28 September 2021

Electricity Authority
Level 7, Harbour Tower
2 Hunter Street
Wellington

Dear Dr Brauford

Alpine Energy Submission: Updating the Regulatory Settings for Distribution Networks

Alpine Energy Limited appreciates the opportunity to make a submission to the Authority's discussion document on "Updating the Regulatory Settings for Distribution Networks".

Alpine Energy acknowledges it has a role to play in helping New Zealand becoming Carbon Neutral

Alpine Energy recognises the emission and renewable energy aspirations of the Government and the active support role that Alpine Energy will play to in order to achieve them.

There is no hesitation that flexibility services and distributed energy resources, will deliver benefits to consumers in the coming decades, with the electricity sector adapting to facilitate with the transition to a low carbon economy.

Alpine Energy is actively working to prepare for the ramp-up of Distributed Energy Resources, and the introduction of flexibility services by developing plans, a roadmap, and taking a pragmatic approach to making investment decisions.

Alpine Energy's preparations for the future of the electricity system, is being guided by industry best practice and collaboration within the sector as well the Network Transformation Roadmap developed by the Electricity Network Association in 2017.

Flexibility services are currently in the initial stages

A progressive mind set is required as highlighted in Sapere's analysis, benefits are most likely to accrue post 2035. Therefore, there is time as an industry to learn, adapt and respond appropriately to developments in this space, and the evolution of flexibility services as a whole.

An Equal Access Report was published by IPAG in April 2019 after the Electricity Authority requested this be added to IPAG's work plan. The report was aimed to provide a review, and options to strengthen the equal access framework, to further promote competition, reliability and efficiency in the provision of electricity and related services.

As summarised, “equal access to transmission and distribution networks by parties wanting to use those networks and to buy or sell services made possible through coordination of distributed energy resources”.

There is a role for Electricity Distribution Businesses to collaborate and assist with the progress and development of an equal access platform:

- A Distributed Energy Resources market will require more visibility of the performance of the low-voltage networks, with a forward looking lens as well as the current status. This will allow distributors to manage the reliability with a greater penetration of Distributed Energy Resources, and would allow distributors better visibility of the needs of third parties to support the network.
- Distributors will require talent and resources to keep up with the greater demand of analytical ability of systems and individuals development.
- Regulators to strengthen incentives to support the building of a Distributed Energy Resources services market
  - Distributors have access to low voltage data in their usual business activities
  - Distributors have appropriate incentives for the additional effort and costs
  - Working with a collaborated approach to encourage positive change and monitoring

Alpine Energy is currently working with strategic partnerships to build capability and capacity, increase standardisation and reduce duplication efforts, in support of the industry’s evolution. Examples include:

- Collaboration with Industry leaders in both the electricity distribution and telecommunication sectors
- Collaboration with a metering company to develop common smart meter data analytics tools

Regulatory setting too recognise the developing nature of flexibility services

1. **Data access is a key barrier to visibility of low voltage networks**

This Network Transformation Roadmap progress report shows that limited progress has been made against the foundational action of obtaining greater visibility of low voltage networks via access to smart metering data. The sector has, aided by the Electricity Networks Association, exhausted significant effort to arrange access by working with retailers to develop an amendment to the Default Distribution Agreement Data Template, however this was not taken up by the Authority.

2. **Part 6 of the code , needs fundamental change to be fit for purpose**

Part 6 of the Code was introduced at a time when distributed generation was viewed as a negligible part of the electricity sector. Times have changed and if distributed energy resources, and flexibility services are to become a pivotal pillar of the industry, Part 6 needs a comprehensive overhaul including application processes, timings and fees as well as the distributed generation pricing principles.

3. **The sector is stringently regulated by Commerce Commission**

Alpine Energy as a non-exempt Electricity Distribution Business, expenditures and service levels are regulated by the Commerce Commission. As highlighted in recent responses to the Commerce Commission's Open Letter, flexibility and adaptability need to be increased in the regulatory regime.

4. **Engaging with regulators to ensure any regulation is evidenced-based**

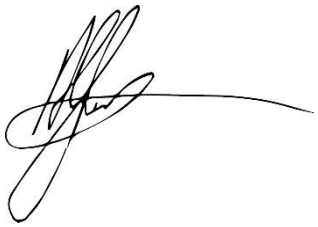
Alpine is confident as demonstrated with recent zoom meetings held with the Authority, that with open and honest engagement, the issues the Authority identified in its discussion paper can be dispelled:

- may be reluctant to innovate
- may unduly restrict technologies or network users
- may favour in-house or related party solutions
- seem to consider the use of flexibility services as difficult
- may favour network solutions
- may misallocate costs and revenues

Our responses to the substantive issues set out in consultation questions are set out in Appendix A below.

Please don't hesitate to get in touch with Alpine Energy if you'd like to discuss our submission. If you require anything further from Alpine, please contact Tarryn Butcher (Tarryn. Butcher@alpineenergy.co.nz, 0203 687 4395) in the first instance.

Yours sincerely,



Andrew Tombs
Chief Executive
Alpine Energy Limited

Consultation Question
Q.1 Have you experienced issues relating to a lack of information or uneven access to information?
The inability to access smart meter data in a timely manner, has the potential to be a greater barrier to the uptake of flexibility services and distributed energy resources than any other perceived sector barrier(s). Once a meter is installed, the Metering Equipment Provider effectively becomes a monopoly provider. Potential distributed energy resources and flexibility service providers, dealing with the quasi monopolies is a material barrier. Agreeing terms for data provision is a time-consuming process, and the lack of standardised and publicly available terms adds to this complexity as well as costs. Alpine Energy provides information on congestion in response to applications for connection. Alpine encourage potential applicants to engage with them prior to submitting applications.
Q.2 What information do you need to make more informed investment and operation decisions?
Operational and/ or investments decisions upstream of the Low Voltage network, are driven by detailed network studies and data sourced from SCADA and telemetry systems. This data is rich in detail and at a granular timescale. SCADA and telemetry systems for the monitoring of Low Voltage network(s) are not economical to install on a whole of grid basis. Alpine is currently not able to access information from smart (AMI) meters on reasonable terms from all metering equipment providers. The more granular the information on power quality, and the more types of power quality information that is available, allows us to better understand our Low Voltage network(s) and the more efficient and effective any interventions that are made will be. In addition, the real time 'operational' information from smart meters has the potential to unlock significant consumer benefits in the form of more efficient and effective responses to network faults. Smart meter data that is vital to ensuring that flexibility services are able to achieve their full potential : ➢ kWh (30/5min intervals) ➢ kVa (30/5min intervals) ➢ Voltage (30/5 min intervals, Max, Minimum, average) ➢ Power Factor (30/5 min intervals) ➢ Energisation status (5 min intervals) ➢ Last Gasp In addition to smart meter data, we will also need visibility of the type and scale of installed capacity behind the meter. There is therefore a "drop dead date" on realizing the benefits access to smart metering data can provide, and as a whole we should work with some resolve, to have suitable arrangements in place prior to the adoption of new technologies.

Q.3 What options do you think should be considered to help improve access to information?

Modern data exchange protocols combined with an efficient centralised API (for a predefined metering dataset kWh, KVA, voltage and frequency) with appropriated access control, could be a solution for improved access to information. This would deliver compliance with any future consumer data rights obligations while resolving an issue that has been source of endless frustration for the industry since the installation of the first smart meter 20 years ago.

Metering equipment providers be required to publish standing offer for the provision of the metering data parameters:

- kWh (30/5min intervals)
- kVa (30/5min intervals)
- Voltage (30/5 min intervals, Max, Minimum, average)
- Power factor (30/5 min intervals)

The Registry is the central repository for data on connections type, metering infrastructure and distributed generation. The data set could be expanded to include information about other types of distributed energy resources, including batteries and EV changing infrastructure.

Q.4 Have networks experienced issues from the connection or operation of DER?

Alpine Energy has not experienced any widespread or systemic issues arising from the *operation* of Distributed Energy Resources.

The *connection* of distributed energy resources is beginning to pose some significant challenges, and it would be sensible to review some elements of Part 6 of the Code, to ensure these are still fit for purpose.

Q.5 Do the Electrical (Safety) Regulations require review? If so, what changes do you think are needed (a) in the near term and (b) in the longer term?

Yes, the Electrical (Safety) Regulations require review. The Ministry of Business, Innovation and Employment is undertaking a review of the Regulations.

Alpine defers to the views of the Electrical Engineers Association (EEA).

Q.6 Does Part 6 remain fit for purpose? If not, what changes do you think are needed (a) in the near term and (b) in the longer term?

Alpine Energy welcomes an appropriate review of Part 6.

Distributed Generation applications have increased substantially. The time, resources, planning and modelling detail required to properly assess applications of this scale are not aligned with the fees and timings attached to the existing Part 6 application process.

Briefly, the issues encountered as associated with the connection of distributed energy resources under Part 6 are as follows:

- We are obliged to assess and respond to requests for connection in timeframes mandated by Part 6. For larger distributed energy resource connections, which are rapidly becoming much more frequent, this can pose a significant burden on the engineering and network design resources. Part 6 provides no ability to stagger or queue these connection requests, so in the cases where these overlap the burden on specialist resource is exacerbated.
- Related to the point above, sometimes connection applications received in succession (but still within the connection assessment period) can relate to the same section of network, this is sometimes a feature of the 'race for capacity' that we are increasingly seeing related to grid-scale solar.

The costs incurred to assess and design connections for distributed energy resources of this scale can be significant. In almost all cases these costs greatly exceed what can be recovered from the connectee, therefore these connections are subsidized to a large degree by Alpine Energy.

The connection process should also be amended that requires that distributed energy resources information is recorded in the registry at the time of the installation. This would require the development of connection process for ESS and EVs and their inclusion in definitions of Distributed Generation.

Q.7 Is there a case to be made for minimum mandatory equipment standards for Distributed Energy Resources equipment, specifically inverter connected Distributed Energy Resources?

Yes, standards are important. However, consideration must be given to ensuring that regulation can keep pace with changing technologies. Recent experience with inverter standards has demonstrated that the inclusion of specific standard (i.e. AS/NZS 4777) in the Code can lead to misalignment between the Code and national standards.

Q.8 What standards should be considered to help address reliability and connectivity issues?

The Code provision relating to invert standards should be amended to incorporate the power quality response modes set out in the relevant standard (AS/NZS 4777).

Q.9 Is there a case to look at connection and operation standards under Part 6 with a view to mandating aspects of these standards?

The mandating of standards would provide little in the way of additional standardization and risk.

Q.10 What flexibility services are you pursuing?

Alpine Energy is pursuing flexibility services, where appropriate, to support the reliable and safe operation of the network. This includes procurement processes that seek out to include flexibility services as non-network solutions and the use of energy storage systems to support network stability.

Q.11 Are flexibility services being pursued through a competitive process?

No currently, but consideration will be awarded.

Q.12 What options should be considered to incentivise non-network solutions?

An extremely limited innovation allowance is provided by the Commerce Commission. This limited funding is hard to access and has stringent conditions attached. A combination of these factors has resulted in extremely limited uptake of the funding

International experience in the UK and Australia has demonstrated the value in properly funded and coordinated trials. These trails allow networks and flexibility service providers to test technologies and business model, which in early stages may not achieve the net benefits expected under the Commerce Commission's expenditure oversight regime.

Q.13 What options would encourage competitive procurement processes for flexibility services?

The Information Disclosure regime requires that all significant related party transactions are disclosed and audited for probity.

Q.14 Have you experienced difficulties with negotiating operating agreements for flexibility services?

Alpine had not experienced any difficulties to date.

Q.15 Are the transaction costs of developing contracts a barrier to entering the market for flexibility services?

The cost of contract development is not a material barrier to flexibility services.

Q.16 Would an operating agreement help lower transaction costs and level negotiating positions?

As flexibility services is currently still in its very early stages, designing a standard operating agreement would be exceptionally difficult, costly and time consuming.

The Default Distribution Agreement process has shown even for a mature service the time and resources that go into their establishment is significant. The risk profile of flexibility services is very different to that of the traditional retail service covered by Default Distribution Agreement.

Q.17 What kind of operating agreement would address the issues described in this chapter?

Tailored operating agreements are appropriate given the early stages of flexibility service offerings.

Operating agreements will need to be adaptable given the wide range of services and technologies that fall under the flexibility services umbrella.

There may be some benefits in guidance being developed for operational agreements for common types of flexibility services. However, the cost involved may outweigh the benefits.

Q.18 What are distributors doing to ensure their network can efficiently and effectively manage the transformation of networks?

Alpine Energy is actively preparing the network to deliver on the energy transformation journey. Given the early stages of the transition Alpine Energy is focused on planning, analysis and making informed investments.

Q.19 How are distributors currently working together to achieve better outcomes for consumers?

Distributor have come together to address key challenges, including Smart Technology, resource planning reform, customer and community engagement and pricing reform.

As we plan for New Zealand's energy future, we are actively collaborating so that the full potential of Distributed Electricity Resources and flexibility services can be fully realised.

These collaborations include:

- South Island DSO and process heat initiatives
- Collaboration with SmartCo to develop common data analytics tools

Other areas where collaboration has had positive outcomes for consumers include:

- Storm and emergency response
- Efficiencies through shared services
- Cyber-Security Control Systems Security Information Exchange

Q.20 Could more coordination between distributors improve the efficiency of distribution?

We are working together, supported by the Electricity Network Association, to improve the efficiency of distribution and lay the foundations for a low carbon economy. We will continue to seek out collaboration opportunities to ensure we can continue to deliver safe, reliable and efficient distribution networks.