



10 March 2017

Mr Rob Jackson
Principal Analyst
Systems Performance and Commercial
Australian Energy Market Operator
GPO Box 200
Melbourne VIC 3001

Dear Mr Jackson

RE: Amendment of the Market Ancillary Services Specification (MASS) Consultation – Issues Paper

ERM Power Limited (ERM Power) welcomes the opportunity to respond to the Australian Energy Market Operator's (AEMO) Issues Paper for the Market Ancillary Services Specification (MASS) published in January 2017.

About ERM Power Limited

ERM Power is an Australian energy company operating electricity sales, generation and energy solutions businesses. The Company has grown to become the second largest electricity provider to commercial businesses and industrials in Australia by load¹ with operations in every state and the Australian Capital Territory. A growing range of energy solutions products and services are being delivered, including lighting and energy efficiency software and data analytics, to the Company's existing and new customer base. ERM Power also sells electricity in several markets in the United States. The Company operates 497 megawatts of low emission, gas-fired peaking power stations in Western Australia and Queensland.

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General comments

ERM Power supports AEMO's decision to review the MASS. The review is timely due to the recent rule change to allow the provision of Frequency Control Ancillary Services (FCAS) by Market Ancillary Service Providers (MASP) provided these meet the technical requirements of the MASS. A further driver for this review is the changing power system security dynamics due to the increase of intermittent generation and the retirement of conventional synchronous generation which are placing increased emphasis on accurate control of system frequency.

ERM Power supports changes to the MASS to remove any artificial barriers to entry for new participants whilst ensuring that the services paid for are actually delivered as required to the Market. In this regard we support AEMO in identifying the best means to verify ancillary service unit performance when considering how best to incorporate new technologies into the ancillary services market.

¹ Based on ERM Power analysis of latest published financial information.

We believe the process for review of the MASS would benefit from the setting up of an industry working group to work through the change process with AEMO. This will allow participants to better understand AEMO's concerns and requirements and also ensure that the changes implemented have broad support across the potential range of service providers. It would be of great concern to the industry if changes implemented resulted in the withdrawal of some existing service provision or the non-participation of some potential service providers.

Specific comments on the issues raised in the paper

3.1 Barriers to Entry

We agree with AEMO that the National Electricity Rules (NER) allow for aggregation of service providers within a region. We also agree that it is appropriate for AEMO's systems to provide a dispatch instruction for the provision of Regulating FCAS services to one central control location and it is the responsibility of the MASP to ensure components within the aggregated service complies with this dispatch instruction. This will require the provision of data by the MASP in accordance with the MASS to verify compliance with the dispatch instruction.

With regard to verification data provided by the operation of some form of switched controllers, this should be of sufficient granularity to verify that a response has actually been achieved. Where the source of the service is distributed load, generation or storage, verification data needs to support the actual provision of a service not just that a control or switching action has been activated. Otherwise, the service may have already been utilised in response to an earlier event, i.e. a load reduction in response to an earlier Energy price event, therefore no response is actually provided to the ancillary services activation signal even though the position of a switch suggests the load has been turned off.

3.2 Definition of Services

Clause 3.11.2(b)(1) requires AEMO to provide a detailed description of each of the eight FCAS in the MASS. Whilst the six Contingency FCAS services are reasonably defined the two Regulating FCAS services are poorly defined with regard to actual service requirements. We support AEMO's view that this area of the MASS requires improvement.

We agree that the key principle in the construction of the revised MASS should relate to the control of power system frequency. Notwithstanding this, the MASS should not require a service provider to deliver an ancillary service in excess of its enablement amount or for a service provider who has supplied the required enablement or activated amount to be held responsible for the failure of ancillary services to control frequency.

We disagree with AEMO's view that the current MASS fails to provide a timeframe over which the regulation service must be supplied. The current MASS indicates in Sections 5.2 and 5.3 that the service is to be *provided progressively over a five minute period*. We believe the underlying question is whether that is what AEMO actually requires the service to deliver. We are unsure that this is the case. The current wording of the MASS tends to indicate that the enablement amount would be provided either as Raise or Lower services, but not both, during a 5-minute dispatch interval and this enablement amount would be provided in proportional blocks progressively over a 5-minute period.

It is possible that what AEMO currently seeks to dispatch on units is both Raise and Lower services, although not at the same time, within the current 5-minute dispatch interval at the bid ramp rate for Energy based on an enablement amount the definition of which could be total MW deviation from the theoretical dispatch trajectory or possibly viewed by AEMO as a MW/minute ramping capability.

It is clear the Regulation FCAS services would benefit from a clear description of the service to be actually supplied.

We submit that the Regulation FCAS should be based on the enablement amount being the maximum deviation away from the theoretical dispatch trajectory at any given point in time within the 5-minute dispatch interval subject to the bid Energy ramp rate limitations of the provider.

By way of an example, a generating unit currently dispatched at 400 MW with a dispatch target of 400 MW providing 3 MW of raise and lower regulation FCAS services with an Energy bid ramp rate of 3MW/min could be dispatched via AGC to a minimum of 397 MW and a maximum of 403 MW within the 5-minute dispatch interval based on a change in output in any one minute period that did not exceed 3MW/minute.

We also believe the MASS would benefit from the inclusion of at least one clear example of the service to be provided for each of the eight FCAS.

With regard to the provision of Contingency FCAS services as set out in the issues paper which sets out a theoretical ramped handover between the Fast, Slow and Delayed services, whilst we support the objective behind this, in practice this may be unachievable. In responding to contingency events the three services may be provided by the one service provider seamlessly providing the services across the required timeframe, whereas in reality there is no theoretical ramped handover between services, just a seamless continuation of service.

Rather than AEMO attempting to specify a theoretical description, perhaps it would be better that all contingency services providers provide a description of the manner in which their plant transitions from one service to the other. AEMO would then be able to account for the sum total of these transitions, based on the contingency service providers enabled at any point in time.

Also, in this theoretical world, provision of services is limited to enabled service providers only; this fails to recognise that other in-service generators will also provide non-enabled services in accordance with the requirements of Schedule S5.2.5.11 Frequency Control of the NER. This provision of non-enabled services may impact the ability of enabled services to supply up to their enablement amounts. We are unsure that non-enabled participants would be able to adjust governor and control system settings to ensure compliance with non-enablement of Contingency FCAS requirements whilst at the same time remain compliant with the requirements of Schedule S5.2.5.11.

We agree with AEMO concerns with regards to oversupply of Contingency FCAS, in particular the Delayed service when frequency has returned to the normal operating band with a very short timeframe. However, it needs to be remembered that at the time of FCAS Market commencement in 2001 the specified requirement for provision of Delayed services was only via switching controller which were required to activate in the event that a predetermined trigger event occurred and maintain the enabled level of output for a preset time period regardless of other dispatch outcomes. Later amendments to the MASS in 2009 allowed the use of proportional controllers for the provision of Delayed services but still maintained the same delivery specification for switched controllers. Participants incurred considerable expense in installing switching controllers to meet these specific requirements included in the MASS. Changes inferred in the current consultation may result in participants incurring additional expense to modify or replace these switching controllers and this should be minimized if possible.

We also agree with AEMO's view regarding the interaction of Regulating and Contingency FCAS but again the existing systems were the result of the current and previous versions of the MASS. We are concerned that these changes will result in additional costs being incurred to yet again modify control systems to meet changed AEMO requirements.

3.3 Performance parameters and verification requirements

We support AEMO's view that the ability to verify the performance of units enabled to provide market ancillary services is a key element of the MASS. We also believe that performance parameters and uniform standard of verification requirements should apply equally to all service providers regardless of the technology used to supply the service.

With regard to the provision of FCAS, AEMO's systems need to ensure that generating units are not dispatched beyond the current capabilities as indicated in their current bid with regard to maximum availability and ramp rate capability. A generating unit ramping to a new dispatch target may consume ramping capability and maximum availability and the Automatic Generation Control (AGC) system should not seek to dispatch a generating unit for Regulation FCAS beyond this.

In assessing a service provider's performance, AEMO needs to consult on and provide a proven methodology to compensate for the variable latency of SCADA data. We understand SCADA data is not timestamped when submitted at the source but when it arrives in AEMO's systems which is variable and can be subject to delays.

When assessing performance for Regulation FCAS, we believe this should be based on activated and not the enabled amount. If AEMO has not provided a Regulation FCAS dispatch target equal to the enabled amount then performance should be benchmarked to the service activated by AEMO.

We are concerned that AEMO's proposed requirement that:

"when the frequency returned to the normal operating frequency band, any unit away from its anticipated energy dispatch point (because it is responding to the contingency event) must verify that it has ramped gently and in a linear fashion back to its energy target or, if it is providing regulation services through the AGC system, has resumed responding to those signals."

This may result in unintended consequences, particularly when the current output of a service provider is well away from its current Energy Dispatch Target following a Contingency event. Ramping back to this Energy Dispatch Target may result in further undesirable frequency deviations and suggest that service providers are only required to ramp to Energy Dispatch Targets following a Contingency event when new Energy Dispatch Targets are issued.

We agree that in the future it may be possible to use an aggregated group of inverters to provide FCAS, however, the verification process should ensure that sufficient historical data can be supplied to ensure that the inverter was not already responding in the desired operational mode immediately prior to the FCAS requirement. That is to say, an inverter already charging a battery prior to the FCAS requirement should not receive payment for Contingency lower services for continuing to charge the battery as it has not contributed to control of frequency.

With regards to the settings for switching controllers, in effect these are an artefact of NEMMCo/AEMO choices and specifications rather than settings chosen by service providers. Service providers simply provided in accordance with the specifications in place at the time. This consultation should determine what MASS requirements are required going forward and if deemed necessary provide sufficient time for existing service providers to modify or replace control systems if required. Alternatively, existing service providers could be designated to supply services at their existing setting with new service providers required to provide services in accordance with any new expanded range of settings.

Conclusion

ERM Power supports AEMO's decision to consult on the current Market Ancillary Service Specification, we believe there are a number of key areas to be worked through and addressed in the current MASS consultation; it is now nearly 10 years since the last comprehensive changes were made to the MASS and the Market has changed significantly over the last 3 years resulting in additional pressures on power system security.

We believe the process would benefit from the setting up of an industry working group to work through the change process with AEMO and urge AEMO to consider this.

Please contact me if you would like to discuss this submission further.

Yours sincerely,

[signed]

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