

17 May 2018

Submissions  
Electricity Authority  
PO Box 10041

**Wellington**

By email: [submissions@ea.govt.nz](mailto:submissions@ea.govt.nz)

**Consultation Paper – Enabling the system operator’s Dispatch Service Enhancement project**

Thank you for the opportunity to provide comment on the Consultation Paper above.

The consultation paper considers that replacing GENCO with alternate communications protocols would, amongst other objectives, increase competition by *“reducing barriers to market entry and participation, including for new technologies and business models.”* We are supportive of the objective to increase competition and the chosen alternate communications protocols, however there are important considerations for the detailed design which will determine whether the existing barriers to entry are actually reduced. Specific comments are given below.

For Contact’s response to the specific questions in the consultation paper please see Appendix 1.

1. We understand from discussions with Transpower that the intention is to make all dispatch products (including those related to security of supply such as Active Power and Interruptible Load (IL) for FIR and SIR) available over public-facing / internet web services. We are supportive of this approach. Were Transpower to only offer these products over private or dedicated communications channels the cost of implementation for participants aggregating customer distributed energy resources (like battery storage or hot water control) would likely become prohibitive. We also believe that a greater level of resiliency and redundancy can be developed using distributed platforms without being restricted to private and/or dedicated infrastructure channels.
2. We also understand from discussions with Transpower that a ‘threshold’ may be considered to limit the quantum of dispatch over public-facing / internet webservices. It is unclear whether such a threshold would be on a participant basis or at a system level. Any threshold should be commensurate with clearly identified risks, and we believe should be subject to further review once Transpower has more operational experience utilising public-facing / internet webservices for dispatch.
3. The detailed design would need to consider how a requirement for participants to use private web services or ICCP above a certain threshold would be administered in practice. If this approach was to be implemented, Transpower would need to consider not only the communications between Transpower and the market participants control systems, but also the communications between the market participants control systems and aggregated customer distributed energy resources. This raises a few key considerations:
  - a) If Transpower were to only mandate private communications between Transpower and the participant's control systems, the participant could continue to use public internet-based communications to control distributed energy resources. It is unclear in this situation what Transpower’s requirements are targeting, aside from imposing additional cost on the

market participants business, which may make the aggregation of customer distributed energy resources uneconomic.

- b) Transpower could additionally impose mandated requirements on communications between a market participants control system and its connected customer distributed energy resources. To meet a similar level of security as private communications between Transpower and the participants control system, this would likely require:
- (i) Utilising high-cost private LTE communications methodologies that limit the availability of technology choice to a relatively small number of devices. The majority of DER interfaces do not directly support LTE natively and so either wouldn't be supported or would require an additional modem making solutions cost prohibitive;
  - (ii) Utilising privately deployed narrow band networks require high concentrations of customers which would limit competition to incumbents that either already have deployments or could leverage those deployments across other use cases;
  - (iii) Limit deployments to large commercial and industrial sites where the cost of private connections can be justified.

Examples can be drawn from the IL market and distribution network hot water control:

- (i) Transpower requires IL participants to arm and disarm under frequency relays in real-time, to ensure that the participant meets IL dispatch instructions. However, Transpower does not impose any specific communications requirements between the participant's control systems and the customer loads/devices which provide the IL.
- (ii) Distribution networks, through the use of controlled load tariffs, effectively impose a proprietary, although not private, communications requirement by only enabling ripple control connected devices to provide and be remunerated for supplying the network service.

Additional hardware and/or communications costs which mandated requirements impose on customers will have an impact on the economics of market participation, and need to be weighed up carefully versus the need to maintain system security.

Using public internet infrastructure will require careful consideration of security and encryption for the both the communications between Transpower and market participants and market participants and the Distributed Energy Resources.

High levels of security and encryption, including dedicated virtual private network endpoints, are modern, commonly deployed standards for reasonably securing and authenticating communications between two known and dedicated endpoints. The higher complexity of connection can be justified given the ubiquity and standardization of the technology available especially considering that all communications will be server to server.

When considering only the market participant to distributed energy resources communications, a lower threshold is required to ensure the highest level of market participation. Currently, this is typically achieved through HTTPS communication layer which provides encryption from an arbitrary client to a dedicated host. The majority of distributed devices communications stack support HTTPS by default. VPN or other specialised encryption methods are not supported and would require further specialised equipment installed alongside the device to implement. For residential and commercial distributed resources, HTTPS is the only common encryption method that is currently supported across a large number of devices.

Furthermore, there is the downstream platform integrations between market participants and vendor platforms that control, manage and aggregate DERs. These cloud to cloud integrations, which are already deployed by Contact, would be impossible to secure using dedicated infrastructure under just about any scenario. In our view, cloud-platform based aggregations of heterogeneous equipment deployed in the mass market are highly likely to provide significant opportunity and value as the continued commoditisation of hardware, and the communications that enable it, are deployed on a large scale on a residential and commercial basis.

We understand that Transpower is planning no further consultation on the DSE project until the detailed design later in 2018. We believe Transpower's decisions on the issues identified will impact whether the DSE project delivers lower barriers to entry and supports mass participation. We would be happy to continue engaging with Transpower during the development of the detailed design.

If you require further clarification on any of the above comments please do not hesitate to contact me directly.

Yours sincerely,

Gerard Demler

A handwritten signature in blue ink, appearing to read "Gerard Demler", with a long horizontal flourish extending to the right.

**Transmission Manager, Contact Energy**

## Appendix 1

Question	Comment
1. Do you agree the issues identified by the Authority warrant amending the Code provisions for dispatch instructions and the Approved Systems Document?	Yes
Q2. Do you agree with the proposed sunset clause ending GENCO's status as an approved system on 31 December 2020? If not, why not?	Yes
Q3. Do you agree with the objectives of the proposed amendment? If not, why not?	Yes
Q4. Do you agree the benefits of the proposed amendment outweigh its costs?	Yes
Q5. Do you agree the proposed amendment is preferable to the other option? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory objective in section 15 of the Electricity Industry Act 2010.	Yes
Q6. Do you agree the Authority's proposed amendment complies with section 32(1) of the Act?	Yes
Q7. Do you have any comments on the drafting of the proposed amendment to the Code?	<p>Yes. Remove the ambiguity in 13.79 (a) where two different acknowledgement times are given:</p> <p>(a) within 4 minutes of receiving that <b>dispatch instruction</b>, and must use its reasonable endeavours to acknowledge to the <del>system operator</del> receipt of the <b>dispatch instruction</b> within 3 minutes of receiving the <del>dispatch instruction</del>; or</p>
Q8. Do you have any comments on the drafting of the proposed amendment to the Approved Systems Document?	No