CASE STUDY 11 MACKAY REGIONAL COUNCIL

Conserving water through digital transformation

Since 2018 Mackay Regional Council has rolled out more than 110,000 digital smart water meters to homes and businesses, and uses an application called 'Aqualus' to track usage and leaks. More than 16,000 Mackay residents also use the associated 'myH2O' website to track their water use.
The technology can quickly identify unusually high water use and inform customers that they may have a leak, and since the project's inception has helped identify over 100,000 leaks totalling over six gigalitres of water.

CLIMATE THEMES ADDRESSED

CUSTOMERS + COMMUNITY

APPLYING TECHNOLOGY + DIGITAL INNOVATION

Background

Mackay Regional Council's (MRC) water and waste business was facing the challenges of a rapid increase in population, requiring significant investments in capacity expansion, which in turn was resulting in unsustainable increases in water tariffs.

In 2011 it was estimated that based on then consumption patterns and population growth estimates, the current treatment plant would reach capacity by 2020. Due to space constraints at the location of the current treatment plant, the only viable option identified was to build a new second treatment plant in a greenfield location. The capital cost of a new treatment plant including raw water pipelines was estimated at around $100 million.

A revised strategy was developed to focus on non-capital solutions to address the growing demand and resulting impacts on capacity. One aspect was a demand management program with a target of reducing daily per capita consumption by 10 per cent.

A key element of the program was to develop a better understanding of the consumption behaviours of Mackay residents. It could then be determined how this impacted the output of the treatment plants and therefore capacity.

As with most water utilities, while Mackay has suitable SCADA systems in place within its treatment facilities, there was very little information captured once the water left the treatment plant. The only information on consumption patterns came through twice-yearly meter reads, which did not provide the granularity needed to analyse and understand customer behaviour patterns.

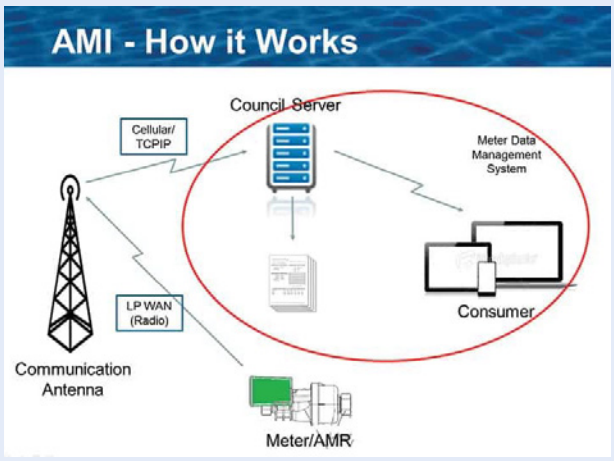
MRC was also aware that it had around 15 per cent network losses, which while within national averages, was still a significant figure.

Accessing detailed information in a cost-effective manner was identified as an important prerequisite to achieving the identified demand management goals.

MRC adopted a two-pronged strategy which involved installing an automated metering infrastructure (AMI) network to capture and analyse detailed demand data, and launching a comprehensive social marketing program.

The other prong of the strategy was the deployment of a five-year social marketing campaign, which was developed based on the information gathered through a fairly extensive customer survey process.

FIGURE 48 Schematic of automatic meter reading in Mackay



SOURCE Utility Magazine

Benefits to the utility, and to climate-related outcomes

Since the program began Mackay has rolled out over 110,000 automatic meter readers (AMR) across its water network, generating hourly meter reads from each meter, which enable a range of analytics to be performed on the data (see Figure 49).

The average duration of a leak has reduced from over 150 days to around 60 days. With around 2.5 per cent of the properties having a leak at any given time, the reduction in the average duration is expected to contribute towards lower consumption.

The demand management program has seen Mackay exceed the targeted 10 per cent reduction in its water consumption. Average per capita residential consumption is down from around 240 litres per person per day (L/d) to around 200L/d, a reduction of just over 17 per cent. This will have an associated carbon emissions reduction impact on a per ML supplied basis.

Since the project's inception, it has helped identify over 100,000 leaks totalling over six gigalitres of water. These water savings have deferred an augmentation of the new treatment plant until 2036, yielding savings of around $20 million.

In comparison to 2010/11 prices, the average Mackay residential customer will pay approximately $400 per annum less for water by 2025. Both water and sewerage prices were held steady (zero percent increase) for the three years following the project beginning, as a result of the savings gained.

FIGURE 49 Digital meter in Mackay

SOURCE Utility Magazine