Opportunities for decentralized nature-based wastewater treatment for municipal utilities

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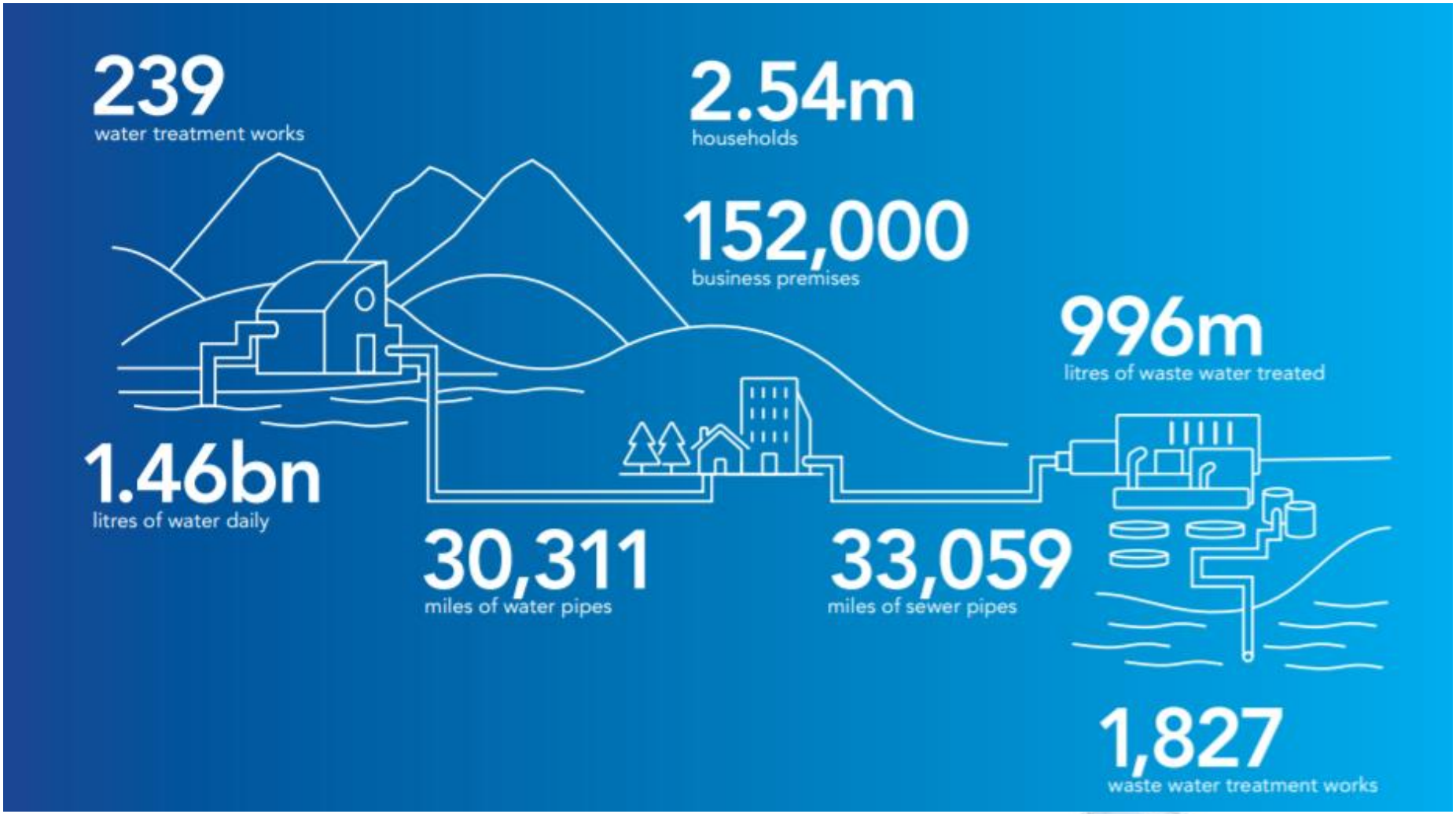
Scottish Water

Scottish Water – what we do



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Scottish Water - our ambitions

Earlier this year we launched our Strategic Plan which set out the scale of transformation for Scottish Water over the next 25 years. This plan set out three clear ambitions:

- Delivering Service Excellence – in all that we do.
- Reducing our carbon footprint to achieve Net Zero Emissions – and going beyond
- Providing Great Value for our customers – both now and in the future – while ensuring that we are financially sustainable

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Scotland's Wastewater Sector Plan

- Water supplies are being used wisely and efficiently, and not wasted, helping ensure Scotland can reliably meet its water needs in a changing climate and protect its natural environment.

- Towns and cities are using nature-based, blue-green solutions to absorb and safely convey rainwater, helping strengthen their resilience to the intense downpours they face under climate change; minimize the risk of polluting sewage spills by keeping rainwater out of sewers; and create fantastic places for people to live and work

- The sector has minimized its use of energy and materials and is converting sewage and other wastes into valuable resources.

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Some of our challenges

The Climate Emergency

- Our changing climate could impact on water and wastewater services in a variety of ways, which may include:
  - Changing quality of water sources
  - Availability of water resources
  - Increased rainfall in our sewers
  - Restrictions to discharging wastewater back to the environment

- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, sets targets to reduce Scotland's emissions of all greenhouse gases to net-zero by 2045 at the latest

- Scottish Water have committed to reducing our emissions to net-zero by 2040

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Climate change: Scotland to set faster target for net-zero emissions

By Kevin Keane
BBC Scotland's environment correspondent

2 May 2019 Share

Climate change

Climate change campaigners have staged protests in Edinburgh

The Scottish government will legislate to reduce greenhouse gas emissions to net-zero by 2045 after receiving fresh advice from an expert panel.

The Committee on Climate Change (CCC) urged that Scotland set the target **five years ahead of the UK as a whole**.

The panel says Scotland has more potential sites for carbon capture and a greater landmass for tree planting.

It came after a report to the UN last year urged the world to go "further and faster" in tackling climate change.

Some of our challenges 2

Demographics

- By 2035, Scotland's population is expected to grow by 10% overall and the number of households by 21%
- Expected to be some movement in the population from the west to the east of Scotland
- Scotland's population is continuing to age, with a 50% increase in over 60s projected by 2035, changing water demands

Legislation

- A number of pieces of European and Scottish legislation mean that continued investment will be required to meet new standards. For example:
  - Water Framework Directive
  - Water Resources (Scotland) Bill

What does this mean in this context?

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Our current service

- 90% of our assets serve 10% of our population
- We have almost 1200 public septic tanks
- Over half of these serve 50 people or fewer
- Over 1% discharge to watercourses under licence

There is a growing necessity in Scotland for protection of water resources in remote locations, while using low carbon, low maintenance and low chemical treatment solutions.

How might decentralized nature-based treatment meet these challenges?

- Discharges are clean enough to be discharged to the environment without complicated treatment processes
- Small energy requirement
- No chemical additives
- Fewer site visits

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Other potential benefits for large utilities

- Reduction in costs – capital spending and operational
- More solutions for rural sites – avoiding pumping/septic tanks
- Reduced environmental impact – emissions, potential EPIs
- Lower Health & Safety risk – low E&M requirements, tank emptying
- Customer involvement – community treatment

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Our research in this area

- INNOQUA
- Septic Tank of the Future
- Microalgae treatment systems
- Potentially a Nature Based Solutions Demonstrator
- Potentially in Microbial Fuel Cells

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Any questions?

Thanks for listening.

Useful websites:

www.scottishwater.co.uk

www.scottishwaternetzero.co.uk

https://sectors.sepa.org.uk/water-supply-and-waste-water-sector-plan/

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