

# Strategic Scope OT Meter Management



Part of the Energy Queensland Group

## Revision History

Revision date	Version number	Description of change/revision
31/01/2019	1	AER Document Initial release

## Document Approvals

Name	Position title	Date
Ana Smith De Preze	GM Intelligent Grid Solutions	31/01/2019
Peter Price	EGM SASP	31/01/2019

## Document Tracking Details

Network and Non-Network Document Hierarchy Reference Number	Regulatory Proposal Chapter Reference	Document	File Name
NET AUG - 025	7.124	Strategic Scope - OTE Network Meter Management Platform -	EGX ERG 7.124 Strategic Scope - OTE Network Meter Management Platform JAN19 PUBLIC

# Contents

1. Project Summary Information .....	1
2. Existing Arrangements / Background.....	1
3. Rationale / Benefits .....	1
4. Drivers .....	2
5. Scope .....	2
6. Exclusions .....	2
7. Assumptions.....	2
8. Project / Program Dependencies .....	2
9. Supporting Information .....	3
10. Options Considered.....	3
10.1 Option One - Do nothing impact .....	3
10.2 Option Two - Transfer Meter Data Collection to the OTE.....	3
11. Risk Assessment.....	3
9 Delivery Timeframe .....	4
10 Project Cost Summary.....	4
Appendix 1. Definitions, Abbreviations and Acronyms .....	6

## 1. Project Summary Information

PROJECT SUMMARY INFORMATION			
Work Request Description	OT Meter Management		
Work Request Number	.	Work Request Required by Date	
Initiating Work Group	Intelligent Grid Solutions	Strategic Scope Contact	
Business Owner	AS&P		
Direct Value:	\$0.2M		

**NOTE:** – This document does not constitute approval of any funds or financial delegation. It is used to provide a high-level description and justification of an allocation of funds in future years. The direct value presented above is in \$18/19 direct dollars.

## 2. Existing Arrangements / Background

This initiative is based on the strategies defined in the Future Grid Roadmap and the Intelligent Grid Technology Plan. From these strategies, a technology solution and its associated costing and benefits have been described below.

Currently, network asset metering is managed as a separate solution independent of the operational environment. This is because meters were set up as local data collection devices and then the data downloaded periodically (eg daily, weekly, and monthly). This was acceptable as the primary users were planning/forecasting functions which needed accurate data but it was not time critical. For example, the data was used in yearly forecasts.

As the business needs move to near real-time management of the network, this current measurement and collection methodology is no longer acceptable. It will require the existing network meter fleet to be reconfigured to be read in near real time and used as part of the Intelligent Grid Enablement program. The network meter management and data collection systems will need to be modernised and moved into the Operational Technology Environment for both Energex and Ergon Energy.

## 3. Rationale / Benefits

Moving the meter management functionality into the OTE will allow collection of the data in real-time, allowing that data to be used in the Future Grid strategy for active management of the network (both HV and LV). It will also provide timely data for use in near real-time forecasting. This will allow greater utilisation of this data source with more accurate data used in planning and operations. It is expected that this existing meter investment will produce new benefits around network safety (used in machine learning algorithms) and improve customer outages by assisting network diagnosis of issues in near real time.

Once this investment is made, it is expected that these meters will be slowly replaced by the next generation of IoT sensing at that point in the network. For example, distribution transformers will come with their own sensors built in.

The customer benefits for this will be:

- Improvement in network planning and operations will reduce customer outages and allow the network to be more responsive to customer requirements.

## **4. Drivers**

A number of elements of the Electricity Network Transformation Roadmap relate to this initiative. The first is Power System Security. The expectation is that in the 2020-2025 period, Energex and Ergon have developed new power system forecasting and planning approaches to anticipate system constraints. The second is Intelligent Networks and Markets where it is expected that networks will enhance current system monitoring and models to inform advanced system planning.

These drivers are provided in more detail in the Future Grid Roadmap.

## **5. Scope**

The scope is limited to the back end meter management and data collection system. The scope includes the following:

- Design of a common meter management and data collection model across Energex and Ergon OTE
- Retirement of legacy meter management systems and interfaces
- Implement a data storage solution based upon OSIsoft's PI as it is corporate and OT standard and will have minimal impact on licencing.
- Migration of all Telstra based network meters to the new environment.

## **6. Exclusions**

Exclusions include:

- Does not include the cost to upgrade /change existing meters.

## **7. Assumptions**

Assumptions include:

- Assumes all meters (through lifecycle upgrades) will be converted to Telstra.

## **8. Project / Program Dependencies**

Dependencies include:

- A data source to the Intelligent Grid Enablement program.

## 9. Supporting Information

This initiative forms part of Energy Queensland's response to meeting the requirements of the ENA/CSIRO Electricity Network Transformation Roadmap.

## 10. Options Considered

### 10.1 Option One - Do nothing impact

Meters will continue to be read on a periodic basis and not available as part of real-time operations. Both Energex and Ergon will continue to lack real-time visibility at lower levels of the network. This means that there are lost opportunities around improving network visualisation (outage management) as well as informing better forecasting and augmentation needs.

### 10.2 Option Two - Transfer Meter Data Collection to the OTE.

Meter data collection is transferred to OTE based services, providing data and analytics integration with existing operational data sets. This option leverages the existing OSISoft PI technology deployed in Ergon Energy and extends the PI system into the Energex network. Network meters will be transferred onto appropriate telecommunications services to allow secure access by the Energex and Ergon OT environments.

This approach also allows for the retirement of legacy meter management systems, reducing the operational cost for network metering.

Availability of this data will enhance forecasting, planning and operations of the EQL power networks.

## 11. Risk Assessment

The network (business) risk the organisation would be exposed to if the project was not undertaken.

Risk Scenario	Risk Type	Consequence (C)	Likelihood (L)	Risk Score	Risk Year
Ergon and Energex fail to provide visibility of real-time operations that would facilitate customer capacity decision and choice. EQL is unable to deliver smart grid strategic initiatives resulting in opportunity loss of >\$5 million.	Business Impact (Strategic Direction)	5	3	15	2020

Table 1 – Risk Assessment



## Network Risk Evaluation Matrices:

- [Consequence and Likelihood Table](#)
- [Tolerability Scale](#)

The preferred option (OT Meter Management) is the right option to reduce this risk, as it provides the opportunity at the lowest cost to use near real-time data from existing assets. This solution utilises the significant investment already made in network metering and by adding new software capabilities increase the value of the data in areas such as outage management and network performance.

## Risk Assessment Outcome

The network (business) risk the organisation would be exposed to if the project was not undertaken is not deemed to be as low as reasonably practicable (ALARP). Addressing the risks as detailed above through implementation of the preferred option will reduce Energy Queensland's risk exposure.

## 9 Delivery Timeframe

It will be delivered as a single project across both networks in 2020-21.

## 10 Project Cost Summary

The numbers below are based on 2018/19 dollars

ENERGEX	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Labour	\$50,000				
Material	\$50,000				
Grand Total:	\$100,000				

Table 2 – Energex Cost Summary

ERGON ENERGY	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
Labour	\$50,000				
Material	\$50,000				
Grand Total:	\$100,000				

### Table 3 – Ergon Energy Cost Summary

**NOTE:** The numbers presented in the cost summary are in \$18/19 direct dollars.



## **Appendix 1. Definitions, Abbreviations and Acronyms**

<b>BESS</b>	Battery Energy Storage System
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>DER</b>	Distributed Energy Resource
<b>DSO</b>	Distribution System Operator
<b>ENA</b>	Energy Networks Association
<b>ENTR</b>	Electricity Network Transformation Roadmap
<b>EV</b>	Electric Vehicle
<b>EVSE</b>	Electric Vehicle Supply Equipment
<b>HV</b>	High Voltage (35kV – 230kV AC)
<b>IS</b>	Isolated System
<b>LV</b>	Low Voltage (50V – 1 000V AC)
<b>MEGU</b>	Micro Embedded Generating Units
<b>MV</b>	Medium Voltage (1kV – 35kV AC)
<b>NER</b>	National Electricity Rules
<b>PQ</b>	Power Quality (of the network)
<b>PV</b>	(Solar) Photovoltaic System
<b>QoS</b>	Quality of Supply (to a customer)
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>ZS</b>	Zone Substation