Telecommunication Guidelines for Major Connections

This document is to help proponents of major connections understand the types of Telecommunications systems and performance criteria that will be required as part of any major connection to Essential Energy's Electrical Network.

Guiding principles:

Essential Energy is obligated to ensure that Telecommunications systems which support Major Connections to the Electrical Network are sustainable and result in the delivery of safe and reliable electricity to regional customers. Essential Energy is also required to ensure that all Telecommunications Assets and the data passed by those assets complies with Independent Pricing and Regulatory Tribunal (IPART) NSW's requirements around cyber and physical security.

All proposed Telecommunications Infrastructure designed and constructed will be assessed by Essential Energy to meet the specified system requirements of a Major Connection in the most cost-effective way over the expected life of the Assets being connected this includes both capital and ongoing operational costs.

Major Connection Types:

Major connection types will continue to be classed, as determined by the National Electricity Rules NER, however due to the complexity of Essential Energy's Distribution network determining the appropriate Telecommunications solution will be the responsibility of both the Electrical System Planning and Telecommunications groups.

Wide Area Network (WAN) Types

WAN can be defined as the service that will used to connect a Major Connection back into Essential Energy's control environment - – locations of these WAN connection to be determined by Essential Energy during DER phase.

Minimum Telecommunications Requirements for SCADA systems:

The Minimum Telecommunications requirements acceptable for the connections of Scada systems are listed in the Table below. With regards to the table below all Remote Terminal Units (RTU's) need to be supported as detailed whether they be Essential Energy's or Generator proponents managed RTU's.

Major Connection Type	System Availability	Backup Power	Data Path	Hardware
Type 1	99.95%	8 Hours	Duplicated	Duplicated
Type 2	97%	4 Hours	Duplicated	Single
Type 3	95%	1 Hour	Single	Single

Minimum Telecommunications Requirements for Bearers to support Protection schemes:

The Minimum Telecommunications requirements acceptable for bearers to support Protection schemes are listed in the Table below. The type and duplication of the bearer to be used will be determined as part of the detailed design for the protection scheme to be deployed.

Feeder Differential Schemes

System Availability	Latency (one way)	Symmetrical	Backup Power
99.995%	10 ms preferred, 15ms max	Round trip asymmetry < 1.1ms	8 Hours

Comms Assisted Distance & Intertripping Schemes

System Availability	Latency (one way)	Symmetrical	Backup Power
99.995%	10 ms preferred, 15ms max	Not Required	8 Hours

Minimum Telecommunications Requirements for Special Protection systems:

The Minimum Telecommunications requirements acceptable for the connections of Special protection systems are listed in the Table below. The type of system to be used and the latency involved will be determined as part of the connection process once known.

Scheme Type	System Availability	Latency (one way)	Symmetrical	Backup Power
Anti Islanding	99.95% Min	Slow approx. 1000ms	not required	8 Hours
Emergency Control scheme/ Generator run back	99.95% Min	Slow approx. 1000ms	not required	8 Hours
Emergency Tripping scheme	99.95% Min	Fast approx. 30ms	not required	8 Hours

Telecommunications Infrastructure Leasing:

The use of existing infrastructure can significantly reduce the costs of communications, particularly in remote regional areas. Telecommunications Infrastructure is a separate Essential Energy business that provides access to existing infrastructure through market leases and rental licences on commercial terms.

To enquire about infrastructure options, please contact the Telecommunications Infrastructure team directly.

Further Information:

Requests for further information on the above guideline should be directed to the Telecommunications Operational Technology team. Proponents should make this request for information through their Essential Energy connection manager.