



20<sup>th</sup> July 2022

**ENERGY SECURITY BOARD**

Email: [info@esb.org.au](mailto:info@esb.org.au)

**Re: Response to Capacity Mechanism High-level Design Paper**

Wärtsilä welcomes the opportunity to provide comments on the consultation paper for the proposed Energy Security Board (ESB) capacity mechanism.

Wärtsilä is a global leader in advanced technologies and complete lifecycle solutions for the marine and energy markets. Wärtsilä's net sales totalled EUR 4.8 billion in 2021. The company has operations in over 200 locations in more than 70 countries worldwide.

We have been working with customers worldwide and supporting them with advanced power system modelling based on an in-depth understanding of the energy industry. The energy transition is rapidly changing the landscape of power production. In future energy systems, renewables will be the new baseload, and this has significant consequences for how other forms of generation will be run and dispatched. This is greatly relevant to the NEM's system, as it is estimated that 122 GW of additional wind and solar will be required by 2050. Increasing penetration of variable renewable technologies in grids creates a greater need for dispatchable technologies with a high level of flexibility to operate as load followers, complement the retirement of aging plants, and provide the needed ancillary services.

We fully agree with the proposal from the ESB to allow all resources contributing to capacity requirements to participate in the capacity mechanism and not to limit the participation to new resources only. By doing so, the system can utilize all the resources available (including existing flexible generations and battery energy storages), avoid increasing consumers costs, and reach an optimal technology mix. We would like to further comment on the approach to include the assessment of flexibility parameters of technologies. For the capacity mechanism to work as intended, the incentives should encourage investment in technologies that complement the future renewables-based grid. Flexibility parameters (for example, start-up times, ramping rates, part load capabilities, minimum stable load, minimum up and down times, and so on) should either be the operational requirements to gain access to the mechanism or be rewarded through tiered compensation with higher capacity fee.

We also agree with the recognition of the de-rating factor as an essential element in the process to assess both existing technologies in the NEM (National Electricity Market) and new or emerging ones for their expected contribution to reliability. While there are already different de-rating factors for different technologies, we would like to suggest having a further breakdown on gas-

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fired generation, given the difference between internal combustion engines and industrial gas turbines for example.

Wärtsilä Energy offers a portfolio of ultra-flexible internal combustion engine (ICE) power plants of up to 600 MW and utility-scale battery energy storage system (BESS). As of 2021, Wärtsilä has 74 GW of installed power plant capacity in 180 countries around the world. We have delivered 110+ Battery Energy Storage systems with over 2 GW/ 2.5GWh capacity. Our short-duration battery energy storages can balance the day-to-day intermittency the renewables bring to the power systems, and flexible ICE power plants can provide firm and dispatchable capacity for a longer duration balancing of the renewables. Highlights of our ICE power plants include:

- Ability to start and ramp to full load within 2 minutes (5 minutes for larger units)
- Minimal impact of high ambient conditions on performance
- Not limited by the duration
- High plant availability due to multi-unit configuration

Furthermore, our ICE power plants can run on gas, liquid fuels, and hydrogen blends and include models optimized for baseload to peaking and reserve provision. This makes Wärtsilä's ICE plants future-proofed, as they can change their operational regime and fuel, depending on the evolving system conditions. Currently, rising renewables in Australia increase the need for flexibility, which we strongly believe can best be provided by the ICE, amongst gas technologies. AGL's 211-MW [Barker Inlet power station](#) in South Australia, with Wärtsilä 50DF internal combustion engines, is already demonstrating this.

We thank the Energy Security Board for this opportunity to provide feedback.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Suraj', with a horizontal line underneath.

**Suraj Narayan**

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Wärtsilä Energy

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