

Queensland Urban Utilities - Digital Metering Business Case

the challenge In response to growing interest in the ability of digital metering to improve the way the water industry delivers services to customers, Queensland Urban Utilities (QUU) identified the need to develop a business case for their implementation in its service area. Complicating this was the wide range of possible scenarios QUU needed to consider. Significant work had been done by QUU to identify technology options and identify risks and opportunities associated with their specific asset base and customer profiles. However, a consolidated analysis of these options and the impacts on the risks and opportunities was required. Key variables included meter and communication technology type and the size and timeframe of the rollout.

Marchment Hill was therefore engaged to assist in the development of a strategic business case that considered these varied smart meter roll-out scenarios.

what Marchment Hill did Marchment Hill engaged with QUU subject matter experts from metering, asset management, billing and customer service as well as a number of technology and service providers to understand the magnitude of cost and benefit drivers for smart meter implementation. These included:

Benefit Drivers:

- Improved meter accuracy;
- Decreased non-revenue water;
- Reduced leak allowances;
- Decreased meter reading costs;
- Billing benefits;
- Improved network leak detection;
- Capital efficiency gains; and
- Improved demand management.

Cost Drivers:

- Meter installation and replacement costs;
- IT system and hardware costs;
- Staff administration costs; and
- Non-revenue water works.

The analysis also drew heavily on MHC's extensive knowledge of the typical cost and benefits for the rollout of digital water meters in an urban and regional context, based on our previous work in the Tasmanian and Victorian markets. During these initial investigations, Marchment Hill identified four key variables for scenario testing, namely: communication methods, meter technologies, geographic based rollouts and rollout timeframes.

An important consideration during these investigations was establishing the availability and quality of data to meet the economic modelling requirements.

Marchment Hill then developed a detailed economic model to quantify the size of the opportunity (based on the aforementioned cost and benefit drivers) for each smart meter roll-out scenario on an NPV-basis. Each combination of elements was modelled on an individual basis to create 96 scenarios. In addition to this, 4 alternate scenarios were modelled to assess the viability of different approaches to smart meter implementation. In total 100 scenarios were analysed using the model to quickly determine which options for the key variables were viable and to prioritise the most viable scenarios for further analysis.

A number of key sensitivities were identified and tested using a customised sensitivity dashboard. This allowed key inputs to be adjusted both simultaneously and in isolation to test the NPV impact and record NPV trigger points¹ (see Figure 1).

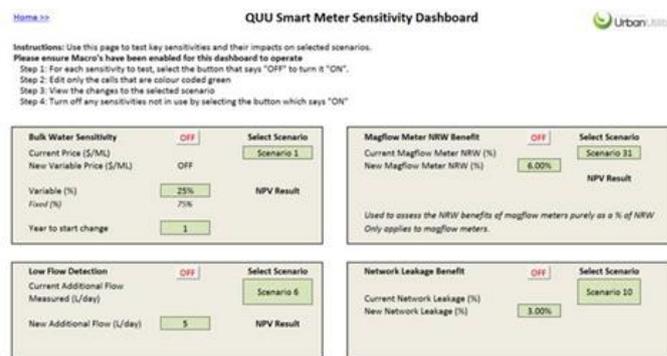


Figure 1: QUU Sensitivity Dashboard

In addition to the financial analysis, an assessment of the intangible benefits associated with smart water meter implementation was also undertaken. Intangible benefits included customer, operational, environmental, social and strategic benefits.

Finally a number of key risks were identified and assessed against the implementation scenarios. The financial viability of these implementation scenarios (based on the NPV value) was combined with this risk assessment and the intangible benefit analysis to generate an overall scenario ranking.

the benefit The key benefit of this project was a quantified understanding of the opportunity presented to QUU by a digital meter roll-out under a wide range of possible scenarios as compared against a Business As Usual (BAU) baseline scenario.

¹ A trigger point is the point at which a scenario NPV turns from negative to positive, or vice-versa, through the adjustment of an input value

The different scenarios tested provided immense insight to QUU on the financial and non-financial impacts of different meter types, regions, meter reading and communication technologies, and meter roll-out timeframes. The ranking of options according to several criteria (including NPV, risk rating and intangible benefits) allowed for scenarios to be prioritised and next steps to be clearly identified.