Water-Energy Nexus

The water industry is highly energy intensive and on average between 2 – 3% of the world's energy use is used to produce and supply water, and to process and dispose of wastewater. However, this represents less than 15% of actual water-related energy use, with the rest attributed to water use – mostly in buildings.

In the European Union, the built environment accounts for around 40% of energy use and 36% of greenhouse gas emissions. A lot of this energy use and associated emissions are from household demands for hot water and space heating. And it is estimated that over 86% of energy demands in households is from heating of water for showers, laundry, etc. with much of the energy consumed for this being wasted down the drain.

Even when using cold water, energy is required at treatment and supply stages. This is known as embodied energy. In Ireland, Irish Water is the largest electricity consumer, and a recent Trinity College Dublin study found a potential in energy savings of 17.5 GWh per annum. This is equivalent to the yearly consumption of around 3, 400 households and over 4, 000 tons of CO_2 equivalent.

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Citizen Science Project

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

PRIFYSGOL BANGOR UNIVERSITY

Dŵr Uisce

Energy Recovery in Water Services
Adennill Ynni yn y Diwydiant Dŵr

Citizen Science in Irish Households

We believe everyone has a part to play in reducing energy use and associated emissions.

We have launched a citizen science project as a call to action for Irish households to take climate action through water-energy efficiency at home.

Citizen science is a form of crowd-sourced scientific research. Our main aim for this project is to engage with and collaborate with the public in improving our understanding of water-related energy use in Irish homes and the most effective means of improving the efficiency of household water and energy use. The first part of the project, a survey on perception of household water-energy use, launches in early September 2021 and will be open until 31 October 2021.

A longer study on household water-energy use will be launched in January 2022. We believe this project is a critically important way of democratising science and engaging the public in contributing to solutions to some of the most topical global challenges like climate change.

If you would like more information about this project or on how to take part, please contact:

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About the survey

The first part of the citizen science project is a survey designed as a form of crowd-sourced scientific research to help us better understand:

- the perception of water and energy use;
- how water and energy use relate; and
- the most effective means of improving water and energy resource efficiency at home as a mean of taking climate action and helping reduce emissions and cost in Irish households.

The survey should take approximately 10 minutes to complete and is composed of 4 sections:

1. General household water and energy consumption
2. Water use in the bathroom
3. Water use in the kitchen
4. Outdoor water use

The survey will be online. For more information, visit our website in early September 2021.

About Dŵr Uisce

Dŵr Uisce is an interdisciplinary cross-border project funded by ERDF Interreg Ireland-Wales programme which is looking at the different ways to improve the energy performance and long-term sustainability of the water sectors in Ireland and Wales through:

- the assessment of current and emerging low-carbon technologies like micro-hydropower, drain water heat recovery, and smart networks;
- economic, environmental, and climate change impact assessments;
- and the auditing, rating, and benchmarking of water supply and demands.

Dŵr Uisce is therefore looking into the whole water systems life cycle, from provisioning, to use and disposal, to highlight current and emerging technologies and intervention measures that can help with energy improvements in the water sector.

We are also developing policy support and best practice guidance as technology can really only be used to address challenges when we fully understand the gaps and opportunities within the water sector.