



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

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Commission for Regulation of Utilities

Water Services Innovation Fund Report 2017

Information Paper

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Executive Summary

This paper reports on the activity to date of the five projects approved under the €4m Water Services Innovation Fund. It provides a description of each project, as well as information on the objectives, the planned outputs, and the partners for each project.

This paper also provides information on the governance of the Water Services Innovation Fund, including the application process. It summarises the qualifying criteria required by the CRU for project approval.

Finally, the paper lists the next steps regarding the Water Services Innovation Fund in 2018.

Public/ Customer Impact Statement

As economic regulator of Irish Water, the CRU aims to protect the customers of Irish Water. By publicly reporting on the activities of innovation projects, the CRU works to ensure that Irish Water operates in an economic and efficient manner 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 to its customers as a result of each innovation project. It also outlines how the Water Services Innovation Fund is managed.

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Glossary of Terms and Abbreviations

Abbreviation or Term	Definition or Meaning
CRU	Commission for Regulation of Utilities
The Fund	The Water Services Innovation Fund
IRC1	First Irish Water interim revenue control period (October 2014 – December 2016)
IRC2	Second Irish Water interim revenue control period (January 2017 – December 2018)
MUD(s)	Multi-Unit Development(s)

1. Introduction

1.1 The Role of the CRU

In 2014, the Commission for the Regulation of Utilities (the CRU) was appointed as the economic regulator of Irish Water as the provider of public water and wastewater services. The primary aim of the CRU is to protect the interests of Irish Water's customers. In doing so, the CRU seeks to ensure that Irish Water's services are delivered in a safe, secure and sustainable manner, and that Irish Water operates in an economic and efficient manner.

A key responsibility of the CRU is to periodically determine Irish Water's allowed revenue under a process termed 'a revenue review.' The CRU sets this amount after reviewing Irish Water's proposed operational expenditure and capital investment plan and evaluating the amount of revenue that is required to achieve defined outputs and outcomes for customers. As part of this process, the CRU works to promote efficient investment by Irish Water, so that customers receive water and wastewater services at the best possible value.

1.2 The Water Services Innovation Fund

As part of the revenue review process, the CRU created the Water Services Innovation Fund ('the Fund') to allow Irish Water to invest funding in innovative projects in order to explore novel technologies and operating arrangements designed to deliver benefits for customers.

Projects 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; *and*
- Improved conservation of water resources.

A separate allowance to fund innovation is typically provided for by economic regulators to encourage regulated entities to find new ways to provide and improve their services outside of 'business as usual' activities. This is because innovative projects are by their nature more risky, in that they may not result in defined outcomes for customers (or may not do so initially). This contrasts with activities included in investment plans, where a regulated entity must deliver defined outputs and outcomes for the monies invested; where it does not deliver, the regulator may disallow the expenditure. A separate allowance for innovative projects is therefore appropriate to promote research and development while still managing the risk to customers.

It is important to note that innovation projects do not include activities that the utility is expected to conduct as part of its normal business operations. Any royalties or monies earned by Irish Water as a result of projects funded under the innovation fund or their application, including intellectual property rights, will accrue to customers of Irish Water. For collaborative projects, Irish Water must ensure that an appropriate proportion of any royalties/monies arising accrues to customers of Irish Water. It is noted that in some cases, this issue will not arise.

As part of Irish Water's allowed revenue for the first interim Irish Water revenue control period (IRC1), from October 2014 to December 2016, the CRU allowed €4m¹ under the Fund. For the second interim Irish Water revenue control period (IRC2), from January 2017 to December 2018, the CRU decided to allow Irish Water to continue to avail of the remainder of the Fund. The CRU has recently decided to extend IRC2 to include 2019.² As part of that decision, the CRU has also proposed that monies remaining in the Fund at the end of 2018 can be availed of through 2019, subject to application to the CRU. The CRU will publicly consult on this proposal in 2018, as part of the consultation on Irish Water's allowed revenue for 2019.

1.3 Related Documents

The following documents provide further detail regarding the Water Services Innovation Fund:

- Information Paper on the Water Services Innovation Fund ([CER/15/076](#));
- Decision Paper on the Water Charges Plan (Irish Water First Revenue Control 2014-2016) ([CER/14/746](#)); *and*
- Decision Paper on the Irish Water Second Revenue Control 2017-2018 ([CER/16/342](#)).

¹ Please note that this figure is in 2015 monies.

² Please see [CRU/17/332](#).

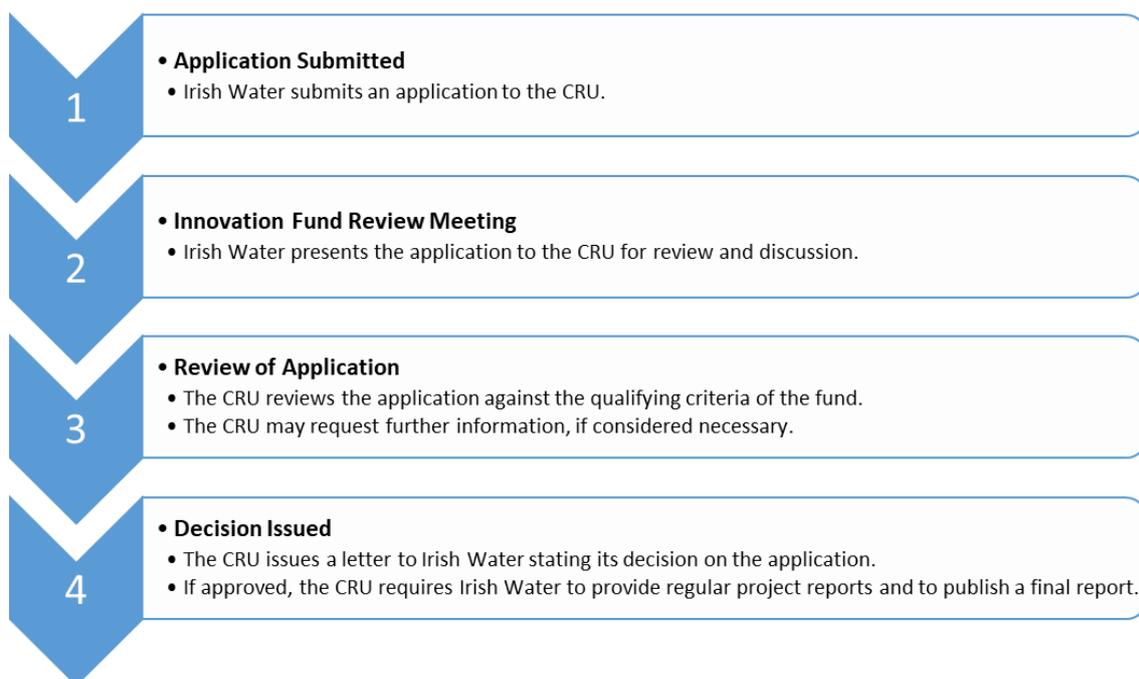
Information on the CRU's role and relevant legislation can be found on the CRU's website at www.cru.ie.

1.4 Structure of the Paper

- **Section 1** of this paper provides a background as to the role of the CRU and the purpose of the Water Services Innovation Fund.
- **Section 2** outlines the governance of the Water Services Innovation Fund and explains the process for review and approval of Irish Water's applications.
- **Section 3** provides information about the projects approved to date under the Water Services Innovation Fund.
- **Section 4** sets out the next steps and relevant publications planned for 2018.

2. Governance of the Water Services Innovation Fund

Irish Water is allowed innovation funding where it has proposed specific projects that are approved by the CRU through the following process:



Among other things, Irish Water must demonstrate how its proposed project is innovative, that the work proposed would not normally have been required for its operations, and that the projects have a reasonable probability of delivering defined, tangible benefits to customers within a defined timeframe. Projects must also further at least one of the objectives outlined in Section 1.2 of this report.

The CRU receives regular project reports on each project and Irish Water must also publish a final report for each completed project. From 2017 onward, the CRU will publish annual updates on Irish Water's innovation activities supported by the Fund.

For more information on innovation funding, including the governing principles of the fund, the application process, qualifying criteria, and reporting requirements, please read the CRU's Water Services Innovation Fund Information Paper ([CER/15/076](#)), available in the documents section of our website.

3. Irish Water's Innovation Projects

3.1 Overview of Projects Approved by the CRU

The CRU reviews Irish Water's project applications and approves projects for support under the Fund where it is satisfied that the criteria set out in the Water Services Innovation Fund Information Paper have been met. Commencement of project activity may take place at a later date than project approval.

There is no spend associated with projects that have been approved but not yet commenced. If for any reason a project does not commence after approval, the approved budget remains available for future qualifying projects under the Fund. The status of projects presented below that have been approved but have not yet commenced will be confirmed in the 2018 report.

This report provides information related solely to funding approved by the CRU in the context of the revenues that the CRU allows Irish Water as part of the revenue control process. To date, Irish Water has not received co-funding for innovation projects.³

Currently, the total allowed spend under the Fund is €4m. For reasons of commercial sensitivity, the CRU is not including individual project budgets at this time.

Project Code	Project Name	Date of CRU Approval	Current Budget Status	Current Status
IF01	Meter Data Collection Pilots – Multi-Unit Developments (MUDs)	14 September 2015	Within approved budget	Complete
IF02	Research on promoting sustainable household water consumption	21 December 2015	Within approved budget	Commenced
IF03	Universal Water Meter Display Unit (Part 1)	5 December 2017	No spend to date	Approved, Not yet commenced, Subject to contract agreement

³ In the Water Services Innovation Fund Information Paper, the CRU provided that Irish Water can avail of monies under the Fund, once approved, to co-fund collaborative research. In such cases, Irish Water must inform the CRU of the levels of co-funding to be provided by project partners. Irish Water must also demonstrate that the total project funding remains proportionate to the potential benefits to customers.

IF04	Climate Change Adaptation – Identification of Climate Sensitive Catchments	19 December 2016	Within approved budget	Commenced
IF05	Investigating novel sensing techniques for monitoring trade effluent	30 March 2017	No spend to date	Approved, Not yet commenced, Subject to contract agreement

3.2 Project Information

3.2.1 IF01: Meter Data Collection Pilots – Multi-Unit Developments (MUDs)

Project Description

This project was approved by the CRU in September 2015 and was completed in November 2017.

The project investigated technologies appropriate to the metering of multi-unit developments or ‘MUDs’ (such as apartment blocks). After an open competition, Irish Water accepted tenders from five consortia to deploy different metering and meter reading technologies at five different MUDs (covering approximately 140 individual dwelling units). This provided Irish Water with the opportunity to test and compare the performance of different technologies in practice, collect robust data on the costs and benefits of MUD metering, and to engage with s and receive their feedback.

Irish Water is currently preparing a final report regarding this project which will set out the research findings, the potential for application of the research, and the associated benefits of the project outputs to Irish Water’s customers. This report will be published in 2018.

Objectives

Irish Water’s stated objectives for this project were to contribute to the:

- 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;
- Improved conservation of water resources; *and*
- Mitigation of negative climate change impacts.

Project Outputs

Through this project, Irish Water completed five technological trials to provide robust data on metering MUDs, which allowed Irish Water to compare the installation, operation, costs and benefits, and customer engagement processes associated with the five different technological approaches.

Irish Water will also publish report on the results of the trials, assessing which types of technologies give the greatest probability of successful use in MUDs, and establishing the extent to which MUDs can be metered for an equivalent cost-benefit to meters used in other domestic properties.

Project Partners

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

- Diehl/GMC Utilities;
- Actavo/Connect;
- VT Networks/Sigfox;
- Suez Water; *and*
- Itron/Coffey Water.

3.2.2 IF02: Research on Promoting Sustainable Household Water Consumption

Project Description

This project aims to promote sustainable household water consumption by building an evidence base for future water conservation programmes. It looks at how Irish Water should best engage customers about sustainable water consumption.

As part of this project water saving devices were installed and tested in a number of homes. This gives Irish Water the opportunity to learn from those customers why they do (or do not) wish to engage in particular water saving activities. It also offers Irish Water and the customer the chance to test the difference between the customer's perceptions of water usage and their actual usage.

The results of the research will inform the activities being undertaken by Irish Water in relation to water conservation. The dissemination of the results of the research will further improve Irish Water's customers' awareness of water saving and conservation measures.

Irish Water will hold workshops with various stakeholders to share research results on water conservation from this project.

Irish Water anticipates that the project will conclude in early 2018, with the final report to be published shortly thereafter.

Objectives

Irish Water's stated objectives for this project are to further contribute to:

- An increased understanding of customer behaviours and their drivers and effective customer engagement;
- Enhanced energy savings in the provision of water services; *and*
- Improved conservation of water resources.

Project Outputs

Irish Water plans to deliver the following outputs through this project:

- An independent report on the results of the research into customer attitudes and behaviour regarding water conservation;
- Workshops with relevant stakeholders to inform them of the results of the research and to discuss the development of a national conservation programme; *and*
- A final report to inform a national conservation programme, recommending how Irish Water can effectively engage with customers about sustainable water consumption.

Project Partner

- Trinity College Dublin (TCD) Water Research Technology Group

3.2.3 IF03: Universal Water Meter Display Unit (Phase 1)

Project Description

This project ultimately aims to develop an in-home water meter reading display platform that is designed in accordance with Universal Design Principles. The first phase aims to establish whether it is technologically possible for Irish Water to sufficiently strengthen the radio signal from a domestic water meter such that data regarding consumption can be transferred to an in-home display unit. In the project application, Irish Water stated that Phase 1, once commenced, is planned to take place over 9 months.

If Phase 1 is successful, Irish Water intends to submit a second-phase application to design an accessible in home display unit in accordance with Universal Design Principles.

Objectives

Irish Water's stated objectives for this project are to contribute to:

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

Project Output

Irish Water plans to deliver the following output through this project:

- Development of a radio communication system with a signal of sufficient strength to be read by an in-home water meter reading display platform.

3.2.4 IF04: Climate Change Adaptation

Project Description

The project aims to identify the catchments in Ireland most sensitive to climate change from a water resources and drought perspective by developing and applying an innovative assessment methodology. In the project application to the CRU, Irish Water stated that this project will be of 24 months.

The traditional methodology 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.

In this project, Irish Water will apply a 'bottom up' methodology, which aims to identify catchment sensitivity to climate change by building a catalogue of data specific to each catchment. This will allow Irish Water to identify the particular stressors and vulnerabilities in each area. By better identifying catchments that are sensitive to climate change, Irish Water aims to increase the effectiveness of its national water management and to develop a more resilient water service.

Irish Water plans to publish the research, and for the outcomes to inform other policies and projects, in particular the Climate Change Strategy, Water Supply Project, and the National Water Resources Plan.

Objectives

Irish Water's stated objectives for this project are to contribute to the:

- Provision of safe, secure, and reliable water services;
- Mitigation of negative climate change impacts;
- Provision of water services in an economic and efficient manner; *and*
- Improved conservation of water resources.

Project Outputs

Irish Water plans to deliver the following outputs through this project:

- Identification of catchments most sensitive to climate change and an assessment of their sensitivity to drought;
- Development of a catalogue of data requirements to achieve the above and identification of gaps in the data required;
- A report on the above, identifying the catchment areas at risk for resource depletion as a result of climate change; *and*
- A workshop to be held with Irish Water and relevant stakeholders, such as group schemes, on the results of the research.

Project Partner

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

3.2.5 IF05: Investigating Novel sensing Techniques for Monitoring Trade Effluent

Project Description

This project aims to characterise trade effluent in Ireland from industry sectors 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 to compare the effectiveness of sensors with current sampling methods. In the project application to the CRU, Irish Water stated that the project, once commenced, is planned to be delivered over 24 months.

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 plans to publish a scientific journal paper on the results of the study.

Objectives

Irish Water's stated objectives for this project are to further contribute to the:

- Provision of safe, secure, and reliable water services;
- Increased understanding of customer behaviours and their drivers and effective customer engagement;
- Achievement of relevant environmental standards and the objectives of the Water Framework Directive; and
- Provision of water services in an economic and efficient manner.

Project Outputs

Irish Water plans to deliver the following outputs through this project:

- A report on the characterisation and identification of surrogate parameters for trade effluent from the three high-risk trade effluent sectors, and setting out guidelines for better management of trade effluent for each of the three sectors;
- A field study to test the effectiveness of off-the-shelf sensors at detecting and monitoring the surrogate trade effluent parameters identified; and
- A scientific journal paper to be published with the results of the project research.

4. Next Steps

In 2018, the CRU will continue to engage with Irish Water regarding the development, progress, and completion of projects under the Water Services Innovation Fund. If Irish Water submits applications for new innovation projects, the CRU will review and decide on these applications at regular progress meetings.

Throughout 2018, Irish Water will publish final reports from completed projects.

The CRU will publish the next annual report on the Water Services Innovation Fund in December 2018.