

Standards Alert

Part of the Energy Queensland Group

Subject:	Redback LV Network Device	Control Ref No: StdsA566
		Date Issued: 10/06/2020
For Policy/Procedure/Manual:	Redback LV Network Device Installation Guide (Egx 01996, EE SR000202R105)	Expiry Date:
Originating Dept:	Intelligent Grid New Technologies	
Target Audience:	EQL	

1. Objective

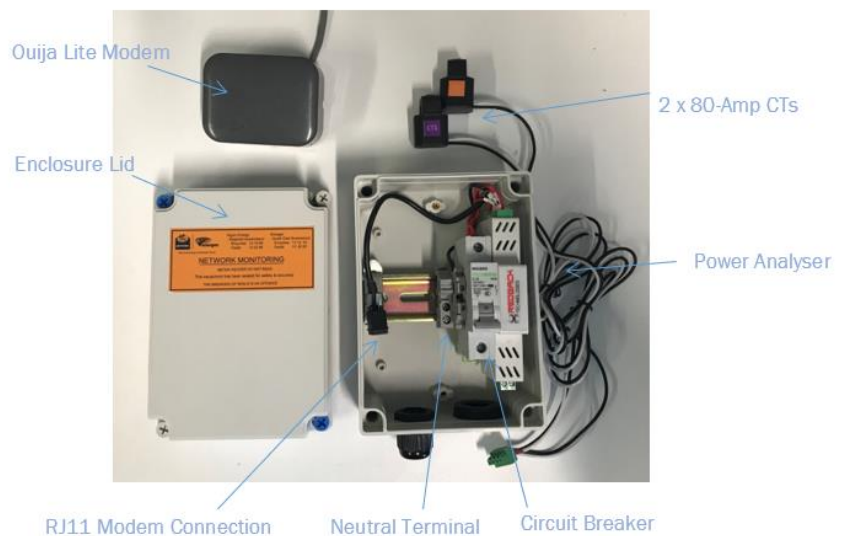
Introduction of the Redback LV Network device that will be installed in customers switchboards across Queensland as part of a trial project.

2. Introduction

Ergon Energy Network and Energex are currently trialling LV Network Devices on customer meter panels.

Safety by design is fundamental to the Energy Queensland Limited (EQL) network strategy, providing safe and reliable electricity to almost 2.5 million residents and businesses across Queensland. Neutral integrity failures on the Low Voltage (LV) network are a significant contributor to customer safety incidents. EQL is committed to customer safety imperatives and considers the detection of neutral integrity failures to be critical to mitigating customer safety risks.

EQL has partnered with Redback Technologies to trial a Network Device to monitor the health of the neutral connections. This network device is installed at the customers meter panel. Through the recording of voltage and current measurements, the unit can calculate the sites impedance and indicate when a possible neutral integrity fault is present. Remote monitoring is done via a small modem mounted on the external of the meter box.



3. Benefits

- Reduce the risks associated with neutral related public shocks
- Provides near real time 1 minute data on the low voltage network
- Proactive alerts for power quality and loss of supply issues
- Improve response and information to proactively support power quality maintenance
- Allow more renewable energy on the Network when used in conjunction with the State Estimation Algorithm to accurately predict the state of the LV Network.

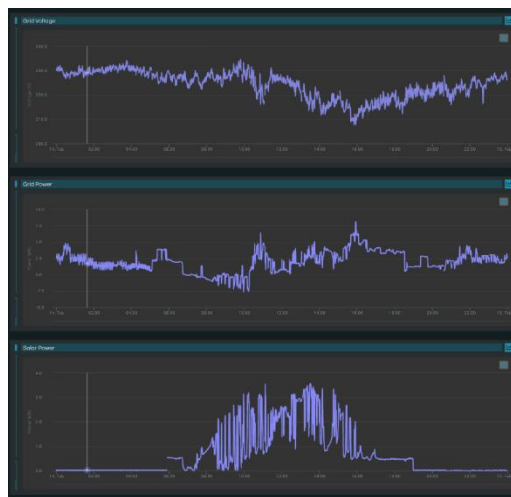
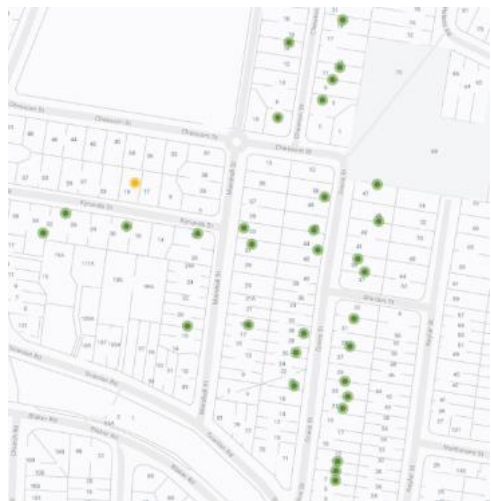
4. Project Stages

Stage 1	Proof of concept	75 Sites (Mitchelton Brisbane)	Complete
Stage 2	Product reliability and systems testing	500 sites (Gold Coast & Mackay)	Complete
Stage 3	Scale up pilot	19,500 sites (Cairns, Townsville, Mackay, Rockhampton, Gladstone, Bundaberg, Maryborough, Hervey Bay, Wynnum, Cleveland, Gold Coast)	June-Dec 2020

5. Data

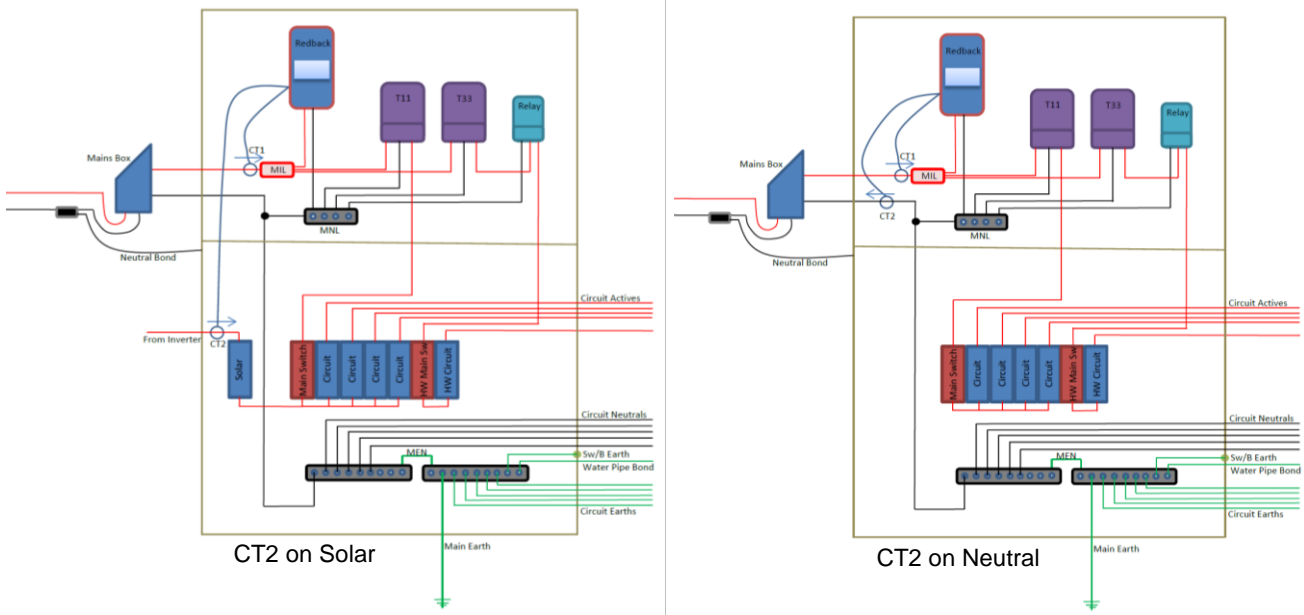
The Redback device provides near real time data (1 minute intervals) and is accessible via the web based Redback portal or via Totem / NODW.

The Redback dashboard allow visualisation of the 1 minute data at premise level as well as management of alerts and Redback asset management.



6. Network Device Connections

The device has an active and neutral for voltage sensing that comes off before the metering and two CTs for current measurement. CT1 is always on the active from the grid and CT2 is either on the solar feed from the inverter if the customer has solar or on the main neutral.



7. Results to Date

The trial deployment of Redback Network Devices has already demonstrated its capabilities in the field. Recent power quality and impedance measurements provided alerts to there being an electrical defect at or near the site of installation. Upon attending site, multiple loop impedance measurements were taken. Fault was found in the claw clamp used to connect the customer service neutral to the LV feeder neutral. The customer had not reported any faults yet, but this was able to be rectified before is caused equipment failure or shocks. Several other voltage issues have also been identified on the LV network.

8. Update to Manuals

An updated copy of **Redback LV Network Device Installation Guide (Egx 01996, EE SR000202R105)** is available via the RED/Process Zone document system.

9. Further Information

Field support – Regional Metering Officers (RMO)

Northern

Niels Ederveen
0409 502 719
niels.ederveen@ergon.com.au

Central

Wayne Ivers
0407 641 749
wayne.ivers@ergon.com.au

Southern

Aaron Best
0499 828 715
aaron.best@ergon.com.au

SEQ

Paul Wackerling
0409 316 889
paul.wackerling@ergon.com.au

SEQ

Kris Finn
0417 616 238
krisfinn@energex.com.au

Project support –

Metering Delivery Manager

Luke Webber
07 4923 1705
luke.webber@energyq.com.au

Meter Paraprofessional

Stuart Ezzy
07 4616 2953
stuart.ezzy@ergon.com.au

Project Delivery

Peter Judge
07 3664 4702
peter.judge@energyq.com.au