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Submitted by email to market.development@imowa.com.au

23 October 2014

Dear Ms Ryan,

Submission on 2014 Ancillary Services Standard and Requirements Study

EnerNOC is grateful for the opportunity to comment on ROAM Consulting's draft report.

EnerNOC has broad experience in ancillary services provision. Using ROAM's taxonomy, our customers currently provide over 130 MW of primary response in New Zealand, and we expect to start providing regulation services there shortly. In Alberta, Canada, our customers provide around 70 MW of primary response and 40 MW of secondary response. We also provide secondary and tertiary response in several countries in Europe.

1 There is significant potential for improved ancillary services in the SWIS

We believe that introducing competitive ancillary services markets, and allowing participation by all technologies that can meet the necessary performance requirements, will allow the South West Integrated System (SWIS) to benefit from higher quality ancillary services while reducing costs through increased competition.

Provision of contingency frequency-raising ancillary services by loads rather than by generation can bring significant economic and environmental benefits. This is because a load can be available to provide a decrease in demand while operating normally, whereas for a generator to be available to provide an increase in supply it must be operating below its maximum output capability. A generator must withhold capacity from the energy market all the time that it is offering the ancillary service, even if contingency events only occur a few times a year. This often means that the generator must operate away from its most fuel-efficient level.

In addition, many loads can curtail their demand much faster than generators can ramp up their output, allowing them to provide the “very fast reserves” services mentioned in the draft report.¹ When providing regulation services, loads typically have a faster response and better ramp rate than generators, so they can track the regulation signal more accurately.

At present in the SWIS, loads are not allowed to provide Load Following Ancillary Services (regulation) because the market rules are defined only in terms of generators.²

Loads are allowed to provide Spinning Reserves (primary response), but this is done through tenders for fixed quantities rather than through an organised market, and the technical requirements imposed by System Management are inappropriate for provision by aggregations of small loads.³

2 Specific comments on the draft report

1. We strongly support short-term recommendation 1: the minimum performance requirements should be specified, leaving the choice of technology open.
2. We also support long-term recommendation 7: it is rather shocking that the current approach allows for involuntary load shedding to result from a single credible contingency.⁴ We suspect that the reason for this departure from international norms is concern about the cost of procuring sufficient spinning reserves to avoid involuntary load shedding. Establishing an open, technology-neutral market for spinning reserves should reduce costs greatly, allowing a higher level of reliability to be achieved at lower cost.
3. Section 3.3.2 misquotes the Ancillary Services Power System Operation Procedure (PSOP). What is written in the report makes sense; the current PSOP text does not. While clause 2.2.6(b) of the PSOP allows for Load Facilities to provide Class A Spinning Reserve, clauses 2.2.7(c) and 8(c) do not refer to Load Facilities. A literal reading of the PSOP suggests that Load Facilities are only allowed to provide Class A Spinning Reserve, not Classes B or C. This is probably not intended, and is contradicted by System

¹ Draft Report, pp. 29, 68.

² For example, the definition of “LFAS Facility” in the rules includes only “a Stand Alone Facility, or Scheduled Generator or Non-Scheduled Generator registered to a Market Participant other than Synergy ... or the Balancing Portfolio” – none of which can include loads.

³ For example, the letter from System Management titled *Short Term Spinning Reserve Opportunity*, sent on 21 January 2014 (Western Power document 11676338), p. 1, states that “real time telemetry of the interruptible load quantity ... must be established – a communication link to the nearest Western Power Substation is required.”

⁴ “In all cases except for the WEM, standards and settings are designed to avoid involuntary load-shedding under a single credible contingency.” – Draft Report, p. 2.

Management’s “Short Term Spinning Reserve Opportunity” letter,⁵ which specifies a 500 millisecond response and 15 minute duration – i.e. faster than Class A and as long as Class C.

4. The idea of a separate market for “very fast” response is also being developed in the New Zealand market, due to concerns about declining system inertia, such that 6-second response is too slow to be useful for some contingencies. The Electricity Authority and System Operator are also considering the idea of procuring reserves on the basis of effectiveness, rather than simple MW quantities, through an “area-under-the-curve” approach.⁶
5. The report mentions that “the ability for load to provide more nuanced frequency regulation is being investigated”.⁷ Loads have been an active part of the regulation markets for some time in PJM and Ontario. PJM has recognised the better performance of demand-side regulation providers by introducing “Performance-based regulation”, and allowing traditional regulation providers, with more limited ramp rates, to follow a less dynamic regulation control signal.⁸

3 Recommendations

We recommend that:

1. A market should be introduced for Spinning Reserve, allowing for varying quantities to be offered. Ideally, this should be co-optimised with the energy market dispatch.
2. The technical requirements for Spinning Reserves should be revised, so as to avoid excessive costs for aggregated portfolios of small loads. Specifically, once a proper market is introduced, there should be no need for participating loads to provide real-time telemetry. Neither the New Zealand market nor the National Electricity Market (NEM) requires this. The quantity of reserves available can be taken from bids, with performance verified using high-resolution post-event data.
3. The rules and procedures around Load Following Ancillary Services should be rewritten so as to be technology-neutral.

⁵ System Management, *loc. cit.*

⁶ See e.g. Wholesale Advisory Group, *Under frequency management – investigation into reserve arrangements*, 28 November 2013, available from www.ea.govt.nz/dmsdocument/16242

⁷ Draft Report, p. 69.

⁸ See e.g. PJM, *Performance Based Regulation: Year One Analysis for FERC*, 9 October 2013, available from www.pjm.com/~media/committees-groups/committees/mic/20131009/20131009-item-07-performance-based-regulation-first-year-presentation.ashx

I would be happy to provide further detail on these comments, if that would be helpful.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Paul Troughton', with a long horizontal flourish extending to the right.

Dr Paul Troughton

Director of Regulatory Affairs