1 March 2024

Electricity Authority
Level 7, Harbour Tower
2 Hunter Street
Wellington
6142
New Zealand

Alpine Energy Limited's submission on the Electricity Authority's consultation paper on potential solutions for peak electricity capacity issues

Overview

1. Alpine Energy Limited (**Alpine Energy, we, our**) would like to thank the Electricity Authority (**the Authority**) for the opportunity to submit on the consultation paper regarding potential solutions for peak electricity capacity issues, dated 12 January 2024 (**the consultation paper**).

2. Our submission does not include any confidential information and we do not require any redaction (including signatures) before publication by the Authority.

3. We have added our responses to selected questions in Appendix A. We trust that the information we have provided will assist the Authority in its work programme.

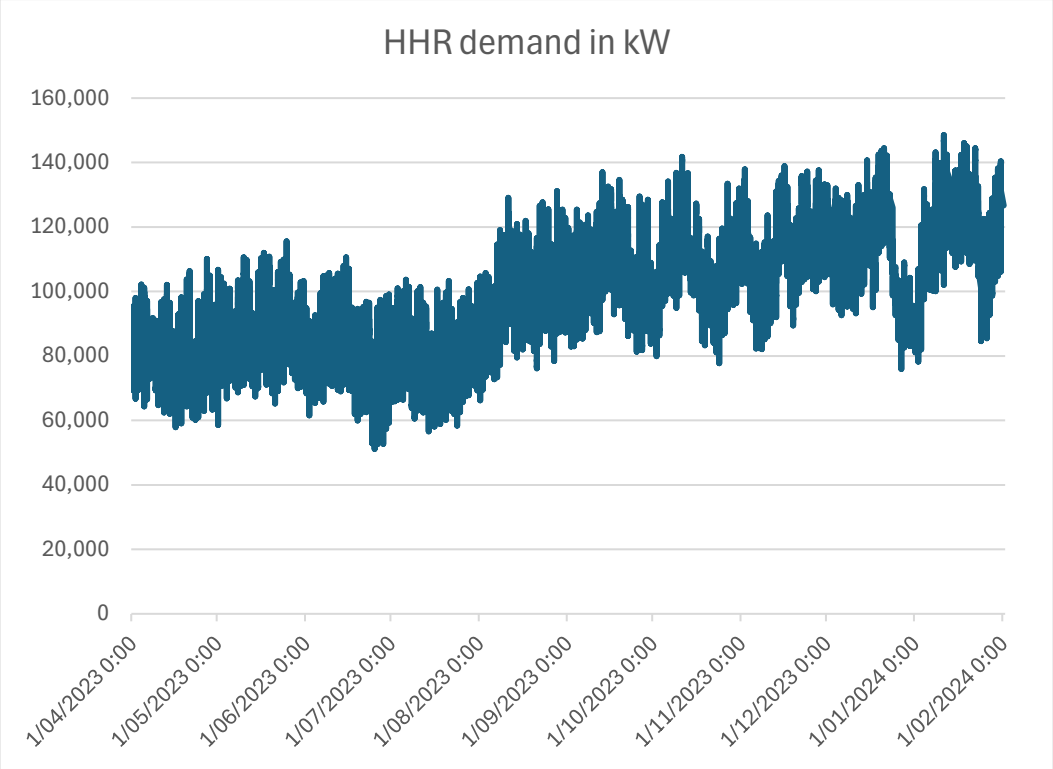
4. We acknowledge the focus of the consultation paper is to consider potential solutions to support the physical supply of electricity to meet peak capacity, especially in managing peak winter electricity demand. However, due to our geographic area and the demands on our network, we wish to present a view that is different to some of the other Electricity Distribution Businesses.

5. We note the Authority's current consultation paper on the future operation of New Zealand's power system and the possible challenges and opportunities in the power system's transition to a net zero future. We support the joined-up long-term thinking evident in this consultation paper. We would ask that the Authority applies the same approach to solutions for peak capacity issues and, in its long-term planning, consider solutions for both summer and winter peak demand.

6. Due to high irrigation loads in summer, we experience peak summer demand rather than peak winter demand. Figure 1 below shows our half hourly (**HHR**) demand from 1

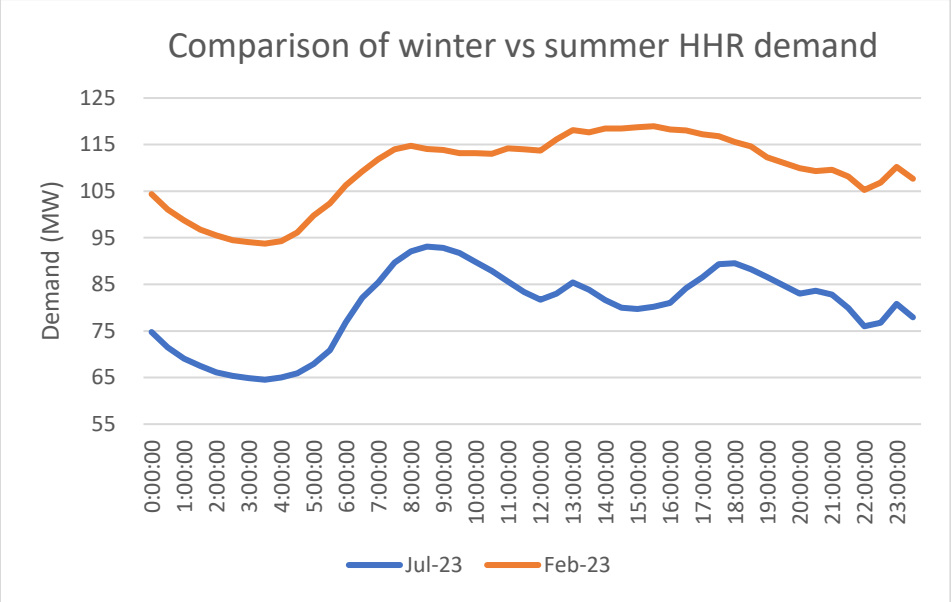
April 2023 to 1 February 2024. Due to a dry winter and a hotter-than-usual summer in July and August in South Canterbury, the soil temperatures rose, resulting in irrigators starting to irrigate as early as August. As we continue to see the impacts of climate change, we expect that relying on historical irrigation demand patterns for forecasting future demand will become less dependable.

Figure 1: HHR demand April 2023 – February 2024



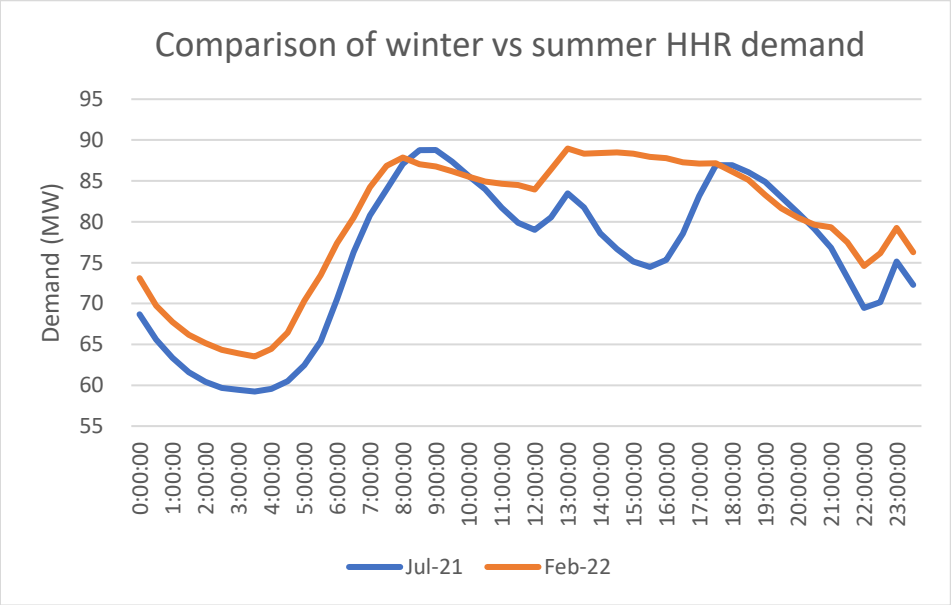
7. Analysing our historic HHR data, we have been able to identify two periods. One that represents summer peak demand (February) and another that represents winter peak demand (July). Figure 2 compares the HHR demand for the two periods. It is clear from our analysis that there is a considerable difference between the HHR demand in summer and the HHR in winter. We used the same data set for Figure 2 as for Figure 1.

Figure 2: Comparison of winter versus summer HHR demand, February 2023 & July 2023



8. There are exceptions to the above. During 2021 and 2022 South Canterbury experienced high levels of rainfall. This led to a decrease in the irrigation load which is illustrated in Figure 3 below. Our network came close to presenting a winter peak demand. The last time we saw similar demand patterns was between 2011 and 2012.

Figure 3: Comparison of winter versus summer HHR demand, July 2021 & February 2022



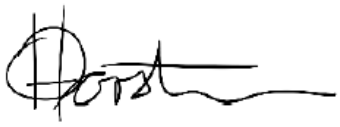
9. As industries decarbonise and the demand for electrification grows, we expect to see further increases in total network demand, causing higher peaks on our network. We acknowledge that nationally peak summer demand is more than 10% lower than peak winter demand. Planned maintenance outages by generators and Transpower generally take place during the summer months due to a decrease in demand for electricity during this period. However, this has a significant impact on our network due to our summer peak.

10. Unscheduled outages also lead to capacity constraints. In late 2023, one of Transpower's transformers at the Studholme GXP experienced a fault which meant we had to control irrigation load using ripple channels. We operated on an eight-hour period balancing load to ensure we remained within the peak limits set by Transpower. This was after all other controlled load (hot water) was also switched.

11. As part of seeking solutions for peak electricity capacity issues, we would ask that the Authority consider solutions for both summer and winter peak demand as there could be an increase in the frequency of capacity-related issues during the out-of-winter period.

12. We hope our submission is helpful to the Authority. We are happy to discuss our views with you further if you would find it useful to do so or provide any additional information to further support our views.

Yours sincerely,



Marisca MacKenzie
Chief Regulatory Officer

Oscar Horstmann
Regulatory & Corporate Advisor

Appendix A

	Question	Alpine Energy Limited's response/commentary
1	Do you agree with the 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? Do you have any other suggestions on factors the Authority should consider and why?	Alpine Energy agrees in principle that the winter capacity should be based on the trade-off as identified in the consultation paper. Although the security standards were reviewed in 2017 and no changes were made, there is merit in the Authority regularly reviewing these standards as the demand for decarbonisation and electrification places greater stress on the national grid. Further, any planned work by Transpower is at risk of delays influenced by factors such as a shortage of a skilled labour force. Also, as the Authority pointed out high levels of reliability in the security of supply should be weighed against the cost to the consumer, especially in today's economic climate.
2	Do you agree with our assessment of the incentives for demand response? If not, what is your view? Are there other criteria that the Authority should consider?	Yes, irrespective of direct or indirect exposure to spot prices, the market price is an effective signal to consumers to adjust demand.
3	Other than financial incentives, what are the other barriers to entry for demand response participation in the wholesale market that you have identified?	• Consumers could be slow to respond to changing market signals which reduces the effectiveness of these signals. • The system in place to incentivise demand response is too complex for consumers to understand discouraging participation. • A lack of information on demand response incentives by consumers.
4	Do you agree that the Authority should focus its resources on identifying and lowering barriers for BESS and demand side flexibility to participate in the wholesale and ancillary services markets? If so, where do you think the Authority should focus first?	Only if the Authority can do this in a low-cost environment. The Authority should focus on identifying and lowering barriers for BESS before focusing on demand side flexibility.

	Question	Alpine Energy Limited's response/commentary
5	Do you agree that any solutions should satisfy these principles? If not, what is your view and why? Are there other principles that the Authority should consider?	The principles identified in the consultation paper lay a good foundation to progress the implementation of a market integrated solution. However, any solution will require additional consultation which will further refine these principles.
6	Do you agree that a standard product for financial 'super peak' hedges is required?	We do not believe there is an immediate need for such a financial product. This should be considered a long-term solution rather than accelerating the introduction of such a product.