

11 November 2021

Sue Begg
Commerce Commission
Wellington 6140
Via email jo.perry@comcom.govt.nz

Re: Good Practice in Asset Management

Dear Ms Begg,

Distributors appreciate the Commerce Commission's efforts to facilitate improved asset management reporting

ENA members thank the Commerce Commission (Commission) for shining a light on examples of good practice in asset management and reporting, and suggested areas for improvement. Both the recent *Reporting of Asset Management Practices*¹ report, and the 2019 *Review of Electricity Distribution Businesses Asset Management Practices*² contain thoughtful analysis and insight into the thorough asset management practices of electricity distribution businesses (EDBs).

In response to the *Reporting of Asset Management Practices* report, the ENA convened a group of senior asset managers and planners from across its membership to consider the Commission's findings and reflect on the EDB's commitment, drive, and actions to achieve the best practice in asset management.

We agree there is an opportunity for EDBs to enhance their asset management improvement reporting in their AMPs. We note that there is significant distributor collaboration and sharing of information through other forums such as the Electricity Engineers Association (EEA) asset management forum, but this may not be transparent to wider stakeholders. We have outlined below some of the asset management improvement initiatives undertaken by distributors and propose next step options to better capture and share the progress being made across the distribution sector.

¹[Commerce Commission, Reporting of Asset Management Practices, 2021](#)

²[Commerce Commission, Review of Electricity Distribution Businesses Asset Management Practices 2019](#)

A demonstrated commitment to the continual improvement of asset management practices and reporting

ENA members are committed to continuous improvement of their asset management practices. In the five years since the Commission's first report into asset management practices, EDBs have continued to identify and implement improved asset management practices.

At the core of the evolution of asset management practices has been a shift away from their historical asset age-based approach, to a more mature approach which takes into account asset condition and risk.

Risk based asset management practices are the new normal for EDBs

Distribution networks are not homogenous and the management of each must take into account a combination of environmental, engineering and technological factors, community needs, and risk expectations. EDBs are reflecting these differences as they embrace risk and condition-based asset management by adopting a suite of practices tailored to their individual needs. These include

- proactive and improved pole monitoring and inspection regimes including electronic field capture of data
- use of unmanned aerial vehicle technology for condition surveillance and fault finding
- replacing oil-insulated switchgear with air-insulated switchgear, which deliver improved performance, environmental and safety outcomes
- increased LV asset condition assessment
- compliance and risk-based approaches to vegetation management
- fault-rate monitoring on common network components (e.g. transformers, cables)
- adoption of relevant EEA guidance (e.g. risk-based vegetation management, resilience, asset health indicator, asset criticality)
- testing and trialling an "issue (risk) – cause – control measure – treatment plan" approach to network issues.

Data analytics is facilitating evidence-based planning and decision making

Past asset management practices have relied heavily on the professional judgment, knowledge and experiences of individual asset managers. While the availability of data on the performance of the LV network remains an issue, EDBs have increased access to network data upstream of the LV network (HV system) via SCADA and other data capture systems, and built data analytics tools and systems to turn this data into actionable information for maintenance schedulers and system planners.

Risk-based asset management practices are delivering positive outcomes for EDBs and customers

Uptake of risk-based asset management practices is delivering benefits to EDBs and customers. Below are examples:

ENA Member Case Studies

Case Study 1: Smart meter data to proactively protect customer safety

WEL Networks owns smart meters installed on just over 70% of its ICPs. These smart meters can be used for metering purposes and network monitoring. Combining the network monitoring with a visualisation and analytics platform enables WEL to proactively maintain the integrity of its network.

WEL Networks has a proven track record of identifying and correcting neutral connections issues before the consumer is exposed to this significant safety hazard. WEL Networks is also able to identify unregistered solar connections, assess backfeeds and new consumer connections.

With further development WEL Networks hopes to use power quality data to derive consumer connection loop impedance. This will enhance broken neutral detection as well as facilitate the identification of errors in GIS conductor sizes and network connectivity checks (including phasing). Smart meter data and analytics is a key information source for WEL and they are facilitating the growth of future technologies on its network and ultimately enabling its community to thrive.

Case Study 3: Reclosers and unknown interruptions

Reclosers are used increasingly by EDBs to sense and interrupt fault currents and automatically restore service after a momentary outage has occurred.

Eastland Networks utilises its reclosers to respond to temporary faults in a matter of minutes. A recloser successfully restoring power lowers SAIDI and SAIFI and reduces costs (e.g. reduced truck rolls to investigate and resolve outages). The flip side of this increased customer service is a reduction in outages attributed to known causes.

Figure 1: Three Phase Recloser



Source: ABB: <https://new.abb.com/medium-voltage/apparatus/reclosers>

Case Study 2: Innovative approaches to vegetation

Vegetation management is a challenge for all distributors. ENA members are taking innovative approaches to address this challenge.

WEL Networks has adopted LiDAR technology to map and monitor vegetation across its network. This accurate data allows WEL to target its vegetation management works. It also allows for GIS correction, conductor to ground/conductor/structure clearance risk analysis, conductor spacing, and pole lean.

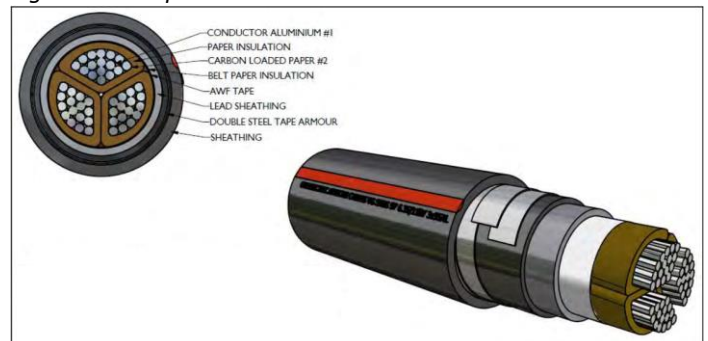
Aurora is progressing the transfer of contractor held vegetation location information into its GIS system, enabling better quantification of vegetation (assets) and cost forecasting models that reflect encroachment management rather than circuit length. Aurora is also planning to improve the capture of root cause information of vegetation-related outages which are reducing but trending toward a greater proportion of “fall zone” requiring a targeted/enhanced approach to vegetation management.

Case Study 4: PILC Testing

Paper-insulated lead-covered cables (PILC) have been part of many New Zealand distribution networks for many years. WEL Network’s systematic outage cause analysis found that PILC cables and, in particular, PILC terminations, were a significant contributor to outages. WEL Networks’ inspection program, which included ultra-sonic corona detection, was not providing any indication that assets would soon fail.

However through root-cause analysis and combining fault data with historical weather data, WEL was able to determine that faults correlated to high temperatures and humidity. In response, WEL networks programmed its cable termination inspections to occur when these conditions were prevalent, in the afternoon during summer months. This approach identified many terminations under stress. These terminations were replaced in a planned manner, greatly reducing WEL’s unplanned outages and improving quality of service.

Figure 2: A Paper-Insulated Lead-Covered Cable



Source: CBI Electric: <https://www.africancables.com/>

EDBs are actively pursuing future improvements to their Asset Management Plans (AMPs)

Distributors are not resting on their laurels with progress to date. They are committed to continued improvements to asset management and reporting practices. With a watchful eye on best practice and informed by considered analysis, like that provided by the Commission in its June 2021 report, EDBs are searching for further enhancements.

ENA members have identified improvements in both their asset management and reporting. The two most prominent areas for improvement are:

- greater utilisation of fault data, through root-cause analysis with linkages to risk treatment plans and risk control measures
- data-quality governance and collection improvements and the systems that support and utilise this in pursuit of improved decision making and operational control. These systems include GIS, asset management systems, and advanced distribution management systems.

Working with the Commission to continue to deliver improved asset management reporting

ENA and its members are eager to work with the Commission to improve AMPs and the reporting of asset management more broadly. Areas that EDBs and the Commission could collaborate to improve AMPs include:

- developing a sample strategic project summary template (or guidance note). These summaries would at a glance outline need case, resources required, timeframes, customer benefits, initiative risks, and industry coordination
- guidance on the explanation of non-network expenditure. As an example, Aurora in its AMP has an asset management enablers chapter which discusses the business functions and non-network assets that support its network
- characterising innovation, including agreement on its definition in the context of asset management

To best deliver the above, the ENA suggests a co-development approach be adopted through a series of Commission-led industry roundtables followed by active face-to-face engagement between the Commission and EDBs' s asset managers and planners.

Once again, ENA and its members' thank the Commission for its endeavours, thoughtful analysis of EDB asset management reporting, and for shining a light on good practice within the sector.

Please get in touch if you'd like to discuss EDBs and ENA work on improving asset management reporting. Contact keith@electricity.org.nz, or 021 0849 9419 in the first instance.

Yours sincerely,



Keith Hutchinson
Regulatory Manager
Electricity Networks Association

Appendix A – ENA Members

The Electricity Networks Association makes this submission along with the support of its members, listed below.

Alpine Energy
Aurora Energy
Buller Electricity
Centralines
Counties Power
Eastland Network
Electra
EA Networks
Horizon Energy Distribution
Mainpower NZ
Marlborough Lines
Nelson Electricity
Network Tasman
Network Waitaki
Northpower
Orion New Zealand
Powerco
PowerNet
Scanpower
The Lines Company
Top Energy
Unison Networks
Vector
Waipa Networks
WEL Networks
Wellington Electricity Lines
Westpower