

MOSL's response to Water UK's Net Zero Routemap

Introduction

In November 2020, Water UK published its [Net Zero Routemap](#), outlining water companies' ambitious plans to reach net zero operational emissions by 2030 – 20 years ahead of the UK government's target.

The Routemap is centred around three pathways – demand led, technology led, and removals led. The technology pathway focuses on “accelerating technological innovations in the most emissions-intensive areas” and the removals pathway focuses on nature-based carbon sequestration.

As the market operator for the non-household water market, we have a unique position at the heart of the market to support the demand led pathway – helping the sector to achieve both its net zero and water consumption reduction goals.

As a result of the market opening in 2017, more than 1.2 million customers can choose who provides their water and wastewater retail services. These customers use around 2.8 billion litres of water, roughly a third of England's total consumption, and generate 1.8 billion litres of wastewater¹ every day. We estimate this creates approximately 26 kilotons of operational greenhouse gas emissions every month.

Everyone involved in the non-household market can make a significant contribution towards reducing carbon emissions and it is essential the sector involves customers on the journey to net zero. MOSL's insight into customer and consumption data will help water companies and retailers give business customers a better understanding of their water usage and carbon impact.

MOSL fully supports the sector's ambitious target to reach net-zero by 2030. Our response focuses on areas where we can add value to the sector's efforts by using our central position to provide greater insight into customers' water use, provide leadership, facilitate collaboration and ensure non-household customers are part of the journey to net zero.

Providing Data Insight

Data Insight is one of MOSL's four strategic priorities. Getting a better understanding of customer, asset and premises data is also a key workstream in our 2020/21 Market Performance Operating Plan (MPOP) and has been essential in supporting the market during COVID-19 – as we saw businesses close temporarily and water consumption patterns shift to domestic usage.

MOSL is the custodian of a vast amount of data which can be used to support **all** market participants make evidence-based decisions for the benefits of customers and the environment in which they live. This insight is essential for supporting the sector's net zero ambitions because, as the Routemap acknowledges, “all legs of

¹ Including 424 million litres of trade effluent. This figure does not include surface water and highways drainage where itemised separately

the net zero journey will be assisted by data”. It will also help ensure non-household customers are part of the sector’s ambition.

We currently have a good understanding of non-household customer water usage, including where, when and how much water they use. For example, we know that just one per cent of customers use 43 per cent of total water consumption in the market, with 90 per cent of water being used by the top 20 per cent of customers.

We have invested time into better understanding customer data and, so far, have matched 76 per cent of premises with one of 90 categories, based on the [Standard Industry Classification](#), used by the water industry. This means we can share data insight to support retailers in targeting and tailoring their engagement with customers to support reduced water use and associated carbon emissions.

By combining our central settlement data with wholesaler data about their operational carbon emissions, we are also able to show NHH customers a nominal “carbon cost” of the water services they receive. This would give customers and retailers an accurate picture of how water contributes to their carbon footprint. See Appendix A for more information on carbon tariffs.

Recognising the links between water and energy

Moving and treating water – both drinking and wastewater – are very energy, and therefore, carbon intensive. Reducing demand for water will have a similar impact for carbon emissions – both operationally for the water sector and from how water is used in homes and businesses. As suggested by Water UK in its Routemap, we agree that there should be greater recognition of the links between energy and water.

The government’s [10-point plan for a Green Industrial Revolution](#) includes a commitment to “put our homes, workplaces, schools and hospitals at the heart of our green economic recovery” by enabling a shift away from fossil fuel heating and making buildings more energy efficient. This should be expanded to include support for making non-domestic buildings more water efficient. We would encourage government to expand the consultation to include this.

Formalising links between water and energy efficiency will benefit all water users, support both the water sector and UK Government’s net zero ambitions and encourage innovation, such as multi-utility offerings, across the non-household market as retailers respond to changes in customer expectations and government policy.

Supporting the demand led pathway

The demand led pathway focuses on “managing demand for water and wastewater service” through the prioritisation of water efficiency, leakage management and energy self-sufficiency. Good quality data is integral to driving water efficiency. It enables us to measure progress against targets, understand customers’ water use and enable all parties to make informed, data-led decisions.

We have undertaken work to better understand vacancy in the market and how this could support a better understanding of customer leakage. There are a number of premises in the non-household market currently marked as vacant – but that still have considerable consumption. This could mean they are in fact occupied or there is a leak which can then be flagged to the water company to investigate. Enhancing our understanding of vacancy in the market can support efforts to reduce leakage and in turn lead to water savings.

The demand Led pathway can learn from the NHH market’s national focus on asset, customer and consumption data, specifically how:

- ◆ Developing a **consistent, industry-wide, national data model** supported by central oversight and peer comparison has improved **data quality**
- ◆ Market data is **stored centrally**, enabling ease of access, transparency and providing the foundations for innovation
- ◆ The **unique characteristics of NHH customers**, which vary by consumption, industry type and location, can enable prioritisation and a tailored approach to support demand reduction
- ◆ **National geographic diversity** impacts outcomes, with demand led reductions in one region having different overall impact to those in another
- ◆ Data could **be combined and used differently** – such as developing “carbon tariffs” by combining monthly settlement data with water company emissions data (See Appendix A for more details).

Understanding NHH Customers and the role they can play

The Routemap states the sector needs to “engage and support customers to drive water efficiency through innovative means, utilising technology advancements and wider metering coverage”. NHH customers are a highly diverse group with different consumption rates, usage patterns, behaviours and environmental and corporate social responsibility drivers. These characteristics present distinct opportunities for, and challenges to, achieving environmental outcomes and understanding how to motivate behaviour change.

Information on NHH consumption is more likely to be accurate, as round 90 per cent of NHH customers are metered, compared to around 55 per cent of domestic customers. NHH meters are read monthly or biannually, giving more timely reads than the less-frequently read domestic meters. Our Strategic Metering Review aims to increase the volume and quality of consumption data available to all market participants – improving data quality, understanding the incentives for meter reading and enhancing the insight already available to enable customers to make more informed decisions, including on water efficiency initiatives, based on accurate data.

We know just one per cent of NHH customers use 43 per cent of the market's total water consumption, with 90 per cent of water used by just 20 per cent of customers. This means certain customer segments have a disproportionate impact on demand and operational carbon emissions.

We also know different customers can flex their water usage. Targeting these customers could reduce supply demand challenges and minimise the need for new or reinforced assets – further reducing carbon emissions from capital investment, while increasing the resilience of supplies.

By providing more granular data to retailers and NHH customers, they can play a greater role in protecting water supplies against the risks posed by climate change and support water companies' efforts. Appendix B includes case studies on high consuming NHH segments.

Conclusion

MOSL fully supports the water sector's net zero ambitions. We commit to working with all involved in the sector – from government and regulators, to water companies and non-governmental organisations – to provide crucial insight, help identify and overcome barriers and facilitate collaboration and innovation.

We will continue enabling all market participants to make informed decisions by improving the quality of data in the market – and our understanding of it - and finding opportunities to share it more widely through an 'open data' approach. This includes taking part in the Open October initiative, run by Northumbrian Water and Sia Partners, and future innovation sprints to develop an open data approach to carbon accounting across the sector.

We will also maintain our engagement with the Retailer Wholesaler Group (RWG), relevant sub-groups and other stakeholders such as the Major Energy Users' Council (MEUC) to bring together ideas, innovation and the customer voice from across the market.

Appendix A: Carbon Tariffs

Carbon Tariffs

By pairing water companies’ operational emissions data with consumption data in the central system (CMOS) we can create carbon settlements to supplement our normal monthly settlement runs. This would provide a consistent way of recording operational carbon emissions for NHH customers – giving them additional insight into their environmental impact.

Large customers have told us the cost of water is seen as too low – creating a barrier to driving behaviour change or additional investment in water saving. Showing the carbon cost of water consumption may trigger behaviour change, as many large companies focus on carbon emissions as part of their Corporate Social Responsibility (CSR) and wider sustainability efforts.

The NHH market’s settlement engine (CMOS) records all consumption centrally and calculates water and wastewater costs based on varying regional tariffs. One Proof of Concept (PoC) has shown how we can adapt regional wholesaler tariffs to align with the cost of carbon they already publish. When run against consumption we can generate a view of the carbon cost of water supply and wastewater treatment at both a wholesaler-retailer and customer “supply point” level on a monthly basis.

Based on this initial analysis of CMOS consumption (using the most accurate final settlement runs (RF) currently available up to June 2019) we can plot NHH carbon emissions based on water, wastewater and trade effluent consumption from RF settlement runs between April 2017 and June 2019. See Figure 1 below.

Figure 1. NHH trend view of estimated carbon emissions based on volumes of measured water and associated sewerage return volumes (excluding unmeasured consumption and volumes associated with surface water, highways drainage)

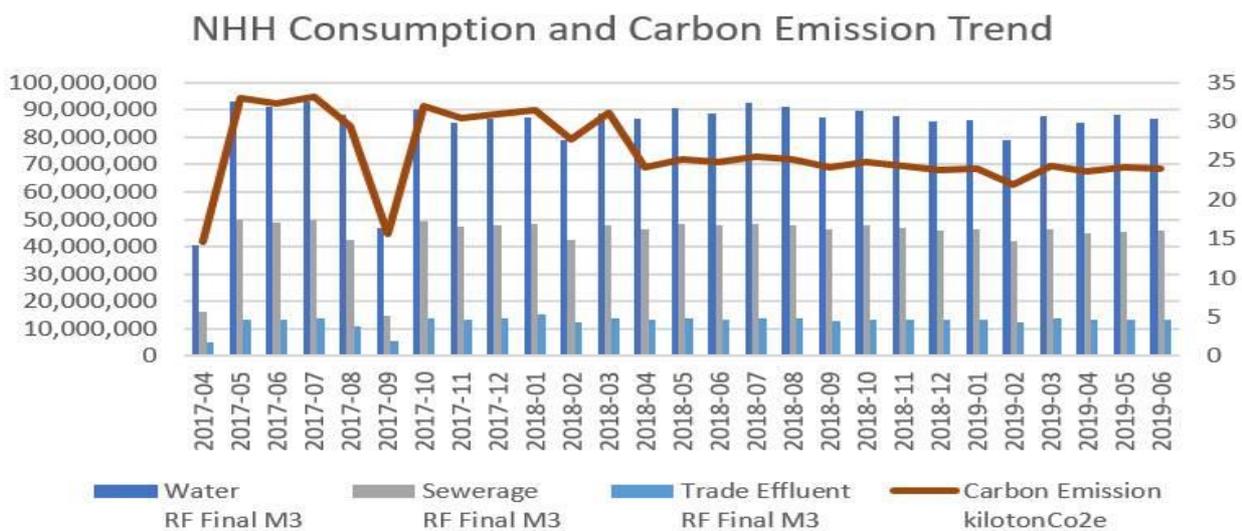


Figure 2. Annual NHH carbon emission figures based on NHH CMOS settlement volumes from measured Water and associated Sewerage return volumes (excluding unmeasured consumption and volumes associated with surface water, highways drainage)

Financial year	Total NHH Carbon kgCo2e / year*	Total NHH Carbon kilotonCo2e / year*	Total Industry Carbon kilotonCo2e / year**	%NHH Co2e of total industry emissions
2017-18	341,897,508	341		
2018-19	267,572,177	267	2266	11.81%
2019-20 [^]	61,446,496	61		

*CMOS settlement, carbon rates Discover Water 2018-19

** Total Industry figure on Ofwat Discover Water website

[^] only April, May, June

Figure 3 shows comparable high-level analysis using the Water Resource Management Plan (WRMP) consumption estimates for NHH, domestic and leakage in 2020-21, alongside the most up to date carbon emission rates for 2018-19. This suggests overall industry carbon emissions (excluding Wales) could be closer to the much lower figure of 1562 kilotons. This would mean NHH emissions could account for as much as 24 per cent of industry emissions.

Figure 3. Top-down estimation approach using forecasts in Water Resource Management Plans (Table 6) estimated consumption 2020-21

WRMP (excluding Wales)***	KgeCO2 /d	KgeCO2 /year	KilotoneCO2 /year	% produced
Total NHH Carbon	1,028,907	375,551,055	376	24.05%
Total HH Carbon	2,818,043	1,028,585,695	1,029	65.86%
Leakage Carbon	431,781	157,600,065	158	10.09%
Total Carbon Kge/d	4,278,731	1,561,736,815	1,562	

***WRMP 2019 Dry Year Annual Average Table 6, carbon rates Discover Water 2018-19

Both analyses show NHH emissions (between 267 and 376 kilotons per year) represent a significant fraction of the sector's total – ranging from 12 to 24 per cent of total operational carbon emissions.

We can estimate the impact of the NHH sector on operational emissions with a degree of certainty, but still need more accurate, granular data in order to represent it fully. For a truly accurate picture of both consumption and carbon, we will need more timely data on consumption – either through more frequent meter reads or wider uptake of smart metering. Our Strategic Metering Review aims to improve the quality and quantity of metered data available across the market.

Behaviour change is often enabled by better data insight. Sharing this data with retailers and customers, especially in sectors with high demand, can raise awareness of the water supply challenges we face. This will enable alignment of end-user demand patterns to supply availability and, ultimately, influence customer behaviour to reduce water demand and associated carbon emissions. Top consuming NHH customer personas are detailed in Appendix B to illustrate how a tailored approach to working with NHH customers is required.

Appendix B High Consuming NHH segments

This section has information on some of the highest using customer segments in the non-household market. Consumption data is based on our current progress matching premises with categories based on the [Standard Industry Classification](#) (76 per cent of premises in the market). These figures are approximate and may change as the quality of the data improves. They also do not include private abstractions.

Electricity, Gas, Steam and Air Conditioning Supply – 24.28 million litres per day

Water and energy are highly interdependent – with both placing large demands on the other. The Environment Agency (EA) estimates that power generation could be 38 per cent of non-public water demand in the North Water Resources Zone by 2050.

Greater transfers of information between the water, gas and electricity sectors would enable a greater understanding of these dependencies, giving a more consolidated view of operations and encouraging collaboration and efficiencies.

Agriculture – 63.34 million litres per day

Agriculture is the largest consumptive abstractor from freshwater in the UK, aside from public water supply, and in some areas (particularly in the East of England) it is the largest.

Better mutual understanding between the water and agriculture sectors would help the latter better understand water supply risks and make informed decisions on when, and where, is best to invest in storage or alternative sources.

Food and Drink Manufacture – 149.72 million litres per day

Our customer segmentation work has identified just over 4,800 food and drink manufacturers' premises with an average consumption of almost 150 million litres per day.

Providing accurate, timely consumption data – overlaid with information about water resources availability and carbon emissions – will enable these customers, often sensitive to their environmental impact, to make more informed decisions about their sustainability and CSR strategies.

Education – 111.27 million litres per day

This is a large, varied sector with differing water needs and consumption. What all customers in the sector share is a common purpose and close ties to the communities they serve.

While all schools, universities and nurseries will have specific water needs their use is more likely to be comparable – in contrast to the commercial sector which has much greater variety. By developing a deeper

understanding of the education sector’s water needs, we could develop a more standardised view – enabling effective investment in water efficiency.

MOSL is supporting the Department of Education to understand the effectiveness of water efficiency educational visits or retrofits and identify schools which may benefit from them in the future.

Supporting documents

- ◆ [March 2020 Market Focus “MOSL Green Team – Market Focus”](#)
- ◆ [Aug 2020 MOSL Publication “MOSL’s remit within the Water Industry’s Environmental Agenda”](#)
- ◆ [Dec 2020 IoW article “Business Matters – using data insight to unlock green value from the water retail market”](#)
- ◆ [National Framework for water resources](#)