

South Staffordshire Water green recovery initiative – using ceramic membrane at Hampton Loade



Following the widespread social and economic upheaval caused by the COVID-19 pandemic, the UK Government launched a number of initiatives in the second half of 2020 to encourage economic growth post-COVID, with an emphasis on green recovery.

As part of this, government and sector regulators encouraged the water companies in England and Wales to revisit their investment programmes for 2020 to 2025 by:

- **accelerating the delivery of their existing plans**, including measures to protect the environment;
- **bringing forward proposals** from 2025 and beyond; or
- **submitting green recovery proposals** that provide benefits to local communities and the environment.

In light of this, and also the water sector's commitment to achieve net zero carbon emissions by 2030, we decided to revisit our proposals to upgrade Hampton Loade – the largest water treatment works in our South Staffs region.

Our treatment works upgrade programme

As part of our AMP7 business plan proposals covering the five years from 2020 to 2025, we submitted a successful cost adjustment claim for funding to enable us to carry out an ambitious upgrade programme at the two largest water treatment works in our South Staffs operating area – Hampton Loade and Seedy Mill. These are strategically important works for us as they supply water to around 60% of South Staffs Water customers.

In our cost adjustment claim, we set out our plans to introduce an enhanced second-stage filtration at both works during AMP7 and also enhance the clarification stage in the following five years between 2025 and 2030 (AMP8). At the same time, we said we would improve the operational resilience at each site by minimising the risk of single points of failure. We also said we

would carry out a trunk mains cleaning programme for around 100km of strategic mains to ensure customers quickly feel the benefits of the upgrade programme in terms of the quality of the water they receive from us.

The cost adjustment claim allowed for the installation of primary Rapid Gravity Filters (RGFs) near the existing clarifiers and the introduction of a new mains connection from the primary RGFs to the existing RGFs. These would then be converted into Granular Activated Carbon (GAC) adsorbers, creating a second filtration stage downstream of the RGFs.

In our PR19 final determination Ofwat allowed £68 million of enhancement expenditure, which was 92% of the funding we requested in our April 2019 business plan submission.

Our green recovery solution

Our green recovery submission related to specific changes we want to make to our plans for the Hampton Loade works. Instead of our plans to install new RGFs and clarifiers at the works over a ten-year period, we decided to pursue an innovative ceramic membrane-based solution, which we think will deliver a number of benefits for customers and the environment, including:

- **enhanced water quality** – this is consistently the top priority for our customers, and the most important area in which they want us to invest;
- a **reduction in carbon emissions** of around 1,000 tonnes a year;
- **improved operational flexibility and resilience**; and

- the **potential for increased local employment** opportunities.

Once complete, it will be the largest deployment of ceramic membrane technology in the UK, if not in Europe, and the first retrofit of its kind in an existing water treatment works.

In July 2021 Ofwat confirmed its decision to allow additional funding of **£17.6 million** (in 2017/18 prices) under the green recovery initiative to accelerate the installation of ceramic membrane filters at our Hampton Loade water treatment works. We are contributing **£9.7 million**, while Severn Trent Water, which shares the resource, is contributing **£7.9 million**.

This expenditure is part of an overall upgrade programme at Hampton Loade.

Progress during 2022/23

- Following our construction partner, NMCN, going into administration in October 2021, we recruited two new construction partners with the necessary experience and expertise to take over from NMCN. In May 2022 we announced Ross-Shire Engineering and Barhale as our new construction partners.
- Since appointing the new construction partners, **we have made significant progress during the reporting year**. Design works are complete, and the piling foundations and base slab have been cast. The portal frame was erected in April this year.

- On site, all service diversions have been completed and high voltage (HV) distribution boards have been expanded in preparation for further work. The new ceramic membrane filters have arrived from Japan and are currently being stored off-site until they are needed.
- The off-site assembly is progressing well and is on track to be delivered by December 2023. The value of this work was **£35 million** (outturn prices) – or around **50%** of the total construction costs.

As the ceramic solution is an integral part of the total Hampton Loade upgrade programme, it is not feasible to identify the separate components of expenditure that related specifically to the green recovery funding. We have therefore assumed that green recovery funding is spent in the same proportion as the total upgrade and have assigned a South Staffs Water share of **£5.038 million for the year and £6.189 million in total** (both in outturn prices).

As a result of the progress we have made during the reporting year, we are pleased to confirm that we are still on track to deliver the treatment works upgrade in line with our original timescale – that is, by March 2025.

South Staffordshire Water PLC
14 July 2023