



Green bond impact report 2017/18



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Here for you in a changing world

We are the UK's largest water and wastewater services provider, serving over 15 million customers across the South East of England. We deliver 2.7 billion litres of clean, drinking water and safely treat 4.4 billion litres of wastewater for our customers every day. We recognise that the provision of our services must be done responsibly and sustainably for the benefit of the environment and future generations. As well as being essential to life, our services are also vital to the safe and smooth running of London and the Thames Valley.

Our customers are fundamental to everything we do and we are committed to our vision of being 'here for you in a changing world'. In 2017/18 we self-generated over one fifth of our energy needs and continue to be an industry leader in the production of energy from sewage sludge, producing 286GWh of renewable energy in 2017/18, our best performance ever. We also have Europe's largest floating solar panel array on our QE2 reservoir to part power nearby Hampton water treatments works, generating enough electricity to power the equivalent of 1,700 homes. We are proud of these achievements and the amount we self-generate will only increase as we maximise the potential of innovative technology.

We seek to strike a balance between the level of service we provide customers, and our impact on the environment and communities, the level of customer bills and future investment in the business. To help us on our journey all our business activities are underpinned by our nine sustainability themes.

Our nine sustainability themes:

1. Water, a precious resource
2. Providing sustainable drainage
3. Mitigating climate change
4. Climate change adaptation
5. Ensuring responsible operations
6. Enhancing customer inclusion
7. Delivering efficient operations
8. Sustainable and safe workforce
9. Long-term sustainable investment

In March 2018 we issued our first green bond under our green bond framework. Proceeds from this green bond have been used to refinance four major projects and programmes of work which will help us meet our sustainability ambitions, including reducing leakage, reducing carbon emissions, increasing water efficiency, increasing water quality and increasing renewable energy production to protect the environment around us.

This green bond impact report provides an update to investors on both the allocation of funds and environmental benefits of our four eligible project areas.

Independent assurance

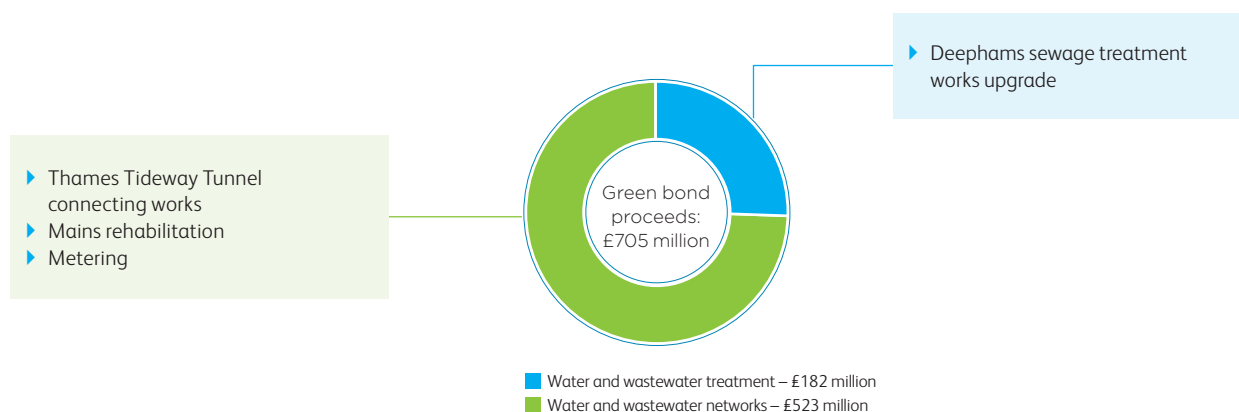
We engaged DNV GL to perform limited assurance in accordance with the standard ISAE 3000 (revised). The assurance scope included selected key performance indicators disclosed on page 2 of our green bond Impact Report. DNV GL's full assurance report, including their conclusion and a summary of the work they performed, can be found on our website.



Allocation and benefits summary

2017/18 has seen us increase the diversity of our funding with the issue of a £705.1 million US Private Placement in March 2018¹, our debut green bond. The proceeds have been used to refinance four of our largest green eligible projects, covering work completed between April 2015 and the end of November 2017.

The dashboard below shows a summary of how we have allocated the bond proceeds between the four project areas, and how these projects have helped us become more sustainable. Please note, figures quoted within this dashboard only cover the selected projects and therefore are not representative of the company's performance in these areas as a whole.



Deliverables and environmental benefits

Project	Deliverables	Annual benefits from our green bond investment ²
<ul style="list-style-type: none"> ▶ Mains rehabilitation ▶ Metering 	<ul style="list-style-type: none"> ▶ 271,282 Meters installed as well as 91,581 revenue meters maintained or replaced ▶ 243km of mains have been rehabilitated including 26km of trunk mains ▶ Pressure management on our networks 	<ul style="list-style-type: none"> ▶ 88.6 mega-litres per day of water savings from leakage prevention and demand reduction
<ul style="list-style-type: none"> ▶ Deephams 	<ul style="list-style-type: none"> ▶ Capacity of treatment works increased to serve an additional 100,000 customers to help meet population growth in the area 	<ul style="list-style-type: none"> ▶ Our upgrade works have increased the efficiency of our wastewater treatment and allowed us to treat more wastewater at peak times during storms. In 2017/18 the site prevented 111.5 mega litres of effluent discharging into the river
<ul style="list-style-type: none"> ▶ Deephams 	<ul style="list-style-type: none"> ▶ We have built 2 new Combined Heat & Power (CHP) engines to help us in generating even more of our own renewable energy 	<ul style="list-style-type: none"> ▶ In 2017/18 our new CHP engines generated 23,792,385kWh of energy. This represents an increase of 48% compared to the energy generated at the site prior to the upgrade in 2014/15
<ul style="list-style-type: none"> ▶ Mains rehabilitation ▶ Metering ▶ Deephams 	<ul style="list-style-type: none"> ▶ By saving water through preventing leakage our water production can be reduced, which in turn reduces our emissions ▶ Our CHP engines allow us to generate our own renewable energy which helps us in reducing our emissions further 	<ul style="list-style-type: none"> ▶ 9,938,453kg of CO₂ equivalent emissions avoided through our water savings and renewable energy generation from our two new CHP engines
<ul style="list-style-type: none"> ▶ Thames Tideway Tunnel connecting works 	<ul style="list-style-type: none"> ▶ As part of our connecting and enabling works, 21 sites have been handed over to Thames Tideway Tunnel delivery team⁴ 	<ul style="list-style-type: none"> ▶ The Thames Tideway Tunnel will prevent millions of tonnes of sewage flowing into the River Thames

1. March 2018 marks the date of the drawdown of funds

2. Annual calculated environmental benefits created from the 4 project areas, covering work completed between April 2015 and November 2017

3. Emissions avoidance has been measured using common industry metrics which include kg of CO₂ equivalent per mega litre of water saving and per kWh of renewable electricity produced

4. 21 sites handed to the Thames Tideway Tunnel delivery team is representative of the work done up till 31st March 2018

Accommodating population growth

Wastewater treatment

Deephams sewage treatment works provides wastewater treatment for over 880,000 people, with the site spanning 170 acres. We are currently upgrading the works to meet new environmental standards and increase capacity to accommodate population growth.

The upgrade works is expected to increase the site's operational capacity by approximately 100,000 people so it can meet forecast demand for the area up to 2031. It will also deliver improvements for the local environment and communities by significantly reducing odour from the sewage treatment works and significantly improving the quality of treated effluent which flows into Salmons Brook.

As part of the project, we have built two new biogas Combined Heat and Power (CHP) engines to increase our renewable energy generation capability further and in 2017/18 we generated over 23GWh of energy from these engines. We have also completed construction of the two new effluent treatment streams, both of which are now operational. The project is expected to be fully completed by December 2018.

During construction we have been committed to limiting both the disruption to customers and the impact the works has on the environment. We have taken the following measures:

1. Ensure the site still operates at normal capacity during the works
2. Keep local residents regularly informed of the project's progress
3. Reduce the need to go to landfill using sustainable measures such as reusing the original site/structures

In recognition for our effort to limit public disruption the scheme has been awarded with two National Bronze Awards as part of the Considerate Constructors Scheme.



Improving the health of the River Thames

Water and Wastewater networks

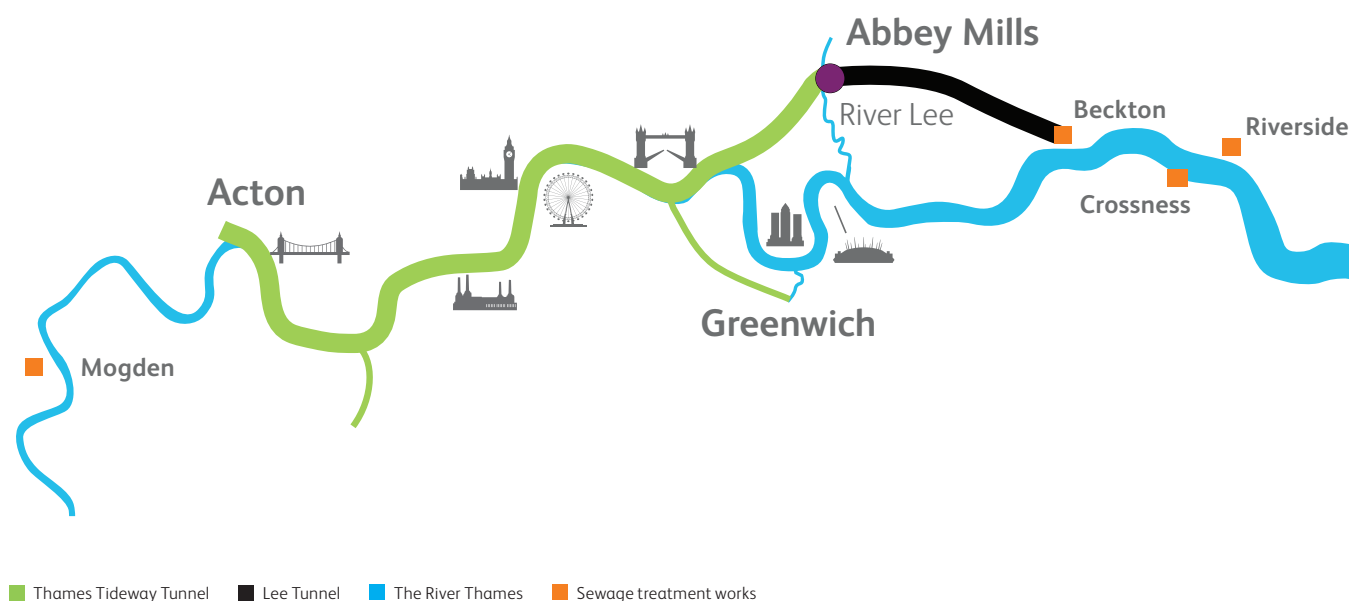
Rapid population growth in London is putting increased strain on our sewer network, impacting the health of the River Thames.

To address this challenge, the London Tideway Improvements Programme was started. The programme includes the upgrade of key sewage treatment works, construction of the Lee Tunnel and construction of the Thames Tideway Tunnel. We have already completed upgrades to five of our largest sewage treatment works, and the Lee Tunnel (a 6.9km 'super' sewer under the London Borough of Newham) is in operation.

The Thames Tideway Tunnel, currently under construction, is the biggest infrastructure project undertaken by the UK water industry since privatisation. The 25km long tunnel will boost the capacity of London's sewer network and protect the River Thames from sewage overflows for at least the next 100 years. An independent company Bazalgette Tunnel Limited (BTL) has been appointed to construct the tunnel following a competitive tendering process. We are responsible for planning, enabling and interface works to join our infrastructure to the Thames Tideway Tunnel.

We are progressing well with the programme of Enabling works and handing worksites over to BTL and its contractors. We have now handed over 21 sites to the TTT delivery team. The remaining 2 sites are System Works, which are on track for delivery for 2020.

Whilst this project is ongoing we are ensuring we provide effective communication and remain committed to a collaborative and open relationship with all stakeholders involved including Ofwat, the Environment Agency, DEFRA, Tideway, and the Customer Challenge Group.



Looking after our oldest and most ‘at risk’ assets

Water networks

Being the custodian of London’s water supply is both a unique honour and a challenge. With 34% of our pipes being over 100 years old and an average pipe age of 80 years, we have the oldest network in the UK and much of it is intertwined with other utility pipes buried deep beneath the streets of the capital. To replace 1km of pipe it costs £363,000 in materials, labour and traffic disruption, and takes 7,025 working hours. Given the balance between affordability, minimising disruption and the need for investment, it’s not possible to replace all of our water mains, however we have accelerated our mains replacement programme in recent years.

Trunk mains are the motorways of our water network which carry significant amounts of water under high pressure from treatment works and reservoirs into the distribution network for onward delivery to customers. We have a network of 3,214km of trunk mains, with 38% of these trunk mains put in place before 1930. Bursts on these mains can have a significant impact on our customers, including flooding of homes, businesses, and the environment. In 2017 we commissioned an independent report into the condition of our trunk mains, and we’ve taken action as a result of these findings. To deliver our vision we need to be smarter at how we monitor the condition of our pipes, and are investing heavily in the monitoring, repairing and replacing our ‘highest risk’ mains.

After beating our leakage target for ten years in a row, we have regrettably missed it for the past two years. We are committed to getting back on track and have aspirations to bring leakage down by a further 15% during the next regulatory period (2020–2025) and to halve it in the longer term. Our mains rehabilitation programme, together with our metering programme and fixing holes in our pipes, will play a key part in helping us achieve these aspirations.

Through the issue of our first green bond we have been able to refinance programmes of work covering the rehabilitation of over 240km of water mains, including 26km of trunk mains.

Along with replacing and rehabilitating our mains network we also monitor the water pressure on our pipes closely. Pressure management is a cost effective method for reducing leakage over many years, especially where water mains are not in poor enough condition to be replaced. When integrated with prioritised mains replacement and find & fix activities it provides an effective technique in the management of leakage.



Protecting valuable water resources to meet future needs

Water networks

The South East of England is one of the UK's driest regions. London gets less rain than Rome, Dallas and even Sydney. It is also one of the most densely populated parts of the country, and the number of people living and working in our region is forecast to grow significantly. By 2045 there is expected to be around two million more people living in our area. That's the equivalent of the combined populations of Birmingham and Glasgow moving in. At the same time, the amount of water that we can take from rivers and underground sources is reducing, due to changes in the climate and the need to protect the environment. All of these factors mean that without action we face a future shortfall between the amount of water we can supply and the amount our customers use.

Fitting water meters is one of the most effective ways to address the supply and demand gap in the immediate future. Water meters enable us to better understand our network and help identify leaks quicker by detecting continual use. Our smart meter technology will enable us to take readings remotely, providing meter consumption data which improves our targeting of leakage control and other demand management activities. Customers will also benefit from a better understanding of their own usage, reducing unnecessary consumption and ultimately lowering their bills. We predict that on average metered customers use between 15% and 20% less water, and so ensuring we're continuing to install meters is vital in protecting water resources over the long term.

We have a number of different metering programmes and around 40% of our customers are now on a metered supply. The proceeds raised from our green bond has enabled us to refinance a large proportion of our metering work completed during this regulatory period, including the installation of more than 270,000 of meters at our customers' properties.

In the future we plan to manage customer demand for water by continuing to roll out our smart metering programme, engaging with customers, and providing effective water efficiency advice through our 'smarter home visits'.

Our metering programmes

Progressive metering programme	Our progressive metering programme aims to fit smart meters at our customers' properties in order to better understand usage, identify leaks and reduce customers' bills
Bulk metering programme	Large "bulk" meters spot leaks on large private supply pipes which can serve many buildings or properties
Optants programme	Customers can request a meter through our optant metering programme at any time



Our green bond framework summary

In January 2018 we developed a framework under which we can issue green bonds. Our green bond framework supports the financing of our water and wastewater recycling projects related to the environmentally sustainable management of natural resources and land use, as well as climate adaptation. We aim to provide transparency, disclosure, integrity and quality in our green bond reporting. Below provides a summary of both our project selection process and management of proceeds for our green bond.

Process for project evaluation and selection

We have processes in place to ensure strong governance over approval of capital expenditure. Our Board reviews and approves our annual capital expenditure budget. All capital expenditure also requires management approval with the level of approval determined through our schedule of delegated authority. This ensures there is appropriate managerial scrutiny over the investment.

Projects are considered based on their relative merits including how they impact operational performance, the environment, health and safety, and whether they are cost efficient. Green projects must meet the eligibility criteria. Projects are selected and approved by the Group Chief Financial Officer with input from our Sustainability, Treasury and Corporate Finance teams.

Our decision making is made in line with five strategic priorities (updated in our PR19 business plan):

1. Deliver brilliant customer engagement to create lifelong advocacy
2. Invest in resilient systems and assets
3. Use data from customers, operations and the environment to make better decisions
4. Protect and enhance the environment
5. Build a collaborative and capable team, dedicated to serving our customers

Management of proceeds

The proceeds arising from the issuance of our green bond will be appropriately managed at all times by our Treasury function, and used to refinance eligible projects under the green bond principles. Where any proceeds cannot be immediately allocated to refinance these projects, the funds will initially be placed as deposits with Money Market Funds or bank counterparties that comply with our Treasury policy.

While our inaugural green bond will only be used to refinance eligible projects that have been completed recently or are in progress, we are keen to look at extending the scope of potential future green bonds to include the financing of new eligible green projects.

External review

We appointed DNV GL to independently verify our green bond Framework and underlying assets. DNV GL has reviewed the Framework content and underlying assets and has confirmed its alignment with the green bond Principles and claims made by the issuer, providing us and investors with a verification report.

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