



An Coimisiún
um Rialáil Fóntas
**Commission for
Regulation of Utilities**

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Commission for Regulation of Utilities

Water Services Innovation Fund

2018 Report

Information Paper

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Summary

Irish Water abstracts, treats and delivers water to homes and businesses throughout Ireland and collects and treats wastewater before returning it to the environment. The money that the CRU allows Irish Water to spend is to deliver these services while at the same time delivering its Investment Plans. The Investment Plans are Irish Water's projects, programmes and plans to maintain and upgrade its assets and build new assets to improve quality and compliance, to conserve water resources, to provide enhanced service levels to customers and to facilitate growth.

One of the ways the CRU promotes innovation is by setting challenging efficiency targets that encourages Irish Water to find better and more cost-effective ways to deliver its services and deliver the outcomes from its Investment Plans. Irish Water provides water for human consumption and discharges treated wastewater back into the natural environment while long-term interruptions to services can have huge social and economic costs. Given the nature of the activities it carries out, Irish Water must be sure that any new technologies and approaches work before they are used.

In 2015, the CRU established the Water Services Innovation Fund. The Innovation Fund allows Irish Water to explore innovative technologies and approaches through projects that would not otherwise be funded as part of its normal operating costs or Investment Plans. By their nature, innovation projects may not succeed, however, for a project to be approved, Irish Water must demonstrate that it has a reasonable chance of delivering defined, tangible benefits for Irish Water's customers and that these benefits outweigh the cost of the project. Projects must be designed to deliver improvements in at least one of the following areas:



By the end of 2018, the CRU has approved funding for five projects. Irish Water has completed two of the projects, two are ongoing and one did not commence and will not be progressing.

Project	Approval Date	Status end 2018
Pilot Technology Trials of Water Metering Systems for Multi-Unit Development	Sept 2015	Complete
Promoting Sustainable Household Water Consumption	Dec 2015	Complete
Universal Water Meter Display Platform	Dec 2015	Not Progressing
Climate Change Adaptation – Identification of Climate Sensitive Catchments	Dec 2016	Ongoing
Investigating Novel sensing Techniques for Monitoring Trade Effluent	Mar 2017	Ongoing

Public Impact Statement

The CRU works to ensure that Irish Water operates efficiently and effectively and performs its functions in an open and transparent manner.

This report provides information on projects approved under the Water Services Innovation Fund. It provides transparency about project activities that Irish Water undertakes with that funding. It sets out the benefits that Irish Water aims to deliver for its customers through each innovation project.

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1. Introduction

1.1 The CRU's Role

The CRU sets the revenue that Irish Water can recover to deliver water and wastewater services. This includes the money that Irish Water needs to efficiently abstract, treat and distribute water and to collect and treat wastewater before returning it safely to the environment. The revenue that the CRU allows also enables Irish Water to carry out sampling and monitoring of the water it provides and the wastewater it treats. It allows Irish Water to respond to incidents, to provide an appropriate level of customer service and to fund its Investment Plans. In addition, as part of its first revenue review – the process to determine the revenue that Irish Water can recover via charges for the provision of water services¹ – the CRU established the Water Services Innovation Fund.

1.2 The Water Services Innovation Fund

The Water Services Innovation Fund (the Fund) allows Irish Water to invest in innovative projects that would otherwise not be funded within allowed operating costs or Investment Plans. It was established by the CRU to allow Irish Water to explore novel technologies and operating arrangements that have the potential to deliver benefits for Irish Water's customers.

A separate allowance to fund innovation is commonly allowed by economic regulators to encourage regulated entities to find new ways to provide and improve service provision to their customers outside of 'business as usual' activities. This is because innovative projects are, by their nature, riskier and may not result in defined outcomes for customers. This contrasts with activities included in investment plans, where a regulated entity must deliver defined outputs and outcomes for the money invested; where it does not deliver, the regulator may disallow the expenditure. A separate allowance for innovative projects is therefore appropriate to promote innovation while still managing the risk to customers.

¹ Please note that in this document the term 'water services' covers both water and wastewater services

Projects funded under the Water Services Innovation Fund must be designed to further at least one of the following objectives:

- Provision of safe, secure, and reliable water services.
- Increased understanding of customer behaviours and their drivers and effective customer engagement.
- Enhanced energy savings in the provision of water services.
- Achievement of relevant environmental standards and the objectives of the Water Framework Directive.
- Mitigation of negative climate change impacts.
- Provision of water services in an economic and efficient manner.
- Improved conservation of water resources.

In addition, and since the money to support innovative projects under the Fund are recovered via CRU approved charges² for the provision of water services by Irish Water, Irish Water must demonstrate the proposed projects have a reasonable chance of delivering defined, tangible benefits to customers within a defined timeframe and that these benefits outweigh the costs of the project.

Further information regarding the governance of the Fund is set out in the CRU's Water Services Innovation Fund Information Paper ([CER15076](#)) and the Water Services Innovation Fund Report 2017 ([CRU17345](#)).

1.2.1 Related Documents

- Water Services Innovation Fund Report 2017 ([CRU17345](#))
- Water Services Innovation Fund Information Paper ([CER15076](#))
- Irish Water Second Revenue Control 2017-2018 Decision Paper ([CER16342](#))
- Water Charges Plan Decision Paper ([CER14746](#))

Information on the CRU's role can be found on the CRU's website at www.cru.ie.

Please also see Irish Water's dedicated webpage [here](#).

² This includes charges to non-domestic customers, any future charges to domestic customers for 'excess use' and charges to cover allowances to domestic customers as billed to the Exchequer.

2. Innovation Fund Projects

2.1 Overview

Since the Fund was established, five projects have been approved by the CRU. Two of those projects have been completed on time and in budget. Two projects were ongoing at the end of 2018 and were on track to be completed on time and in budget.

One project did not commence and will now not be progressing. No money was spent on this project and the funding that had been approved for it is available for future applications. An overview of each of the projects is provided below.

2.1.1 Pilot Technology Trials of Water Metering Systems for Multi-unit Developments

The CRU approved this project in September 2015 to allow Irish Water to carry out a technology trial to understand the potential of metering multi-unit developments, such as apartment blocks.

After an open competition, Irish Water accepted tenders from five consortia to design and install suitable meter reading technologies for apartment buildings within Dublin and to operate the technologies for a short period of time to demonstrate their performance. The trials were carried out at five different multi-unit developments covering approximately 140 individual dwelling units. This provided Irish Water with the opportunity to test and compare the performance of different technologies, collect data on the costs and benefits of metering multi-unit developments, and to engage with, and receive feedback from, multi-unit development owners and occupiers.

The trials have allowed Irish Water to compare the installation, operation, customer engagement processes and the costs and benefits associated with the five technological approaches. The trials also demonstrated interoperability between metering systems and radio communication systems which is necessary for supply chain management.

The trials presented a range of web portals and smart phone apps that would offer customers and management companies a means to monitor the consumption in multi-unit developments. The metering solutions also readily identified leaks within both the multi-unit developments and the individual apartments. The systems also offered text alerts and similar alarms for customers in the event of a leak.

The project was completed in 2017, on time and in budget. A report on the project has been prepared by Irish Water and is available [here](#).

Project Partners

The following project partners were selected through a competitive public procurement process:

- Diehl/GMC Utilities,
- Actavo/Connect,
- VT Networks/Sigfox,
- Suez Water,
- Itron/Coffey Water.

2.1.2 Research on Promoting Sustainable Household Water Consumption

This project aimed to build an evidence base for future water conservation programmes and to help inform how Irish Water should engage with customers about sustainable water consumption.

Water saving devices were installed and tested in several homes with the target of giving Irish Water the opportunity to learn why those customers did (or did not) wish to engage with water saving activities. It also offered Irish Water and the customer the chance to test the difference between perceptions of water use and actual use.

The project has provided Irish Water with some information on the direction of potential future research in understanding customer behaviour and in promoting household water conservation.

The project was completed on time and in budget. A report on the project has been prepared by Irish Water and is available [here](#).

Project Partner

- Trinity College Dublin, Water Research Technology Group.

2.1.3 Universal Water Meter Display Platform

This project had targeted developing an in-home water meter reading display platform that would be designed in accordance with Universal Design Principles. However, Irish Water was unable to reach contractual agreement with its prospective project partner to meet its obligations not to breach 3rd party IP rights and the project will not be progressing.

No money was spent on the project.

2.1.4 Climate Change Adaptation – Identification of Climate Sensitive Catchments

Bringing together the expertise within Irish Water and climate change experts in Maynooth University's Irish Climate Analysis and Research Unit (ICARUS), this project aims to identify the catchments in Ireland most sensitive to climate change from a water resources and drought perspective. The project has developed innovative tools to inform decision making in Irish Water. It has also completed a gap analysis of the information required to inform climate smart planning and policy and that available to Irish Water and other agencies.

The traditional method to identify catchments vulnerable to climate change takes a 'top down' approach, which applies information about large-scale climate change trends to small areas. This can result in inaccurate forecasting for catchments because it does not take area-specific information into consideration.

This project takes a 'bottom up' approach to assess catchment sensitivity to climate change by building a catalogue of data specific to each catchment. By identifying catchments that are sensitive to climate change, Irish Water can increase the effectiveness of its water management and develop a more resilient water service. The project has identified five catchment sensitivity types that are grouped based on climate and their physical attributes.

The outcomes from this project are being used to inform other policies and projects, including the Climate Change Strategy and the National Water Resources Plan. The project has also allowed Irish Water to develop a scope of works for future research in the areas of climate change and resilience.

A final report will be produced in the coming months.

Project Partner

- Maynooth University Irish Climate Analysis and Research Unit (ICARUS)

2.1.5 Investigating Novel sensing Techniques for Monitoring Trade Effluent

This project aims to characterise trade effluent from industry sectors in Ireland that produce high risk trade effluent (the food and drinks, waste, and pharma-chemical sectors) and to identify markers that Irish Water can use to monitor its network for trade effluent from these industries. The project will then test the usefulness of off-the-shelf, low cost sensors for monitoring trade effluent and compare the effectiveness of sensors with current sampling methods.

The results of the study will better inform Irish Water about the most efficient means to monitor and manage trade effluent in its network and identify whether there is any potential to reduce its operating costs. In the long-term, this research will inform Irish Water's future development of a smart water network.

Irish Water's project partners in Dublin City University have undertaken a literature review on the application of novel sensing technologies for trade effluent monitoring. The review considered the effluent streams from the identified industries, the state-of-the-art of trade effluent monitoring, limitations of current sampling and monitoring techniques and discusses the potential for sensors to be used for real time monitoring of markers. The next steps involve identifying appropriate markers for the chosen sectors and then deploying samplers to monitor the effluent.

The project remains on track to be completed on time and in budget in 2020.

Project Partner

- Dublin City University

3. Next Steps

Irish Water may continue to submit applications under the Fund during 2019 and the CRU will review potential projects and approve those which meet the qualifying criteria.

Later this year, the CRU will publish its decision on the amount of money that Irish Water can spend in the years 2020 to 2024. This follows a six-week consultation, which closed in September 2019. As part of its submission, Irish Water requested an allowance of €4m under the Water Services Innovation Fund for the period 2020 to 2024, which the CRU proposed to allow.

The CRU will publish a report regarding activities under the Fund for the year 2019 in 2020.
