Stakeholder Feedback - Demand Management Options

Thames Water Response

January 2017

1. Document Purpose

In October 2016, Thames Water presented the *'Demand Management Options Screening Report - Phase 1'* at the Technical Stakeholder Meeting. In response, 77 points of feedback were raised by stakeholders with four predominant themes:

- Screening Process and Integrated Demand Management (IDM);
- Investment Terminology;
- Metering Programme; and
- Incentive Scheme and Innovative Tariffs.

The purpose of this document is to provide a summary of Thames Water's response to these four themes. It is intended to be used as a quick reference. The full detail response to each individual comment has been presented in the spreadsheet titled, *'Stakeholder Comments Log Demand Management 1 February 2017'*.

The next update to the *Demand Management Options Screening Report* will be published in March 2017. This update will incorporate the stakeholder feedback summarised in this document.

2. Screening Process and the Integrated Demand Management (IDM)

A number of comments requested clarification of the screening process and the relationship with the Integrated Demand Management (IDM) model. The information presented below provides a high level overview of the screening process and the link with the IDM model and the Economics of Balancing Supply Demand (EBSD) model. A detailed overview of the screening process will be set out in the March 2017 update of the *Demand Management Options Screening Report*.

The purpose of the screening process is to identify, review and determine the feasibility of potential demand management options. This process involves multiple levels of screening where options are primarily assessed for their cost and demand savings benefit. The environmental and social impact, technical feasibility and risk and uncertainty are also considered.

The output of the initial screening phase is a list of potential demand management options that have been deemed feasible for further assessment. This further assessment is undertaken using the **Integrated Demand Management (IDM) model.** Table 1 shows the options that have passed this initial screening phase for inclusion in the WRMP19 IDM model.

The purpose of the IDM model is to undertake cost and benefit optimisations of the feasible demand management options to produce demand management programmes. That is, each option shown in Table 1 is input into the IDM model by its cost (CAPEX and OPEX) and demand saving benefit (reduction

in leakage and/or usage). Using this information, together with the baseline leakage[1] and usage[2], the IDM model can conduct alternative cost and benefit optimisations to produce a range of potential demand management programmes. Each programme will include a mix of demand management options to be implemented over each 5-year business planning period, referred to as AMPs, (i.e. metering, water efficiency, and further leakage reduction), the total cost of that programme and the expected demand reduction (broken down into leakage, usage and wastage) per programme.

The set of demand management programmes generated by IDM are then input into the **Economics of Balancing Supply Demand (EBSD)** model. The EBSD optimiser appraises the demand management programmes in conjunction with the water resource options, baseline supply and demand, target headroom and target headroom uncertainty to produce a preferred demand management and/or resource programme to remove the supply demand deficit.

Table 1 - Demand Management Options to be input into WRMP19 IDM

Leakage Reduction	Water efficiency	Incentive Schemes	Non-Potable Water	Metering
Active Leakage Control	Smarter Home Visits	Targeted Incentive Scheme	Grey water recycling system	Progressive Metering Programme
Pressure Management	Smarter Business Visits	Innovative Tariffs (feasible post smart-metering)	Rainwater harvesting system	Bulk Metering Programme
Mains Rehabilitation	Wastage fixes e.g. Leaky Loos		Storm Water Recycling System	Optant Metering Programme
Customer Side Leakage	Innovative Solutions (devices & technology)		Decentralised wastewater recycling plant	
	Housing association fixes (fixes problems found at properties)		Centralised or semi-centralised wastewater recycling plant	
	Intensive area-based comms/marketing			

Black Text = Options included in WRMP14 and reassessed for inclusion again in WRMP19

Green Text = New options for WRMP19

[1] Baseline leakage in the IDM model refers to the level of leakage activity required to achieve our leakage targets. It does not include leakage activity above and beyond that required to achieve our targets. i.e. ALC +10%

[2] Baseline usage in the IDM model refers to the expected usage over the planning period factoring in population growth but without any additional interventions.

3. Investment Terminology

The terms 'least cost', 'best-value' and 'cost-effective' have been used throughout the screening report.

To clarify;

'Least cost' programme: is a combination of options (either supply or demand options or a mixture of both) that solve the supply demand deficit with the lowest financial long-term cost. This is an output of the EBSD model (see section 2).

'Best value' programme: is a solution that has been appraised beyond simply least cost and includes for the assessment of environmental benefits and dis-benefits, deliverability, resilience, sustainability, customer preferences and adaptability. The best value or preferred programme is developed using the EBSD + model[3].

'Cost Effective': refers to a solution that delivers a benefit that is good value for the financial cost. It is a subset of 'best value'.

4. Metering Programme

We received a number of comments regarding the progress of our metering programme roll out, namely that our metering penetration did not significantly increase between 2010-11 and 2014-15 and that our current proportion of metered properties are below expected when compared with the industry average.

The Thames Water area was designated as being in an area of serious water stress by the Secretary of State for the Environment Food and Rural Affairs in 2007. Consequently, we were required to consider the case for progressive (previously termed as selective and compulsory) metering as part of the statutory water resources management plan (WRMP09). Legal powers were granted for compulsory metering in 2012 (AMP5) on approval of WRMP09. Consequently, it wasn't until after 2012 that our metering penetration began to significantly increase.

The WRMP14 plan (2014) made the case for smart metering or Automatic Meter Infrastructure (AMI). AMI is forecast to deliver more benefit than 'dumb'[4] metering or Automatic Meter Reading (AMR)[5]. The WRMP14 plan made the provision for the installation of 937,615 progressive meters and the potential for 306,860 optant meters in 15 years to increase metering penetration to 72% in London and 91% in Thames Valley by 2030 (77% TWUL). The plan also included the provision for additional bulk metering[6] of shared supplies to improve our understanding of demand and target leakage on private mains

[3] EBSD + optimises beyond simply least cost and includes metrics for environmental benefits and dis-benefits, deliverability, resilience, sustainability, customer preference and adaptability.
[4] 'Dumb' meters refers to a conventional meter with a register dial that requires a meter reader to gain physical access to read the meter.
[5] AMR meters have a short range radio installed at each property so a meter can be read with a 'walk-by' or 'drive-by' rather than the meter reading requiring physical access to the meter.
[6] Bulk metering involves placing a meter on the supply pipe to a building that houses many dwellings, such as flats.

networks. Since 2012 approx. 140,000 progressive meters and 3,000 bulk meters have been installed in London. The current installation rate is approx. 10,000 meters per month.

There have been a number of key challenges throughout AMP5 and AMP6 to install meters throughout the Thames Water area. A smart network and smart meters are innovative technology for the water sector and there has been significant time and investment to develop and implement the required infrastructure. When compared with other water companies, this penetration rate is lower primarily due to the property make up and issues encountered in London. Specifically, access to install meters in flats is proving challenging with less than 10% of planned work being successfully progressed to-date. This is due to both issues with access and complexity (i.e. there is also a level of unmeterable internal properties once access is gained). Similarly, many properties require installation of a boundary box prior to becoming metered. However, this proves difficult in central London due to the additional permits required to work on Transport for London (TFL) routes and has the effect of adding further steps and time into delivery the planned metering roll out. The roll out of AMI meters in some areas is also challenging due to the additional time required to resolve 'black spots' in the network coverage.

We are currently consulting with other water companies to learn from their experience with implementing meters in flats, working on busy traffic routes, managing unmeterable properties and developing an effective resolution to network coverage issues. We are also working to develop a policy to enable meter installation at all properties with a change in occupancy. Based on our experience and learning to date, we forecast a meter penetration of 55% by the end of AMP6 and 77% by 2030.

5. Incentive Scheme and Innovative Tariffs

A number of queries requested an update on our Incentive Programme and consideration of further tariffs. This follows our commitment in WRMP14 to undertake a trial of innovative tariffs in 2015-2020 and if successful, to introduce these from 2022/23.

Over the past 18 months, we have completed a desk based review of tariffs, both in the UK and internationally, to understand the types of tariffs in use, the methods of implementation and the effectiveness of tariffs. We have also completed research with customers which indicated that customers' are sceptical of tariffs; they want simple and clear charging and billing arrangements. Also as tariffs were viewed negatively overall, customers said that, to be fair, they considered that a relatively high level of meter penetration was needed prior to the introduction of tariffs. And that education on water use was required as a precursor for tariffs to work effectively.

In response to customer feedback, rather than undertake a trial of tariffs in 2015-2020, we have developed a reward based incentives scheme. The incentives scheme is currently being trialled in Reading with plans to extend to parts of London later in 2017. The scheme is a positive intervention, to help customers understand their water use and encourage the efficient use of water through rewards. The effectiveness of the scheme will be assessed, using both quantitative and qualitative data, to inform our future strategy on incentives. We have not screened innovative tariffs out from consideration in our long term programme of potential measures but want to understand the effectiveness of positive interventions, which are supported by customers, prior to measures which are considered to be punitive.

We also consider that meter penetration needs to be sufficiently high, prior to the introduction of tariffs, to be fair to all our customers.

In light of this, we have decided to incorporate innovative tariffs in the potential list of demand management options for optimisation in IDM (see Table 1). However, innovative tariffs will be constrained in the model so that they cannot be implemented prior to achieving at least 60-70% meter penetration (i.e. from AMP08). CCWater has stated their support for the need for a progressive approach to the implementation of meters and additional tariffs and we believe this is the most realistic method to incorporate innovative tariffs into our demand management programme.

6. Next Steps

The updated *Demand Management Options Screening Report* will be published in March 2017. This update will incorporate the stakeholder feedback summarised in this document and provide the full detail on the screening process and decisions.

TW, 1 February 2017