KPMG

Smart metering investment case review - Benchmarking

Report prepared for Anglian Water

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July 2018

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FINAL APPROVED

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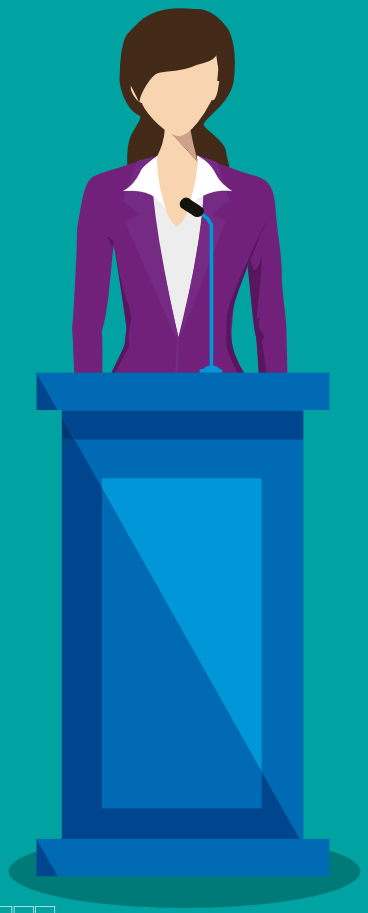
Introduction

The smart metering programme is a key component of the WRMP and of the wider PR19 business plan



Context

— As part of the preparation for the next price review, companies are required to submit their business plans to Ofwat in September 2018

— As part of their business plan, Anglian Water are proposing a smart metering roll out programme to support the demand side requirement of enabling sustainable growth in the region. The details of this will be included in the PR19 business plan and will include Anglian's expenditure, delivery approach and any assumptions made

— At the moment, there is no obligation for water companies to provide smart meters to their customers, Anglian have chosen smart meters as their preferred option as part of the options appraisal requirement of their WRMP. The smart meter will be held under the ownership of the wholesale business (rather than the retail business)

Scope

Anglian, have asked KPMG to review their proposed PR19 smart metering programme and provide a brief report outlining the findings and key recommendations. The key areas that we have focussed this report on are:

— Technology procured

— Delivery approach

— Customer engagement and experience

— Programme costs including benchmarking

Wherever possible, the analysis presented in this report is substantiated with specific evidence and quantitative analysis. To this end, it relies on and assumes, without independent verification, the accuracy and completeness of information available from various public sources.

This excerpt of the report contains the benchmarking section only

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Benchmarking

Smart metering: Comparison of energy and water

Below we outline the differences between smart metering in energy and in water. Based on this, it is considered likely to be inappropriate to benchmark between energy and water smart roll out programmes as they are significantly different across a number of parameters.

	Energy sector	Water sector	Implications
Where is the meter located?	Meter located both on the interior and exterior of properties	Water meter usually located on the exterior of the property, often underground in a boundary box	Easier access through water meters positioned outside of property where energy requires access to customer property
Who has the obligation for providing a meter?	Energy supplier is obliged to provide a meter to its customers	Water company holds the responsibility for supplying the meter	Energy suppliers have obligation but don't have same strength of balance sheet as water cos. Higher cost of financing allows entrants to compete more effectively
What is the technology?	Advanced smart metering with 2 way communication between supplier and customers	Smart meters less advanced than in energy with more limited roll-out of 'smart meters'	Technology risks associated with emerging new metering technologies and potential lower cost options becoming established
National roll-out?	Government back smart meter roll-out scheme with 2020 the anticipated target date for implementation	No national roll-out, roll-out based on water company initiatives	Limited standardisation may reduce attractiveness of market for suppliers and requires mix and match approach to delivery, reducing efficiencies
Size of the market	Each property has a gas and electricity meter means large market size in energy	Variable meter penetration between water companies means more limited market size	Similar to energy but not all companies will invest in smart metering resulting in smaller market and slower timetable for roll-out
Is there an established market?	Established metering market in the energy sector with significant Metering Asset Providers (MAPs) presence	Market is less established in water	Current structure and disaggregation of metering within value chain in energy creates a more established market compared with water
Estimated required returns?	Approximately 10%	PR14 WACC – 3.60% (real)	Higher returns in smart metering delivery within energy sector reflect risks that MAPs are exposed to in the early stages of the smart-meter rollout

International Case Studies

Although water smart metering is a relatively new concept in the UK the technology has been deployed in several other countries. This demonstrates that the technology has been applied in variety of operating contexts and also provides Anglian Water with opportunities to capture lessons learnt and cost benchmarks that can be applied to its own programme.

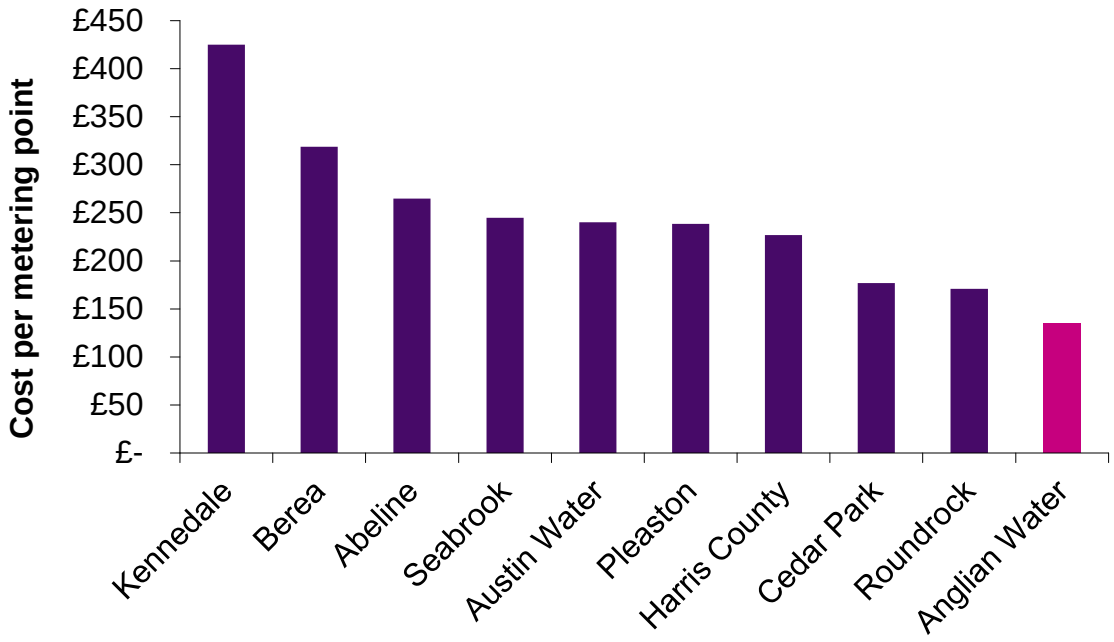
Country	Case Study
 United States of America	AMI metering has been deployed in several towns and cities in California, Texas, Ohio, South Carolina[1-9] The majority were funded through State Funds targeted at water resources management Common drivers for replacing old 'dumb' meters include enabling customers to avoid unexpected high bills and improved efficiency for data collection especially in rural areas It should be noted that during the course of KPMG's research several examples where local residents' fears and concerns associated with smart metering technology led to water authorities withdrawing their proposals. Roll outs are often delayed. Replacing old water lines with new automated metering infrastructure calls for large investment. Utilities see this as a barrier.
 Singapore	Singapore is widely considered to be an exemplar of the Smart City concept. The city's water management system, supported by smart meter technology is among the most advanced in the world[10]. To involve citizens in increasing water-use efficiency, the national water utility: — Sends water efficiency messages to the public — Provides a mobile application that allows customers to view their outstanding bills and payment status, gain better understanding of the utility usage and submit meter readings. This enables customers to audit their home usage and manage their water consumption.

Country	Case Study
 Spain[11]	Focus on smart metering schemes have become important in Spain to develop in depth knowledge on water consumption and also to increase water efficiency. Alicante is an example where they have an ambitious roll out target – 200,000m smart meters between 2011 and 2022. — Estimates of capex costs 80EUR per smart meter (it would be 55 EUR to upgrade a conventional meter which usually costs 25EUR). Therefore the roll out plan could cost 16m EUR in capex — Opex estimates are 2.5EUR per meter for remote reading smart meters — Savings of smart meters come from network efficiency and less fraudulent readings which is estimated between 260,000 – 290,000 EUR per year
 Australia[12][13]	A number of trials have taken place in Australia. Typically Australian smart meters have been AMR but moving towards AMI. 80% of businesses who responded to a 2014 survey are actively pursuing smart metering or starting to in the next 12 months Costs of programmes ranged from AUD $5,000 to over $9.5m dollars depending on size of project and status of existing meters. Number of meters ranged from less than 10 meters for small pilot trials to over 57,000. Funding by utility or Government. Example of Kalgoorlie smart metering trial: installed 13,800 meters over two year trial 2010-2012. This had a $4m project cost. Operational savings equated to around 1 year payback investment plus there were also reductions in GHG and energy. Residential water use reduced by 13% .

Sources: (1) Pleaston: http://www.govtech.com/dc/articles/Pleasanton-Calif-to-Deploy-New-Smart-Water-Meters-in-Effort-to-Conserve.html (2) Roundrock: https://ceregportal.com/wsi/documents/poster_sessions/2016/P-2.pdf (3)Cedar Park: https://www.metering.com/news/smart-water-meters-us/ (4) Austin Water: http://www.govtech.com/fs/What-Will-Smart-Meters-Cost-Austin-Water.html (5) Harris County: https://www.twdb.texas.gov/financial/programs/SWIFT/doc/abridged-applications/2016/Harris_County_MUD_50.pdf (6) Seabrook: http://www.twdb.texas.gov/financial/programs/SWIFT/doc/abridged-applications/2016/Seabrook.pdf (7) Berea: https://www.metering.com/news/us-berea-city-to-replace-its-water-meters-with-new-smart-water-meters/ (8) Abeline: http://www.twdb.texas.gov/financial/programs/DWSRF/doc/SFY18/DraftAmended_SFY18_DWSRF_PPL.pdf (9) Kennedale: https://www.fwweekly.com/2017/01/11/saving-water-a-drop-at-a-time/ (10) International Case Studies of Smart Cities, Section 2.2 pp 12 (11) https://www.researchgate.net/publication/316053826_Household_Smart_Water_Metering_in_Spain_Insights_from_the_Experience_of_Remote_Meter_Reading_in_Alicante (12) https://www.wsaa.asn.au/sites/default/files/publication/download/The%202014%20Review%20of%20Smart%20Metering%20and%20Intelligent%20Water%20Networks%20in%20Australia%20and%20New%20Zealand.pdf (13) https://www.marchmenthill.com/wp-content/uploads/2016/07/Smart-Water-Metering-Cost-Benefit-Study.pdf

Benchmarking: Roll-out Costs

Detailed costs for many Smart Water Meter programmes are often not publicly available. Below is a summary of initial roll-out of smart water meters within the US between 2014 and 2016 where that data was made publically available.



Observations

- The US projects ranged in size from 1,400 to 250,000 meters, significantly less than Anglian Water's 2,000,000 meters
- Costs per metering point vary between £425 and £125
- Anglian Water's costs are at the lowest end of the range, though it should be noted that labour costs are generally higher in the US and variations in currency exchange rates would alter the results (exchange rate of £0.75 to $1 used)

Source data:

http://www.govtech.com/dc/articles/Pleasanton-Calif-to-Deploy-New-Smart-Water-Meters-in-Effort-to-Conserve.html
https://ceregportal.com/wsi/documents/poster_sessions/2016/P-2.pdf
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https://www.fwweekly.com/2017/01/11/saving-water-a-drop-at-a-time/

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