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Submissions
Electricity Authority
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RE: Future security and resilience (FSR) – Phase 2 draft roadmap

Nova Energy (Nova) is pleased that progress is being made in preparing the electricity market for growth in intermittent electricity generation, both embedded and grid connected. As an industry we need a strategy like this to lead change over the coming decades. Given the critical nature of this work it is important that the governance of the project is effectively established from the outset.

Nova recognises that the System Operator (SO) has a critical role in ensuring that the power grid performs up to expectations, and as such has a major interest in the technical requirements (requirements) set to ensure this is achieved. The requirements placed on different types of generation and demand response will have a significant impact on both the economics of new projects and the operational modes of existing ones. Such requirements are therefore expected to influence the make-up of the generation market and uptake of distributed energy resources (DER).

Given that the SO has no accountability for the costs or delays that generators and DER aggregators experience in joining the market, there is a real risk that connection requirements designed and coordinated by technical experts from within the SO alone will ultimately lead to a more expensive electricity market. Nova therefore believes that the Electricity Authority (Authority) needs to be far more actively engaged in determining the technical Code requirements of the market than is apparent in the work to date; this includes the development and implementation of the Roadmap.

Alternative solutions are possible

As an example, under FSR 1.1 there is a proposal to 'enhance wholesale market dispatch capability to accommodate DER'. The approach assumes that centralised dispatch of DER is the efficient outcome despite no certainty that this is necessary. Wholesale market outcomes are one source of value for DER owners, but not necessarily all. Centralised dispatch requires accounting for the physical network constraints for both transmission and distribution networks and the SO does not have visibility of the latter.

As an alternative, the system could be designed to give Distribution System Operators (DSOs) greater accountability to manage the expected net demand, security, stability, and resilience at the distribution level. Such a disaggregated market structure may be uncomfortable for the 'central planner', but it would be beneficial to consumers if it leads to greater accountability at the distributor level, providing an incentive for local initiatives and greater innovation.

Market signals are important

Challenges, such as a need to make up for a relative drop in system inertia (FSR 5) is not an immediate priority given the existing generation mix, but it is important for parties to understand the financial implications of their preferred technologies when planning new generation projects. For instance, it may eventually be appropriate for inverter based resources (IBR) to contribute financially to support spinning resources, such as geothermal generation, synchronous wind turbines, or

alternative solutions such as synchronous condensers. Such potential costs need to be signalled early if the best mix of generation sources is to be achieved in the long term.

The SO's perspective is important, but so is that of other market participants

An example of this is in sections 2.1 – 2.4 of the Roadmap, which refer to establishing and managing the potential impacts of DER. Nova has no issue with this being addressed but has concerns that the Roadmap has this piece of work being viewed almost entirely from the SOs perspective.

Similarly, in paragraph 2 on page 7 of the Roadmap in reference to the various initiatives underway: 'Transpower will consider these, including the potential for 'win-win' outcomes in phase 3...' While the Authority retains control of any changes to the Code, under the existing terms of the Roadmap the Authority appears to be devolving excessive influence to the SO in determining the potential future make-up of New Zealand's electricity market.

The same focus is also illustrated under FSR 3: 'To ensure optimal assessments of the impact of connecting DERS and optimal connection processes thereby ultimately ensuring that the power system operates securely, and market outcomes are efficient'. It is acknowledged in FSR 3 that Asset Owners will be impacted by connection processes, yet there is no mention of Asset Owners having a role in their development.

Market based solutions have a role

The disadvantages of intermittent renewable generation are well understood, and it makes sense to look at potential solutions to maintaining security of supply in this context. Proposals under FSR 4: Balancing renewable generation, to add 'new or revised ancillary services to maintain balancing' will have important market implications for generators, retailers, major consumers and providers of DER and demand response. As such, any proposed initiatives will need wide market acceptance and more input than just the technical aspects that are the focus of the SO. It may also be found that retaining existing thermal peaking capacity for an extended period may be more cost effective (inclusive of carbon costs) than giving priority to creating new market mechanisms. The approach outlined in the Roadmap seems to preclude such possibilities.

The Authority must be directly involved in implementing the Roadmap

To conclude; the draft Roadmap makes a good job of addressing the technical issues expected to impact future operation of the grid. However, given the impact that connection requirements have on the economics of new generation projects and DER, the Roadmap needs to consider more than just system stability. Generation and DER developers need requirements and expected costs signalled well in advance. As such, the priorities in the Roadmap need to consider the relative cost impacts of alternative ways of addressing the same requirements and signal requirements well in advance of their implementation.

Given the wider market dynamics are effectively out of scope for the SO, the Authority must be more actively involved in setting connection standards and parameters determining the operation of the Grid. This means being more directly involved in the implementation of the Roadmap than is apparent in the draft. To do this, the Authority may need to build on its technical expertise and engage directly with the SOs technical advisory service, rather than relying on the SO to determine its own priorities.

Yours sincerely



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