



SUMMARY REPORT

Fair Water Flow Loop Testing

Test Date: 26th August 2026

Test Home: 1990s Detached Home, 7 Futures Close

Supported by Northern Gas Networks

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Introduction

Fair Water, formally 'Transforming Customers' Lives: Integrated Pathways to Fair and Sustainable Water' is a £3.7 million project funded through the Ofwat Innovation Fund and led by **Northumbrian Water Group (NWG)**.

Its aim is to find fair, practical and affordable ways for households, particularly low-income, elderly and vulnerable customers, to **use less water and energy, lower carbon emissions and reduce utility bills**.

The project focuses on four everyday household activities that rely on water: **laundry, dishwashing, showering and toilet use**.

Researchers are exploring the effectiveness of three types of intervention: **behavioural nudges, cleaning products designed for lower-temperature / lower-water use and the introduction of new technologies / appliances**.

Project Partners

The core consortium includes:

- Northumbrian Water Group (NWG)
- Northern Gas Networks / NeRV
- Newcastle University
- National Energy Action (NEA)
- Procter & Gamble (P&G)

Assessing UK Readiness for Recirculating Showers

The Net Zero Research Village (NeRV) in Low Thornley, operated by Northern Gas Networks, was commissioned to provide a controlled real-world environment where Flow Loop - an innovative water-saving shower - could be tested.

Recirculating showers can cut water and heat use by up to 80% without compromising experience. They are currently sold in parts of Europe and North America but not in the UK due to compliance uncertainties.

In a first for the UK, Flow Loop was installed in the 1950s bungalow test property at NeRV where researchers from Newcastle University and National Energy Action (NEA) successfully tested its performance and water-saving capabilities.

The Regulatory Challenge

As recirculating showers intentionally collect used shower water before filtering, disinfecting and reusing it during the same session, regulators need assurance that:

- contaminated water cannot enter the mains supply;
- pathogens such as Legionella cannot proliferate;
- filtration and UV treatment remain effective throughout the product life;
- system failures default safely;
- maintenance requirements are understood and enforceable.

The tests at NeRV set out to generate independent evidence in response to the above. The research data would then help regulators, manufacturers, installers and water companies assess if this technology is ready for routine deployment in homes.

Controls and Compliance

Securing a regulatory derogation from NWG was an important project milestone as this meant that the testing could go ahead within a real-world domestic environment.

While water recycling showers operate differently from conventional shower systems, the derogation process ensured the installation could proceed in a controlled and compliant manner, providing valuable evidence on both performance and customer benefits.

Testing Approach

Initial tests were carried out without a few cm of water in the shower tray and showed no water savings. These were repeated on 26 August with sufficient water in the shower tray to allow recirculation to take place.

Tests were carried out over 4 and 8 minutes in recirculating mode. A bucket test was carried out to measure the flow from the shower head and this was done for 10 seconds.

Mode	Volume (L)	Volume (L/min)	Expected (L/min)	Bucket test (L/min)
Recirculating 4 minutes T1	17.396	4.35	2	9
Recirculating 4 minutes T3	15.207	3.80		
Recirculating 8 minutes T2	21.967	2.75	2	

Note that additional water was emitted 2 minutes after the end of the shower as LOOP automatically emptied the system. This was not included in the water volumes

recorded for recirculating mode during this set of testing but is apparent in the data and would increase the total consumption by 2-3 litres.

All of the tests had a "start-up" period which used 7 to 9 litres per minute on the Droople inlet pipes (cold + hot), and once re-circulating starts, the flows on the Drooples were much less at around 2 litres/min or less. Hence an 8-minute shower is not half the value of a 4-minute shower, as the first 4 minutes are the same for both, and it is the last 4 minutes when reductions become more obvious.

In our testing, it took until typically the 4th minute before a flow rate of under 2L/min was achieved. Given that the average shower is 7-8 minutes, a quoted performance of under 2L/min may not be appropriate.

Key Findings Summary

- Flow Loop can significantly reduce water consumption during longer showers once recirculation is established.
- Testing showed water use reduced from around 9-13 litres per minute in a conventional shower to approximately 2 litres per minute during the recirculation phase.
- The greatest savings are achieved during longer shower durations, as an initial start-up period is required before the system reaches full recirculation mode.
- Testing highlighted both the opportunities and practical considerations associated this technology, helping provide real-world evidence for customers and the water sector.

Product Information

Performance

The Flow Loop Data sheet notes cold and hot supply should each be able to supply 8-12 litres per minute. Water consumption in recirculation mode is approximately 2 litres per minute.

The device claims 80% water saving¹ which suggests a flow of 12 litres per minute and consumption of 2 litres per minute, saving 10 litres per minute. Note this does not take into account the cleansing process.

Electricity consumption: standby=1.4W, in use = 166W

¹ <https://flow-loop.com/save-water-and-energy/>

Costs

Based on current market positioning, **Flow Loop is a premium product rather than a mass-market shower.**

The manufacturer does not consistently publish UK retail pricing because the product is not yet widely available through standard UK distribution channels. However, industry references and installer discussions generally place the unit itself at approximately **£3,000-£5,000+ per shower system**, depending on specification and configuration (source: flow-loop.com)

For a UK installation, a reasonable current estimate would be:

Cost Element	Indicative Cost
Flow Loop unit	£3,000 - £5,000
Plumbing works	£500 - £1,500
Electrical works	£200 - £800
Bathroom alterations / drainage modifications (if required)	£0 - £2,000+
Total installed cost	£4,000 - £9,000+

Please note that the NeRV installation costs may have been higher than a straightforward domestic installation because:

- it was effectively a first-of-kind UK trial;
- additional monitoring equipment was installed;
- regulatory engagement and approvals were required;
- data collection and evaluation infrastructure formed part of the project.

Standard Shower Cost Comparison

A typical UK thermostatic shower installation costs approximately:

- Shower unit: £150-£800
- Installation: £300-£1,000

Total: approx. **£500-£1,800.**

That means a Flow Loop installation is currently likely to cost **3-6 times more** than a conventional shower.

Conclusion

In summary, the biggest barrier facing widespread adoption of recirculating shower technology today is probably not customer appetite but economics and regulation.

Recirculating showers remain constrained by UK compliance uncertainties and lack a clear route to mass-market deployment.

The purpose of the Fair Water testing at NeRV was largely to generate the evidence needed to support future regulatory clarification and market adoption.



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