



Australian Energy market Operator
By email: WADERProgram@aemo.com.au

24 October 2022

Subject: Proposed Design for a Visibility Framework

Thank you for the opportunity to provide feedback to the AEMO Consultation Paper “Proposed Design for a Visibility Framework” (the Consultation Paper) for the South West Integrated System (SWIS).

This is a joint response on behalf of both Rheem Australia Pty Ltd (Rheem) and Combined Energy Technologies Pty Ltd (CET), as we have a complementary interest in the Consultation Paper due to the significant number of IES installations we carry out every year in Western Australia.

As the largest Australian manufacturer of water heaters with products in over 4 million Australian homes, Rheem offers a wide range of traditional and renewable energy water heater models to the domestic water heating market under the Rheem, Solahart, Vulcan, Aquamax & Everhot brands. Under our Solahart brand we are the third largest supplier of photovoltaic (PV) systems in the country. Over the last four years we have also commenced the manufacture and installation of smart electric water heaters, controlled remotely by our technology partner, Combined Energy Technologies.

Combined Energy Technologies is an Australian technology company specialising in energy management for residential, commercial, and micro grid systems. CET provides site energy management systems and has extensive experience in the integration and orchestration of systems with multiple Distributed Energy Resources (DER) including the integration of solar PV, batteries, water heating, electric vehicle chargers, pool pumps and A/C for the benefit of the homeowner, retailer and the grid. Our references to DER should be read to include both generation and flexible load assets unless prefaced by IES (Inverter Energy Systems).

Together, Rheem and CET are already actively participating in the emerging DER market with thousands of online, mixed, orchestrated DER sites across the NEM and the WEM, with near 100% of our sites orchestrating one or more types of IES DER. Over the past decade we have identified and resolved many issues (at live field sites) to ensure that mixed, smart DER sites can be orchestrated to achieve the best financial outcomes for consumers, whilst providing a foundation for grid support services and hence grid security of supply.

If the energy market is to be truly democratised, it is very important that any changes to market rules and associated technical specifications are made with the consumer at the centre of the solution. This will ensure that current and future investment in smart DER by households continues to be made. Fundamental to this approach will be that new rules do not



favour a particular technology, technology class, or technology manufacturer, and that technology neutrality is not impeded by barriers to entry in creating or modifying energy market rules. Our specific comments and recommendations attached are underpinned by this approach.

As Australian based manufacturers we have made large R&D investments in bringing to market cost effective DER products and technology for the integration and orchestration of DER behind the meter. Further, we have a desire to ensure technology neutrality, support for standards, commercial fairness, and adherence to the principles of the NEO in the design of new market services and regulations.

Our comments and recommendations do not specifically address the Consultation questions raised in the Paper. Instead, we have focused on the key areas of concern that we have identified with the Visibility Framework. Each of these is discussed in Annexure A below.

As this submission has been prepared using the expertise of several of Rheem and CET personnel, I would ask that any enquiries related to the submission are directed in the first instance to myself. I will then co-ordinate follow up responses to your enquiries or further meetings with the appropriate personnel within our organisations.

Yours Sincerely



Ashraf Soas
General Manager Energy Solutions
Rheem Australia Pty Ltd

ashraf.soas@rheem.com.au

M: +61 417 061 380

ANNEXURE A -

Rheem/CET response to the proposed design for a Visibility Framework

We generally support the visibility framework, as it will enable the ability for controlled Consumer Energy Resources (CER) to maximise their potential benefits to the grid and consumers. However, we do have some concerns regarding the scope and implementation of the Framework, which are discussed below.

Energy Producing System

The most important issue to address is to improve the clarity of the definitions that largely define the scope of the visibility framework. The most important of these is the visibility framework applying to an “Energy Producing System”, which is defined as “One or more electricity producing units, such as generation systems or Electric Storage Resources, located behind a single network connection point or electrically connected behind two or more shared network connection points.”

We would suggest that this definition needs to better align with the proposed arrangements for Dynamic Operating Envelopes (DOE) and associated Dynamic Export Limits (DEL). More specifically, this definition should be more technology neutral and consider the inclusion of dynamically controlled load at the same connection point. This is because dynamically controlled loads can have just as significant an impact on the operation of the grid as dynamically controlled generation systems. This would also make it consistent with the Consultation Paper claim that off market services may be used “by network operators to defer network investment or to increase system loads”.

This same position is articulated in the recent DEiP report on DOE:

“While the initial application of DOEs will be on new solar customers, care should be taken to not create barriers to adoption by existing solar customers and innovative future use-cases. Future proofing current DOE implementations can reduce costs and increase choice for consumers in the medium term.”¹

In our view, a more future proof definition would focus on the visibility of the maximum amounts of load and generation being controlled at the connection point. This would also allow the maximum net export to be derived. We suggest that the definitions and reporting being used for project EDGE would be more aligned with this objective.

Facility Class

Similar to our comments above, we also have concerns regarding the requirement for assets to be separately reported by Facility Class. We consider this to be overly onerous to manage, with little incremental benefit. For residential consumers it would be more appropriate for reporting to be based on the maximum capacity under control (each of generation, load and net exports) at the connection point, regardless of the asset types behind the connection point. Facility class may be more meaningful for C&I customers over a certain threshold capacity.

Aggregator Services

Another important definition is that of Aggregator Services. We would argue that it is critical to differentiate between Aggregator Services that are used for the purposes of individual customer

¹ Distributed Energy Integration Program “Dynamic Operating Envelopes Working Group Outcomes Report” March 2022 available from <https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf>

energy optimisation (ie support services) as opposed to fleet based aggregation to achieve wholistic grid benefits (ie grid services).

Grid based benefits from aggregation can include FCAS, two sided markets, price arbitrage, network support benefits and dynamic operating envelopes. Given that these types of services are likely to have a material impact on the predictable and reliable management of the grid, we support the visibility framework applying to all grid facing services.

In contrast, autonomous household response services should be excluded from any visibility requirements. This is because the CER does not act as an aggregated fleet but responds individually to the consumer's requirements. For example, Rheem and CET currently have home energy management systems installed in thousands of homes across the country. Most of these systems are used for individual home energy optimisation only. The typical configuration is used to maximise the use of PV generation behind the meter, which in turn minimises exports. These systems receive regular information updates to support this optimisation. For example, solar forecasts updates for different geographical areas are used to maximise solar self-consumption benefits. However, we are concerned that these centralised data updates might be captured under the definition of "Aggregator Services". This would be an unreasonable imposition on those customers unless they specifically opt-in to a directed grid response.

Another example is fleet wide, cloud based visibility of connected PV inverters. In this case the cloud platform is used for maintenance and support, but not as a mechanism to aggregate customer CER for grid services.

Differentiated visibility reporting levels

To be consistent with our suggestions above regarding differentiated reporting for Aggregation services, we suggest that other services also need to have differentiated reporting requirements. That is, grid services that are more dynamic or have a more material impact on the grid, should have greater granularity of reporting. For example, Dynamic Operating Envelopes under the control of an aggregator should only require updating when they are changed. This may occur a few times a year on a seasonal basis. In contrast, active participation in FCAS markets may require more granular and detailed information. We have illustrated this proposed approach in Attachment A below.

Cost Recovery

The market for aggregator services is in its infancy. Whilst the market is quite promising, at the current time there is significant uncertainty about the available revenue streams for aggregators. This is largely due to market participants such as retailers and DNSPs still developing their capability to realise the full benefits from a disaggregated value stack. That is, the costs for realising those benefits are often greater than the benefit from any one single revenue stream. We are concerned about the costs imposed on aggregators for any mandated visibility framework. Material costs will only provide a disincentive for consumers to participate in VPP markets, at a stage when all efforts should be on encouraging this capability. A cost recovery mechanism needs to be clarified before the Visibility Framework becomes mandatory.

Access to TNI mapping

We understand that under current WEM rules, Western Power is prohibited from providing aggregators with the TNI data that maps to customer NMI. We also note that under current WEM rules, Synergy is the only approved aggregator for residential consumers. Under those rules, Synergy would need to undertake the TNI mapping for any contracted sub-aggregator such as Rheem.

However, if the market for aggregators is opened up for competition in the WEM, we would need access to the TNI data to comply with this requirement of the visibility framework.

Staged Implementation

We consider the current staged approach to be reasonable and achievable, depending on the cost recovery approach noted above. We are currently involved in several off-market aggregation trials that have more demanding reporting requirements than the requirements proposed in the Consultation Paper. But in each of these trials, we are providing grid services, not just home energy optimisation services.



Rheem Australia Pty Ltd ABN 21 098 823 511

Attachment A – Proposed hierarchy of reporting for different services under the Visibility Framework.

	CER market participation level	Customer revenue			Capacity under control (load, generation, net maximum export)			
	Reporting frequency		On registration	Periodic updates to site configuration & maintenance	5 minute telemetry delivered daily	5 minute telemetry delivered real time	5 minute telemetry delivered real time + 24 hr forecasting	1 minute telemetry (TBD) delivered real time + 24hr forecasting
1.	Static export limits	X	✓					
2.	Vendor site maintenance	X	✓	✓				
3.	DOE	X	✓		✓			
4.	Off market retail load shifting + arbitrage	✓	✓			✓	✓	
5.	On market bidding. Retail energy trading (two-sided market)	✓	✓			✓	✓	
5.	Network support services	✓	✓			✓	✓	✓
6.	FCAS	✓	✓			✓	✓	✓

