

May 16, 2017

Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 123

Reference: ERC0201

Sub: Directions Paper- “Five-minute settlement”.

Dear Sirs:

Wartsila is pleased to make this submission in response to the Directions Paper published by AEMC on the ‘5-minute settlement’ rule.

Wartsila concurs with the Commission’s view that *“Five minute settlement provides an improved price signal that would be technology neutral. It would promote productive, allocative and dynamically efficient outcomes by encouraging efficient operation in generation, use of energy services, and innovation and investment in an appropriate amount of flexible generation and demand response technologies. The result would be a more efficient mix of generation assets and demand response technologies over time leading to lower supply costs. This will benefit consumers as reduced wholesale electricity costs flow through to retail prices.”* This is also consistent with our submission made to you in August 2016 in response to your “Consultation Paper National Electricity Amendment (Five Minute Settlement) Rule 2016.”

We also note the Commission’s concern that *“... a move to five minute settlement would potentially result in an initial reduction in the supply of cap contracts, a risk management product that retailers and large energy users use as protection against high spot prices. Under 30 minute settlement, gas peaking generators can offer and physically defend these caps. With five minute settlement, there is uncertainty as to whether these generators will be able to defend and offer the same volume of these contracts. Based on independent advice, it is estimated a move to five minute settlement could decrease the supply of caps by 23 per cent, corresponding to a reduction of 625 MW in the volume of cap contracts that would otherwise have been traded.”*

Wartsila would like to submit that their technology solution addresses these concerns effectively and mitigates the risk to a substantial degree. While we had made these points in our earlier submission against the Consultation paper, we don’t see them fully reflected in the Directions paper, and therefore we would like to reinforce the following points:

- 1) It is true that the legacy system that relies on open-cycle gas turbines will be impacted by the rule change, as it lacks the ability to respond within 5 minutes. However, this cannot be an argument against the rule change, as the basic driver is the clear and growing need to align the generation and demand in the system in real-time. Given

this imperative, the right question to ask is not “How can we enable incumbent technologies to continue to run profitably?”, but “How can we bring in and incentivise the appropriate technologies that would meet our future needs?”

- 2) Switching over to a 5-minute settlement time would require the support of a technology that can respond and despatch full output within the 5-minute interval, and stop instantly when the high-price event has passed. This is precisely what IC-engines are capable of. And it can do so any number of times without imposing any maintenance penalty. If introducing this fast-response technology would phase out incumbent slower-response plants, it should be viewed as a natural and desirable evolutionary process.
- 3) Equipped with such plants that can respond from standby mode to full output within 5 minutes, generators will be able to offer cap contracts for energy users secure in the knowledge that these are backed up by physical hedging. The concern that *the 5-minute settlement would potentially reduce the supply of cap contracts* will thus not arise at all.
- 4) The central premise of the consultant’s (Energy Edge) report on the impact of “5-minute rule on financial markets” which is referred to in the Direction Paper is that “...under the proposed rule change, our modelling suggests that these generators would capture a reduced amount of value from the spot market due to their inability to respond as quickly as needed. This reduced physical ability to capture high spot market pricing is likely to result in those generators reducing the volume of caps that they are willing to sell”. As explained in Point 3 above, IC Engine plants would remove this premise completely.
- 5) Scale and size of IC Engine plants based on medium-speed engines, such as the ones Wärtsilä offers, should not be confused with diesel generators which are much smaller in size. Wärtsilä’s IC Engine plants based on a modular design can be scaled up to any size. Plants of sizes 100-300 MW are quite common, and would be ideal for NEM. . A reduction of 625 MW in the volume of cap contracts that the Directions Paper is concerned about can be comfortably made up by installing such plants.

It is observed in the Direction paper that “...the economics of new types of fast response and flexible technologies is constantly improving, but they do not currently supply electricity on a significant scale. It is unclear whether such new technologies could be a new supply source for cap contracts.”. This observation was perhaps made keeping batteries and emerging technologies in mind, but the concern need not exist in the case of IC Engines. It is a fully-proven technology that has stood the test of time in many plants of significant scale around the world. Unlike batteries which have finite despatchability linked to charging cycle, IC Engine plants can run for any length of time and despatch desired output.

- 6) We note that the Commission is of the view that the transition period for effecting the rule change must be 3 years. This, in our view too, is a comfortable time frame for generators to invest and install in fast-response plants, as Wärtsilä can typically set up plants of sizes 100-300 MW plants in 15-18 months. These plants would be a great asset in the overall portfolio of the gentailer and, by maximising the opportunities for deployment, would ensure higher returns.

To summarise, IC Engine technology would help NEM make the transition to the 5-minute rule and enjoy the benefits that it would bring, without any concerns whatsoever about a possible reduction in cap contracts.

We would be happy to invite you to any of our installations around the world, especially in the USA, to demonstrate the fast-response characteristics of our plants and the value their flexibility adds to modern systems with a high degree of RE penetration and volatility.

Thank you.

Yours Sincerely,



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