver better frequency outcomes for the NEM. Of the options presented by the AEMC, Origin supports further development of Option F (Causer Pays) and Option E (new markets) as we believe these options most appropriately value PFC as a unique service. Origin does not support Option A, the AEMC's preferred option, because it does not directly incentivise the provision of PFC. Rather it provides an opaque price signal which attempts to incorporate two distinct services through one pricing mechanism. Finally, Origin reiterates that mandatory provision of PFC should not be considered given that it does not allow for competitive outcomes or encourage innovative solutions that are technology neutral.

To the extent the AEMC's endorsement of Option A is driven by the desire to address the reduction in frequency control quickly, Origin suggests that more is done to understand the difference in the timing of this option compared to Options F and E. From our perspective, is not entirely clear that the implementation of Option A would be significantly faster than Options F and E. Issues around timing aside, the pursuit of a sub-optimal approach is unlikely to provide an enduring solution to the degradation of frequency control in the NEM. Therefore, if the establishment of a new (and separate) market for PFC is the most efficient means of incentivising the provision of this service this should be developed. If there is an urgent and immediate need for greater levels of PFC, the AEMC could explore the introduction of interim measures such as an AEMO contract based arrangement with generators, whilst developing a permanent market based solution such as Options F or E.

### *Option A – Provision of a primary regulating response with regulating FCAS*

Origin does not support the AEMC's preferred option of combining PFC into the regulating FCAS market because it does not provide a clear price signal for participants to respond to. By creating a mandatory pre-condition of providing PFC when participating in the regulating FCAS market, it creates an opaque price signal for two distinctly different services. Additionally, the AEMC have stated that it

would be difficult for AEMO to differentiate between the quantity of primary and secondary response active in the system at any time. It would therefore be difficult for AEMO to determine how much of each service is used, and for market participants to appropriately structure a ‘combined’ bid.

Under Option A, it is possible that a participant would provide PFC and not be compensated for the provision of this service. This is a likely result where a generators ‘combined’ regulation and PFC bid is situated above the prevailing market price, hence no payment, but where frequency moves outside of the 0.05Hz dead band. Whilst a generator could incorporate the cost of both PFC and regulation FCAS into one bid, it does not distinctly value the role of PFC in correcting frequency imbalances and this will drive inefficient outcomes.

From a technical generator perspective, once PFC is enabled it will automatically respond to local frequency deviations regardless of prevailing ‘combined’ price. It is difficult to ‘turn off’ this service in response to price and Origin would anticipate that PFC will be utilised extensively to maintain frequency closer to 50Hz. Thus, if a generators ‘combined’ bid is placed above the market price they would receive no compensation, but would likely be providing a free service when frequency inevitably fluctuates in response to the supply and demand balance.

In Origin’s view, it is unclear that the implementation timeframe for Option A and the creation of a new market for PFC (Option E) would be significantly different. Both would utilise existing market structures, require changes to the FOS, various NER definitions, AEMO’s MASS and generator control systems. Origin questions the premise that the introduction of Option A is quicker than introducing a new market, especially where further technical assessments are required and existing bidding frameworks would be utilised.

#### *Option E: New Markets for Primary Frequency Control*

Origin supports the introduction of a new market for PFC that will operate within the NOFB. The appropriate frequency trigger points should be set by the AEMC’s Reliability Panel through the frequency operating standard.

The creation of this new market will ensure that a price is reflective of the provision of PFC by generators which will work to deliver competitive market outcomes. A new market that utilises existing FCAS bidding frameworks can ensure that participants transition quickly because they are familiar with the current bidding systems.

As discussed above, Origin does not believe the introduction of a new market would require substantially more time than the AEMC’s preferred option of incorporating PFC into the existing Regulation market.

#### *Option F: Incentive payments through changes to the Causer Pays framework.*

Adjustments to the causer pays system which will allow payments to be made based on positive frequency contributions has merit and will incentivise a change in generator behaviour for the better. The largest impediment to this option will be setting the appropriate pricing point and the relevant time period.

The Draft Report discusses a theoretical causer pays design that provides increasing payments to generators as they respond to larger frequency deviations. These pricing structures would be set according to the previous Causer Pays notice period, and apply for the duration of the next period. Deviations would be calculated based on existing four second data that is compiled by AEMO under the current Causer Pays process.

Origin can see a number of positives to this structure:

- Firstly, it sets a known price across an agreed period of time which can provide longer term certainty to market participants.
- Secondly, it links a pricing mechanism to frequency by allowing greater payment for larger deviations from 50Hz and vice versa through a deviation pricing schedule.
- Thirdly, it pays for the continuous provision of PFC and takes into account that this service cannot easily be made ‘unavailable’.

It is worthwhile that the AEMC undertake more work on the pricing mechanism that would be used for this option. Understanding how the price will be set and for what period are the key questions that are still outstanding. One way to analyse the pricing set point could be to back test previous Causer Pays periods to understand what price points could be used and what is the total quantum of payments necessary when considering frequency deviations. Participants should also understand how prices are set and Origin would prefer a market based mechanism that is derived from energy market offers as opposed to a centrally determined price from AEMO.

The recent AEMO draft report has recommended minimal changes to the existing causer pays system, including the applicable time period of 28 days. Origin's previous submission to this consultation stated that we were comfortable moving to a 14-day time period because it more accurately reflects recent events. Further to this point, if the Causer Pays option were to be implemented, a detailed examination of the applicable period is warranted to ensure that optimal outcomes are achieved. The appropriate period should examine the ability for generators to adjust their responses to pricing outcomes, AEMO workload on producing and refining data sets, and the impact that pricing certainty has on driving better frequency outcomes.

#### **Longer term: Future FCAS Frameworks**

Origin agrees that further examination of the existing FCAS frameworks is warranted in the longer term to understand how the changing NEM generation mix is best utilised to ensure better frequency outcomes. We support the AEMC's continued work on better understanding the interaction between frequency, inertia, system strength and the incorporation of fast frequency response. This includes investigations into what market frameworks can best be employed to ensure these services are co-optimised to bring about the lowest cost service provision for the consumer.

Origin recognises that there is a different mix of solutions that have been employed through the AEMC's findings in this area, including minimum levels of inertia through TNSPs, system strength requirements on new connecting generators, minimum inertia requirements for new developments in SA and the roll out of synchronous condensers across the network. Origin looks forward to working with the AEMC to better understand how all these frameworks will work in unison to produce better frequency outcomes, ultimately leading to greater system security.

#### **Distributed Energy Resources**

Origin supports the ongoing reviews that are working towards incorporating DER into the energy and ancillary services markets. The Draft Report raises a question about a minimum 1MW threshold and the technical requirements to participate in the NEM. Whilst we believe that a 1MW minimum threshold is reasonable, any further work aimed at examining the merits of lowering this threshold should assess the cost implications on AEMO when handling smaller outputs, and the potential impact on forecasting and market certainty.

Should you have any questions or wish to discuss this information further, please contact James Googan on [james.googan@originenergy.com.au](mailto:james.googan@originenergy.com.au) or (02) 9503 5061.

Yours sincerely,



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