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Introduction

Intellihub welcomes the opportunity to respond to AEMO's consultation paper on the proposed Market Visibility Framework, being considered by the Energy and Climate Change Ministerial Council. As a pre-eminent provider of both CER optimisation and orchestration services in the Australian market, Intellihub is pleased to provide our views on the merits and potential improvements to the framework as described in the paper.

Though its product Evergen, Intellihub operates one of Australia's largest and most successful platforms for enabling CER monitoring, control, optimisation and orchestration. Rather than being a VPP, Evergen enables VPP operators and CER owners to readily integrate and participate in energy markets. From initially focussing on residential batteries, Evergen has developed the capability to accommodate a variety of CER types on the platform, including flexible loads, EV chargers and electric hot water systems.

Intellihub recognises the need to ensure that the rapid uptake of price-responsive CER in the National Energy Market does not undermine the critical market function of price-formation. To that end we support AEMO's desire to build a framework that will allow for sustained growth in CER price-response orchestration while ensuring that demand forecasts and price-formation retain their necessary accuracy. We also note that, as AEMO flags in the paper, these negative outcomes are not yet evident in price-formation, and as such there is time available to ensure that we collectively get the framework requirements right.

In particular we strongly support AEMO's goal for extensive verification of the planned framework through ongoing design and testing over the course of the implementation period to assess and evaluate cost-effective ways to achieve comparable outcomes for price formation while balancing the needs of, and benefits to, consumers. Intellihub believes that the key to ensuring lowest-cost outcomes for consumers will be ensuring that the regulated requirements contained within the framework are both cost-effective and proportional to the benefits they will bring. To that end we would advocate for making the most of the time available during the implementation period to test both the implementation costs and benefits of possible technical options during the proposed staged implementation.

We expand on these comments further in our responses to the consultation questions below.



Responses to AEMO's consultation questions

Question 1. *Are there any reforms stakeholders see as being key dependencies or antecedents for the Market Visibility Framework? Are there reforms/initiatives that should be informed by the Market Visibility Framework and information it collects? For example, should the Market Visibility Framework support the development of DSO capabilities, or should DSO functions be developed and their effects observed before committing to visibility obligations under the MVF?*

The initiatives listed in Table 3 capture the key reforms that Intellihub believes would be relevant to this activity.

Question 2. *Do you consider that the proposed visibility modes are appropriately defined to capture the different types, materiality and operational characteristics of price responsive resources? In your response, please identify any aspects of the mode definitions that should be clarified, expanded or refined to ensure the framework is practical, proportionate and capable of providing decision-useful visibility information.*

The proposed visibility modes do broadly cover the relevant orchestration types. Intellihub assumes that Mode 2 is intended to apply in the following circumstances:

- applies to CER that are orchestrated through “a common optimisation or coordination process”
- incorporates a range of potential data types - from basic submission of price-responsive quantities through to bid-based forecasts and baseline-differences - with materially different levels of complexity
- includes the potential for compliance requirements if a forecast is persistently inaccurate. It's not clear from the consultation paper how far in advance of the dispatch interval any forecast-compliance would be applied.

On that basis, Intellihub believes there are significant issues with how Mode 2 applies to individually-optimised sites in particular, which are relevant in the context of residential premises and C&I premises.

CER optimisation, particularly in a residential setting, relies on a range of parameters including forecast power consumption needs and price information. Depending on the optimisation algorithm these parameters may be regularly updated right up until the dispatch interval, and variations in these parameters frequently lead to significant changes to the power output of both the CER device and the site as a whole. At a minimum such forecasts may be of limited use as inputs into AEMO's own forecasts and dispatch engine, and depending on the significance of deviations could materially degrade the quality of pricing outcomes the closer it gets to the point in time in which the dispatch is required. Furthermore optimal customer outcomes may not consistent with previously-submitted forecasts - should compliance obligations be enforced, service providers would be forced to choose between supporting optimal energy outcomes with meeting previously-submitted forecasts to AEMO.

Additionally the forecasts proposed for Mode 2 in the consultation paper are complex to calculate and would be costly to generate and provide to AEMO. In conjunction with the previous point, we are not convinced that any benefit to dispatch outcomes would be worth the cost to providers, with potential flow-on effects to customers.

It's Intellihub's view that AEMO should at first seek to make the best use of the more basic data types proposed within Mode 2, in particular the ability to submit quantities of price-responsive resources, even potentially at the market dispatch interval, in preference to bid-style forecasts. The former would be significantly simpler to generate and provide, as well as being in general more accurate than bid-style power forecasts. In combination with the proposed price responsive pre-dispatch sensitivity mechanism it's highly plausible that these simpler data types would form a sufficient inclusion of optimisation outcomes for dispatch purposes. It may even be plausible for these two approaches to be considered “sub-modes” under Mode 2, and applied to distinct categories where they make sense to do so.

We also note that AEMO has indicated a desire to stage the rollout of any new requirements, including testing of potential mechanisms. Should dispatch power forecasts be included as a requirement for optimised CER in



the final framework Intellihub strongly suggests that these be significantly tested for both viability and suitability, with the potential for scrapping them if testing demonstrates that they risk leading to poorer outcomes for consumers.

Question 3. *How can thresholds and coordination be defined with respect to size and coordination to ensure the intended resources are captured in a manner that is objective, consistent and equitable?*

The portfolio thresholds that are proposed in the consultation (in particular 30MW and 100MW for Modes 2 and 3 respectively) seem sensible given their relationships to existing market definitions for scheduled generation. We would note however that a simple aggregation definition based on market participant (e.g. FRMP) and/or service provider is likely to misapply these requirements, for example:

- A FRMP with a number of small aggregations with significantly different orchestration logic, particularly across different tiers of control - say across time-of-use optimisation, critical peak pricing and spot-exposed optimisation - may incur more punitive requirements than a nuanced reading of their operations would necessitate;
- An aggregation services provider with many customers - potentially using a range of orchestration logics similar to the previous example - may be forced into a higher mode than their individual programs would;
- A small market non-participant utilising the services of a non-FRMP aggregator could either be forced into obligations their size would not imply, or alternatively be missed from the framework entirely.

This is complicated further by the varied ways under which orchestration can be applied - from the gross price-responsiveness of a traditional demand response program to more convoluted optimisation algorithms applied to TOU, demand-charge and spot-exposed pricing. Each of these classes can lead to materially different price-responsiveness, and it would be inappropriate to conflate them into a single portfolio for the purposes of the framework - including for indicating whether relevant mode thresholds have been breached.

Additionally there will be cases where the service provider primarily provides communication services, but the controlling party (which is often the FRMP for the controlled sites) manages the logic by which they are controlled. Under these conditions it would be difficult for the service provider to generate accurate forecasts, meaning that the controlling party would be the most appropriate party to generate and provide these to AEMO.

In general Intellihub takes the view that a portfolio should likely be captured at the level where common logic, price exposure and predominant beneficiary determines the aggregation threshold to which a visibility mode should apply. We acknowledge that this may be a challenge to navigate fairly, particularly in a way that doesn't allow for bad actors to take advantage of in order to avoid participation. If practical we would be happy to work AEMO during framework testing to ensure that these definitions and thresholds are sensible and applicable to the range of use-cases reflected in today's and future markets.

Question 4. *What would be an appropriate threshold to commence with to capture resources of a material size? Should MW thresholds initially be higher to capture only the most material resources and aggregations, before progressively lowering the threshold if adverse market impacts continue to be observed?*

We support AEMO's reasoning that impacts of any aggregation are best established based on the aggregation size than increasing over time, in particular to ensure the regulatory rules do not materially change unnecessarily. However noting the higher burden of Mode 2 (and particularly bid-based forecasts as discussed in our response to question 2) for some classes of CER orchestration it could be reasonable, particularly during the testing phases of the staged implementation plan, to investigate the benefits that can be gained through use of low-cost options - being primarily Mode 1, and quantity or capacity forecasts under Mode 2 - before resorting to those with a higher cost (and potentially lower cost-benefit ratio).

We would also note that there may be difficulties in teasing out the effects of any given aggregation in the early days, while these programs are not having a material impact on price outcomes.

Question 5. *Should MVF obligations be assigned by reference to the relevant resource or aggregation, with the*



responsible party identified according to the nature of that resource (for example, the site operator, aggregator, retailer or financially responsible Market Participant, as specified in AEMO guidelines)? Or should the framework instead impose a broader obligation on registered participants to provide information about resources they control, coordinate or are financially responsible for, similar to the current Demand Side Participation Information arrangements? In your response, please comment on which approach would better support accurate, timely and practical information provision while maintaining clear accountability.

Discussed at question 3.

Question 6. *Would a separate price responsive sensitivity in pre-dispatch provide better information to support participant decision-making without compromising the price signals against which participants are planning their response? Are there alternative approaches to managing the circularity problem while still providing better information to the market that AEMO should consider?*

Intellihub doesn't have a view on the benefit or otherwise of the proposed pre-dispatch sensitivity mechanism.

Question 7. *Do you support the proposed staged implementation approach, including the use of monitoring, trials and implementation guidelines before mandatory visibility obligations are activated? How should this approach be accounted for in the NER versus guidelines?*

Intellihub strongly supports the proposed staged implementation approach. We note the significant complexities and known- and unknown-unknowns the framework will no doubt encounter during development, in addition to the potential strong imposts it could impose on participants (a cost which will eventually be borne by consumers in some form or another). As such it's Intellihub's view that the framework as planned to be approved by the Energy and Climate Change Ministerial Council should be as high-level as is practicable under the NER. The details of the framework's technical requirements should be determined as part of the staged implementation, with specific attention to the potential issues discussed in our responses to questions 2 and 3, and include the possibility to vary the framework by rule-change should the testing demonstrate a need for it.

Question 8. *If the publication of guidelines activates obligations under the MVF, which party should decide when guidelines are published and how should this role be accounted for in the Rules?*

Intellihub's position is that AEMO should decide when to publish guidelines, but that publication should only activate obligations once the AER has confirmed that activation criteria set in the Rules have been met.

AEMO is best placed to identify the operational need and design detailed requirements. However the guidelines would set obligated parties, thresholds and information requirements, and obligations would be enforced once the guidelines are consulted on. On that basis publication is a regulatory decision with material cost for participants and consumers. An independent check is appropriate because AEMO would also propose the obligations, assess the evidence and be the primary user of the information. This is consistent with the NER market design principle of minimising AEMO decision-making to give Market Participants the greatest commercial freedom. The AER's existing wholesale market monitoring functions under the National Electricity Law make it well placed to confirm the evidence.

Question 9. *If MVF obligations do not include conformance requirements equivalent to those applying to scheduled resources, do stakeholders consider that most resource types should still be able to translate their intended behaviour into bid based information for forecasting and pre-dispatch purposes?*

As discussed materially in our response to question 2, Intellihub takes the view that bid-based forecasts are not the most appropriate mechanism for submitting expected behaviour for many types of CER orchestration, and particularly for individually-optimised residential assets. Non-optimised price-responsive CER may be more capable of generating bid-based forecasts - for example those with a simple price-threshold trigger - however even then forecasts may be inaccurate for reasons beyond the control of the orchestrating party, and as such any compliance obligations should account for best-efforts approaches.

Question 10. *Can the content and format of DSPI submission be improved and cadence increased (to quarterly) to provide more useful and up to date information on price responsive resources? How material are*



the compliance costs associated with this? Can wholesale price responsiveness could be flagged through an alternative channel such as MSATS to support AEMO improve the identification, calibration or forecasting of price responsive behaviour? Can wholesale price responsiveness be flagged through an alternative channel such as MSATS to support to AEMO improve the identification, calibration or forecasting of price responsive behaviour?

Intellihub believes that the DSPI could be a significant and low-cost tool for improving AEMO's ability for account for price-responsiveness of CER in demand forecasts. It would be worth AEMO exploring whether the DSPI could be amended to better account for highly dynamic price-responsive CER (in particular those being optimised against either TOU tariffs or spot prices) as this is a notable challenge under the current portal approach, which seems targeted towards long-run dispatches. It's not implausible that AEMO may find a more generally-applied DSPI could significantly better account for price-responsiveness in existing demand forecasts, at dramatically lower costs than the other mechanisms discussed in the consultation paper.

Question 11. *Are there any resource types and retailer relationships where it is not feasible for regulatory obligations to be assigned to the FRMP or registered service provider? In your response, please provide specific examples.*

As noted in our response to question 3, there are some cases where there is no market participant with a clear relationship to the price-responsiveness of a CER portfolio. In these cases it would make sense for either the service provider or major beneficiary to bear relevant visibility obligations - the major beneficiary would make more sense as the control-owner, supported by the service provider from a technical perspective. The caveat noted in the response to question 3 relating to portfolio size remains highly relevant to this distinction.

Question 12. *How can thresholds be applied to obligated parties in a way to mitigate the risk of portfolio structuring and gaming below MW thresholds? Can less onerous obligations help mitigate this risk? For example, in relation to > 5 MW battery portfolios, should obligations commence first in Mode 2 before further consideration is given to requiring scheduling through market mechanisms?*

Discussed at question 3.

Question 13. *What process can be used to provide market participants and consumers with confidence that the visibility obligations' benefits outweigh the costs and deliver value to consumers? Is there an alternative approach to assessing costs and benefits to that outlined in this paper that AEMO should consider?*

As noted in our response to question 4, AEMO should seek to apply imposts that are expected to have a strong cost-benefit ratio in the first instance. Intellihub advocates for stronger use of the DSPI through the initial introduction of Mode 1, including initially for all types of orchestration, and only resorting to Mode 2 and/or Mode 3 where there is both a clear need for it in dispatch outcomes that outweigh the significant cost of meeting these requirements.

Yours sincerely,

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