

REMOTE METER READING – THE PORT MACQUARIE EXPERIENCE



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ABSTRACT

The CBD of Port Macquarie has had long term issues in regards to meter reading including high frequency meter reading, high pedestrian traffic, buried meters, trip hazards plus meters in difficult to read locations. Port Macquarie-Hastings Council (PMHC) have installed smart metering technology in order to overcome these issues. This paper will discuss the selection process including the pros and cons of various smart metering systems, and the reason behind choosing the Taggle system. Furthermore, now that the system has been installed some of the issues will highlight some of the problems we encounter including installation, commissioning, staff training and bringing it in to our current billing system.

The current system has already identified several large internal water leaks which have been relayed onto the customer for rectification works, and resulted in a financial benefit for the customer. This information has been very well received to date and has greatly improved customer relations with council.

Following this project PMHC intend to roll this system into two of our remote village systems with the intention of full distribution system monitoring from the source to the customer, with the ability to monitor any water loss throughout the network.

1.0 INTRODUCTION

Port Macquarie - Hastings Council has looked at remote metering technology over the past ten years and struggled to come up with a system that was reliable, meets the requirements of the area and structurally sound to minimise tampering or vandalism. PMHC however realised the potential advantages of remote metering and decided to conduct a trial with this technology. Additionally, there has been a recent rise in Lifestyle / Retirement Villages in the area and this has also driven the need for smart metering of internal meters.

The CBD area of Port Macquarie was selected for the trial as it had hard to reach meter locations particularly with the old buildings in the area, some that date back to the penal colony days. Meters are located in enclosures, behind locked gates, in pits, inside buildings, footpaths with high pedestrian traffic and street crossing with high vehicular movements. These many locations made it difficult task to complete meter reads with a large number of these meters high frequency reads due to their consumption.

1.0 DISCUSSION

2.1 Selection Process

Over a period of several years Port Macquarie-Hastings Council have trailed a number of different small scale systems including drive by and hard wired systems. Each of these smart metering systems were evaluated on performance however due to various problems uncounted these systems were not expanded any further.

Information gained from these trials was reviewed during the selection process for the CBD trial along with other newer smart metering technologies including the Taggle system. The advantages and disadvantages are listed below.

2.2 Drive By Systems

Disadvantages

- Still a requirement to enter the site
- Changes by residents such as planting gardens, trees or erecting fences effects the reading ability.
- Parked Vehicles can block signal
- Only a read at the time of drive by



Figure 1: *Drive by Read Meter*

2.3 Hard Wired Systems

Disadvantages

- Location inside buildings (access needs to be obtained into building)
- Tampering by residents ie disconnecting cables.
- Damaged cables by other clutter stored next to meters

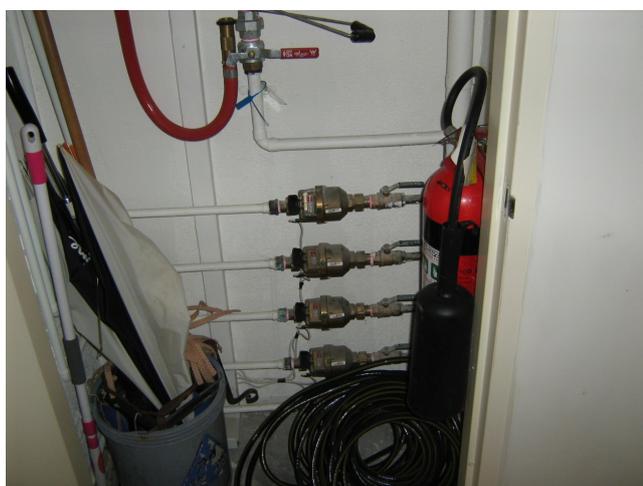


Figure 2: *Hard Wired Meters*

2.4 Taggle System

Advantages

- Real time monitoring
- Nil requirement to visit site
- Remote reading
- Ability to detect internal leaks quickly
- Very well received by customers, helping them conserve water and save money
- Easy interface to access data for interrogation

Disadvantage

- Susceptible to tampering however due to real time monitoring is identified immediately
- Compatibility with combination style meters



Figure 3: *Taggle Fitted Meter*

3.0 IMPLEMENTATION

The taggle system was selected for a trial in the CBD area of Port Macquarie.

This area was identified as our hardest to read and would be a good indicator if this technology could be utilised across the rest of the Local Government Area.

Staff were trained in the installation process and the existing meter that were not compatible with the Taggle unit were identified and replaced. The Taggle units were then retrofitted to the existing meters in the selected area. A receiver unit was installed in a nearby, high council owned building. Once all the Taggle units were installed, the verification process of the reading commenced. This involved physically checking each unit, comparing the physical meter read with the Taggle generated read. This process was completed twice over a 3 month period to ensure the readings were accurate. This was a very time consuming process however was considered critical to allow accurate billing and total confidence with the system.

3.1 Operation

The system has been checked weekly since the trial commenced. The advantages of this technology became quickly apparent within the first week of operation with a number of internal leaks identified that were unknown and undetected by both the property owner and PMHC. These instances initiated repairs to the customer's system and also a good public relations process for the council. Other internal issue identified included a caravan park with a large surge in water usage shortly after 10pm at night. When PMHC staff discussed this with caravan park staff, they mentioned that the care taker usually finished their shift at 10pm. They became concerned that water theft was occurring, and furthermore handed out a flyer to permanent residents and employed a local security service to patrol on an ad hoc basis. The water usage almost immediately returned to normal and again this was a good outcome for both parties.

4.0 RESEARCH

Looking at what other water supply utilities were doing with remote meter reading led us to Mackay Regional Council in Queensland as one of the first to use the Taggle system.

Mackay Council's roll out of Taggle was only used on smaller 20mm domestic meters and did not include any larger or combination style meters as would be required in our CBD area. All our meters are currently supplied by Elster and with the help of Jason from Elster and Arjun from Taggle we worked out what style of readers and antennas would be needed for both the larger meter and the combination meters.

Some of the combination meters were discovered to be oversized for the property they served and this resulted in chattering between the main and bypass meter which resulted in erratic readings. These meters needed to be replaced with a single dial H5000 pulse enabled meter.

After reviewing all systems available to us we choose the Taggle system although it required more resources and was much more difficult to implement the real time data monitoring was considered too valuable a tool for council to ignore.

5.0 WHERE TO FROM HERE

Council operates to small remote village systems that are both about 1 hours' drive from Port Macquarie. The Comboyne village system has 97 connections and the Long Flat village system 49 connections which if Taggle is installed will save the cost of meter readers travelling to both sites and give council a real time picture of water use from source to consumer and show any water loss over the entire system.

Further roll out of the CBD system is envisaged in the future to cover the waterfront area which houses most of the town's major holiday accommodation resorts and clubs and shopping centres.

Investigation into implementing across all of councils meters has been looked at and possible antenna sites identified but costing to replace water meters that are not Taggle compatible is an important consideration for further expansion of the system.

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