



1 March 2024

Submissions  
Electricity Authority  
P O Box 10041  
Wellington

Via email: [operationsconsult@ea.govt.nz](mailto:operationsconsult@ea.govt.nz)

Dear team,

**Re: Consultation Paper – potential solutions for peak electricity capacity issues**

NewPower Energy Services Ltd subsidiary Infratec NZ Ltd appreciates the opportunity to make this submission on the Electricity Authority's (Authority) consultation on potential solutions to address peak electricity capacity issues.

NewPower is a subsidiary of WEL Networks Limited, New Zealand's sixth largest distributor. NewPower subsidiary Infratec NZ Ltd developed and commissioned NZ's first utility scale battery energy storage (BESS) facility at Huntly, connected to WEL Networks' distribution assets. By way of context for this submission, NewPower is the operator of this new 35MWh rated BESS which will operate within both Network and Grid compliance modes, and so can offer a range of network, transmission and energy market services within NZEM's wholesale market dispatch compliance rules. This BESS is already contracted to the System Operator as an ancillary service agent for instantaneous reserves.

**Problem definition**

We note the Authority's consultation paper is focused on the management of 'capacity' issues. This is defined as "*Capacity, which refers to the availability of generation and transmission assets to meet peak electricity demand at any point in time.*"<sup>1</sup> Further, the Authority has concluded "*In simple terms, there is not enough capacity available to be delivered to ensure electricity supply meets demand*".<sup>2</sup>

We agree the Authority should be incentivising more investment in controllable generation supply and energy storage.<sup>3</sup> Intermittent generation plant can be controllable if co-located with an energy storage system and market dynamics could incentivise this co-location.

However, NewPower disagrees with the Authority's conclusion that "*the underlying cause of the occasional mismatch between demand and generation resources at peak times is an investment timing issue*"<sup>4</sup> We discuss this below.

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<sup>1</sup> Page 3 of consultation paper

<sup>2</sup> Page 4 of consultation paper

<sup>3</sup> Paragraph 4.2, page 25 of consultation paper

<sup>4</sup> Paragraph 4.1, page 25 of consultation paper

#### **Authority's focus on improved market participation for BESS in the short-term (Q.4)**

WEL and NewPower support the Authority focusing its resources on identifying and lowering BESS and demand side flexibility to participate in the wholesale and ancillary services markets.

We agree with the Authority that improved market participation by BESS and demand response is the best solution that can be implemented in the short term and improve matching of demand and supply in Winter 2024 and beyond.

NewPower suggests the Authority apply resourcing to each of BESS and demand response to undertake this work in parallel, and not sequentially.<sup>5</sup> We strongly recommend the Authority focus FIRST on identifying and lowering the barriers for BESS participation in the wholesale and ancillary services markets. Amending the Code to solve the issues the Authority has identified<sup>6</sup> for BESS is a no-regrets Code amendment that can be implemented in the next few months before Winter 2024 and will continue to deliver benefits for NZ consumers over the long term. BESS can provide capacity to meet the near-term mismatch and system co-ordination issues the Authority is attempting to address.

The participation methods for BESS in the wholesale and ancillary services markets are currently very complex which requires a great deal of effort to ensure that bids and offers are consistent.<sup>7</sup> The Authority should not underestimate that this effort and the associated cost will be a formidable barrier to entry for smaller scale BESS.

There are also many other entry barriers for BESS outside the wholesale and ancillary services markets that will impact the timing of investment in energy storage systems. These barriers are associated with transmission grid capacity, distribution network capacity, transmission and distribution pricing, retailer charges, and contracts. We understand these other barriers on the Authority's work programme but on a slower track which will impact the timing of investment in energy storage systems.

While not considered in the consultation paper, one significant barrier to distributed BESS and distributed generation uptake is the arms-length ownership requirements of Part 6A. The way in which BESS and other distributed generation is assessed towards an ownership limit has a very strong impact on barriers to entry. As set out in our submission to the omnibus consultation<sup>8</sup>, we consider the contributions of BESS and other distributed generation to the ownership limit should be calculated on an annual energy generated basis and assessed against thresholds in proportion to the size of the distribution network.

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<sup>5</sup> Improving participation of demand response or flexibility is more complicated. One example of this is the reaction of submitters to the Authority's proposal to change the discretionary demand Code relating to distributors.

<sup>6</sup> Paragraphs 4.3 – 4.11, page 25-26 of consultation paper

<sup>7</sup> NewPower is open to confidentially discussing our experience in more detail with the Authority.

<sup>8</sup> WEL Networks Ltd [submission](#) 9 February 2024

## Market prices indicate peak capacity issues will persist

NewPower disagrees with the Authority's conclusion that *"the underlying cause of the occasional mismatch between demand and generation resources at peak times is an investment timing issue"*<sup>9</sup>.

The Authority states: *In the long-term [5+ years], this mismatch can only be solved with more investment in controllable generation capacity, energy storage or more price-responsive demand control.*<sup>10</sup> We query whether this new generation investment will turn up.

NewPower notes in the 2023 Generation Investment Survey update<sup>11</sup> Concept Consulting suggests investment in new renewable generation capacity will continue to lag growth in demand. Concept back calculate what 2027 ASX prices imply about whether new generation capacity will keep up with demand. Current ASX prices imply market expectations that thermals will be supplying 1,100 GWhs of the 2,700 GWhs increase in demand in 2027. That is, generation with an annual output of ~1,600 GWh will be built by 2027. In other words, 1,100GWhs, or 40%, of the increase in demand can not be meet by new generation capacity so thermals must continue to be available.

We acknowledge Concept's analysis is of total, not peak, demand but Transpower's analysis shows peak demand is growing faster than total demand – with this growth most obvious since the regional coincident peak demand (RCPD) signal was removed from transmission pricing.

In our view incumbent generators are financially incentivised to keep supply tight. It's not clear any of the Authority's potential solutions will address this commercial reality. The incumbent generators share of committed projects over 2023-2027 is 80%<sup>12</sup> when their current market share is ~93%.<sup>13</sup> If all these committed projects are commissioned it will make a marginal impact of 1-2% in their generation market share.

## Financial incentives to provide flexibility (Q.6)

NewPower agrees that financial super peak hedges are required – and urgently. Access to these products will enable participants to contract for capacity to be generating during these peak periods. However, liquidity can only be assured if there is mandatory market making for these products.

NewPower notes that the value of lost load and some of the payment prices mentioned in the consultation paper are very significantly above the financial incentive to reduce peak demand / increase distributed generation output during RCPD periods under the previous TPM. For example, the same load distributors used to reduce transmission charges is now defined as discretionary demand / load control in the Code and included in the dispatch schedule at \$9,000/MWh with an average of 167MW being available.<sup>14</sup> The RCPD interconnection rate was \$96.89/kW or \$0.048/MWh in 2022/23.<sup>15</sup> Transpower estimated this incentive stimulated over

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<sup>9</sup> Paragraph 4.1, page 25 of consultation paper

<sup>10</sup> Paragraph 4.2, page 25 of consultation paper

<sup>11</sup> See page 25 Concept Consulting 2023 [Generation Investment Survey](#) update

<sup>12</sup> See page 47 Concept Consulting 2023 [Generation Investment Survey](#) update

<sup>13</sup> Source: EnergyLink Energy Trendz [Weekly report](#)

<sup>14</sup> Paragraph 21, page 4, Electricity Authority '[Lessons from winter 2023 and preliminary outlook for winter 2024](#)'; 12 January 2024

<sup>15</sup>

[https://static.transpower.co.nz/public/uncontrolled\\_docs/Rates%20Table%20April%202022.pdf?VersionId=t2XG4f7cSu9GIWHknCI2v8GZBH5Fqrhk](https://static.transpower.co.nz/public/uncontrolled_docs/Rates%20Table%20April%202022.pdf?VersionId=t2XG4f7cSu9GIWHknCI2v8GZBH5Fqrhk)

1,200MW per annum of combined demand response and distributed generation to reduce peak demand.<sup>16</sup> While RCPD periods might not coincide with periods of tight peak capacity – both all of these price signals seek the same outcome – to reduce peak demand.

### **Winter capacity margin test (Q.1)**

NewPower agrees with the theoretical principle that the winter capacity margin should be based on the trade-off between the cost of the hours of reserve or energy shortfall and the cost of the peaking generation needed to mitigate it.

We note consultation paper explains<sup>17</sup>:

“2.11 The national cost-benefit analysis presented in these standards determines that up to 22 hours per annum of energy or reserve shortfall (as a result of a capacity shortage) is economic before additional investment in peaking generation is warranted. It should be noted that a reserve shortfall can occur without directly impacting consumer supply.

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2.13. In the first 10 months of 2022, there were 2.25 hours of reserve or energy shortage. In 2021, during which load was disconnected on 9 August, system operator reports indicate there were 6 hours of shortage in total. There were no periods of reserve or energy shortage from 2018 to 2020.”

NewPower supports the Authority undertaking a review of the standards, last reviewed in 2017 when no change was made. However, the highest priority should be for the Authority “*to focus on improved market participation for demand response and BESS in the short-term*”.<sup>18</sup>

Please contact me if you want to discuss any of this submission in more detail. It would be useful for the Authority to publish its decisions relating to this consultation paper as soon as practicable and timeframes for implementing its decisions.

Yours sincerely



Grant Smith  
Chief Executive  
NewPower Energy Services Ltd  
Infratec NZ Ltd

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<sup>16</sup> Page 18

[https://static.transpower.co.nz/public/uncontrolled\\_docs/TP\\_Sub\\_2nd\\_Issues\\_Paper\\_and\\_CEO\\_letter\\_26%20July2016.pdf?VersionId=rcklIQatzQh7HisxNZUI4QDc.R1vniidu](https://static.transpower.co.nz/public/uncontrolled_docs/TP_Sub_2nd_Issues_Paper_and_CEO_letter_26%20July2016.pdf?VersionId=rcklIQatzQh7HisxNZUI4QDc.R1vniidu)

<sup>17</sup> Page 12-13 of consultation paper

<sup>18</sup> Heading of Section 4 of consultation paper