



# QUARTERLY REPORT APPENDIX

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# Contents

|  |           |
|--|-----------|
| <b>Membership and Functions</b>  | <b>4</b>  |
| <hr/>  |           |
| <b>The legislative basis for the Water Advisory Body</b>                           | <b>5</b>  |
| <hr/>  |           |
| 2.1 Infrastructure Delivery and Leakage Reduction Indicators                       | 6         |
| 2.2 Improvements in Water Quality, including the elimination of boil water notices | 16        |
| 2.3 Responsiveness to the needs of Communities and Enterprise                      | 19        |
| 2.4 Energy and Emissions   | 21        |
| <hr/>  |           |
| <b>Glossary of Terms</b>   | <b>22</b> |

# Membership and Functions

The Water Advisory Body (the WAB) is established under statute. The WAB consists of five members:

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▼  
**Paul McGowan** *Chairperson*



▼  
**Martin Sisk**



▼  
**Miriam McDonald**



▼  
**Dónal Purcell**



▼  
**Michelle Minihan**

## Improving the transparency and accountability of Irish Water

Our overall function is to advise the Minister on the measures needed to improve the transparency and accountability of Irish Water for the purpose of increasing the confidence of members of the public in Irish Water. The WAB's functions are set out in the Water Services Act 2017.

Irish Water's Strategic Funding Plan is a public document and available on Irish Water's website [www.water.ie](http://www.water.ie).

This report sets out the WAB's view on how Irish Water is performing against its own Strategic Funding Plan. Each report is prepared for the Oireachtas and is published on the WAB's website - [www.wateradvisorybody.ie](http://www.wateradvisorybody.ie).

# The Legislative Basis for the Water Advisory Body

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The Water Advisory Body (the WAB) is an independent statutory body established under Part 7 of the Water Services Act 2017. The WAB was formally established on 1 June 2018. The Act provides for a 5-member board with a member appointed from each of three specific organisations (the Commission for Regulation of Utilities (“CRU”), the Environmental Protection Agency (“EPA”) and An Fóram Uisce (“AFU”)) and two members appointed through the Public Appointments Service process. The Water Advisory Body held its first meeting on 13 July 2018.

Part 7 of the Act also outlines the function and reporting arrangements for the WAB. The substantive functions of WAB set out in the 2017 Act are:

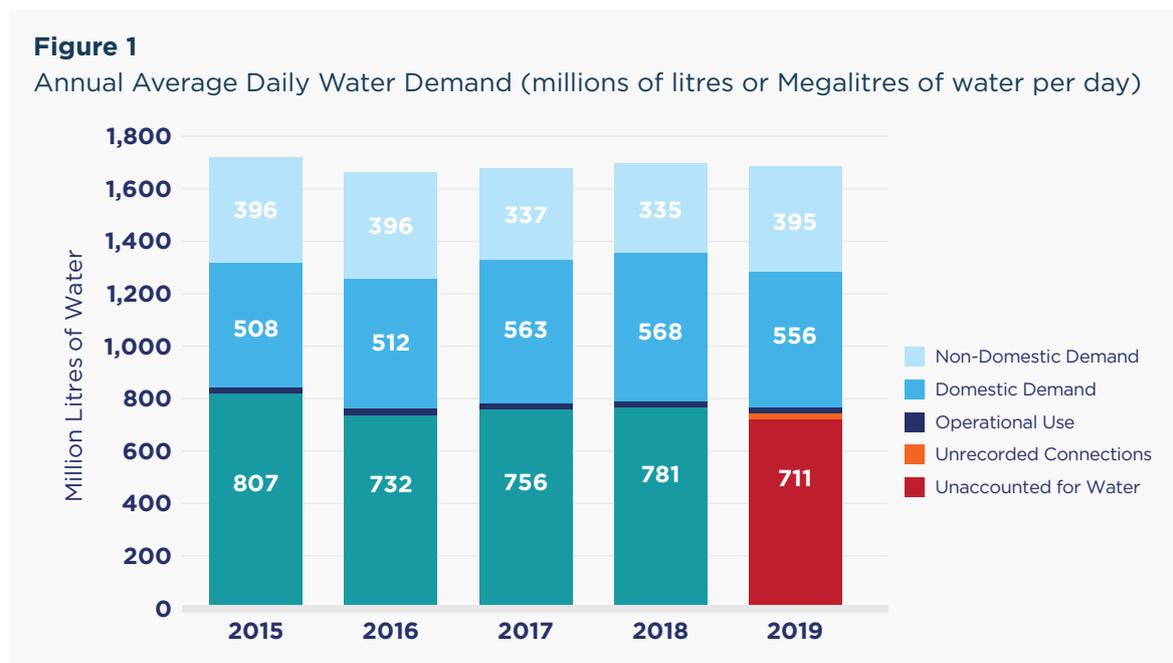
- a) To advise the Minister on the measures needed to improve the transparency and accountability of Irish Water for the purpose of increasing the confidence of members of the public in Irish Water.
- b) To furnish, on a quarterly basis, a report to the Committee on the performance by Irish Water in the implementation of its Strategic Funding Plan with particular regard to the following:
  - a. Infrastructure delivery and leakage reductions;
  - b. Cost reduction and efficiency improvements;
  - c. Improvements in water quality, including the elimination of boil water notices;
  - d. Procurement, remuneration and staffing policies;
  - e. Responsiveness to the needs of communities and enterprise.

The WAB is also required to provide an annual report to the Minister on the performance of the WAB’s functions during the period since its establishment.

## 2.1 Infrastructure Delivery and Leakage Reductions Indicators

### 2.1.1 Performance Indicator 1 - Leakage

In previous WAB reports, this performance indicator provided information on the volume of ‘unaccounted-for-water’ reported by Irish Water. Further detail is provided below.



#### Brief Explanation

In place of reporting to the CRU on leakage to date, Irish Water has been providing a figure for ‘unaccounted-for-water’, which is made up of leakage among other things. After implementing its Leakage Management System, Irish Water will be able to report on leakage in the future.

Irish Water has in its place provided an estimate of the water demanded by domestic and non-domestic customers (this includes water lost to leaks on the customer’s property) and an estimate of the water it uses on its network to clean and flush its water mains. Irish Water had classified the remainder of the water that is put into the network as ‘unaccounted-for-water’.

The Leakage metric measures separately the annual average volume of water lost per day on the public network pipes and on the external customer supply pipes. Leaks can occur on the underground water pipeline system as the assets deteriorate over time.

Irish Water has put in place a new Leakage Management System to better estimate, monitor and identify leaks across the pipeline network.

## Why we focus on this Performance Indicator

Reducing the level of real water losses ensures that water sources are conserved, and that revenue is not spent on treating large quantities of drinking water that is ultimately lost and not used by customers. The WAB will use the leakage metric to measure the performance of Irish Water in ensuring as much water as possible that is delivered through its distribution network is not lost.

### TECHNICAL NOTE

## LEAKAGE

Figure 2 illustrates the water balance and captures how the total volume of water entering into the network ('distribution input') is apportioned between 'authorised use' (across domestic, non-domestic and unbilled water use) and 'water losses' (which is subdivided into 'apparent losses' and 'real losses').

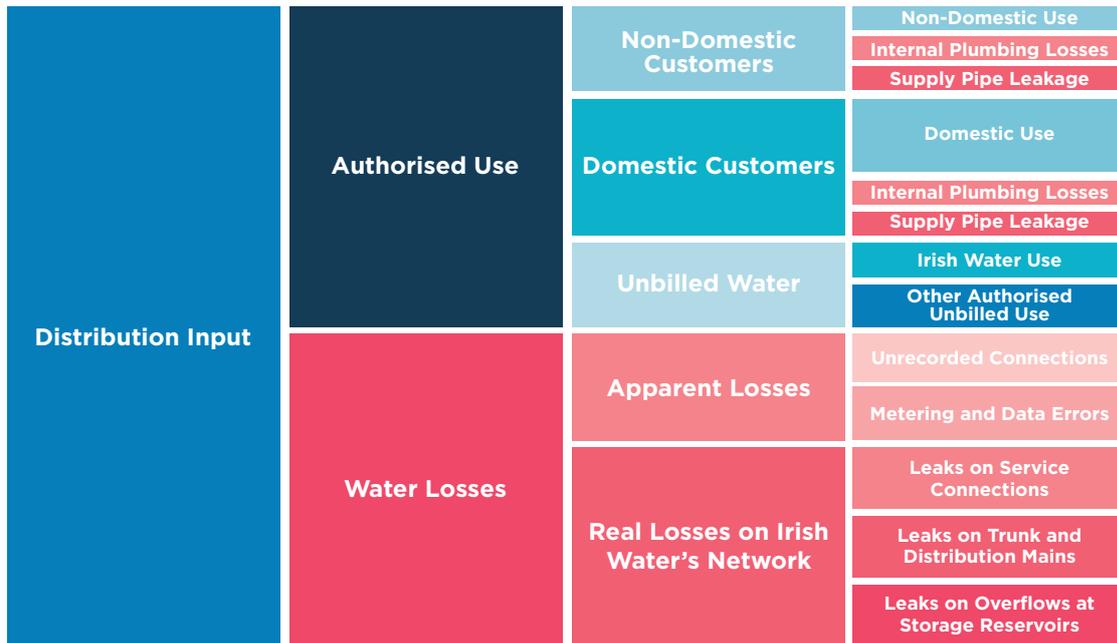
Real losses on Irish Water's network, commonly referred to as leakage, includes leaks on trunk mains and distribution pipes, leaks on service connections and leaks and overflows at storage reservoirs. There are two approaches to determining leakage on the public network. The first looks at a top-down water balance where the water entering the network is assigned to water losses and water use based on metering information and well-reasoned estimates. In addition to this, water losses should be estimated using a bottom-up approach by monitoring demand at a time when customer use is low which is typically at night.

During a period of low, predictable customer use, flow into District Metered Areas is monitored for a continuous period of at least one hour. This flow is then allocated between public network losses, customer supply pipe losses and customer use and then converted from hour to day with an adjustment made for variations in pressure between day and night.

Estimates of losses on trunk mains and service reservoirs are then added to the calculated District Metered Area losses to provide an estimate of total losses on the public network.

A final leakage number can then be reported by reconciling differences in the top-down and bottom-up approach to leakage estimation and applying robust statistical analysis in line with best international practice.

**Figure 2**  
Components of Water Demand



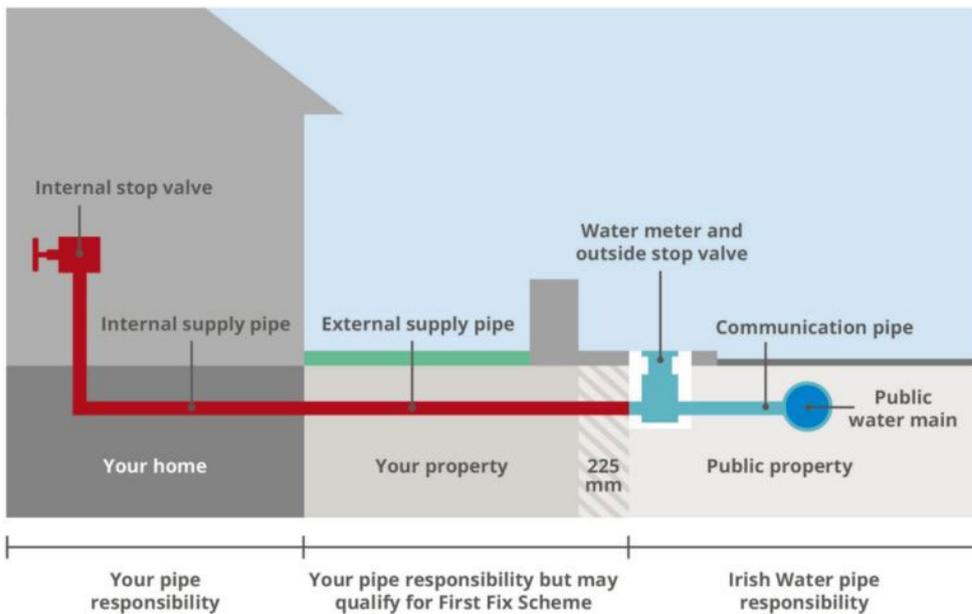
## 2.1.2 Performance Indicator 2 - First Fix Scheme

### Brief Explanation

The First Fix Scheme provides qualifying customers with a free leak investigation and, if eligible, a free repair to their external supply pipe. It aims to reduce leakage and conserve water. Irish Water uses meter data to identify the most significant leaks and then offers customers a leak investigation.

The ‘external customer supply pipe’ is outside of the customer home but within the boundary of the customer property, as illustrated in Figure 3. Customers are responsible for fixing leaks on pipes located within the customer home (‘internal supply pipe’).

**Figure 3**  
Irish Water’s First Fix Scheme - Pipe Responsibility



## Why we focus on this Performance Indicator

Reducing drinking water loss through the First Fix Scheme helps to conserve water and can help to reduce the amount of money Irish Water spends on treating and supplying water that is ultimately leaked and not used by customers.

The rate of repairs carried out by Irish Water through the First Fix scheme is an important indicator of the performance of Irish Water in ensuring water delivered through its distribution network is not lost through leakage from the customers' premises.

### TECHNICAL NOTE

## WHY THE FIRST FIX SCHEME IS IMPORTANT

Reducing drinking water loss through the First Fix Scheme helps to:

- ▶ conserve water;
- ▶ reduce the amount of money Irish Water spends on treating and supplying water that is ultimately leaked and not used by customers; and
- ▶ allows Irish Water to manage better risks and uncertainty in supplying drinking water (such as faster demand growth than anticipated when planning and designing water infrastructure).

### 2.1.3 Performance Indicator 3 - Remedial Action List (Water)

#### Brief Explanation

The EPA publishes the Remedial Action List. This is a list of public water supplies in need of significant corrective action, usually at the treatment plant. Public water supplies are added to the Remedial Action List for a variety of reasons including ongoing failure to comply with drinking water quality standards or inadequate treatment levels.

#### Why we focus on this Performance Indicator

The number of supplies on the list, and the population that these supplies serve, are important as they indicate the progress of Irish Water in ensuring public drinking water supplies are safe and secure. When Irish Water has demonstrated that the supply is safe and secure, it can be removed from the Remedial Action List.

#### TECHNICAL NOTE

#### REASONS FOR ADDING A DRINKING WATER SUPPLY TO THE REMEDIAL ACTION LIST

Public water supplies can be added to the EPA's Remedial Action List for one or more of the following reasons:

- ▶ Persistent failure to comply with the standards for priority parameters such as E.coli, trihalomethanes, aluminum, pesticides or turbidity;
- ▶ Inadequate treatment of the water supply, for example, where there is no treatment other than chlorination available for a surface water supply;
- ▶ Monitoring results or compliance checks carried out by the EPA indicate a lack of operational control at the treatment plant; or
- ▶ The Health Service Executive has identified a supply where improvements are required.

## 2.1.4 Performance Indicator 4 - Priority Urban Area List (Wastewater)

### Brief Explanation

The EPA publishes a Priority Urban Area List. This is a list of urban areas that most urgently need improvement in the waste water treatment provided. An urban area can be added to the Priority Urban Area List for a number of reasons including failing to meet European Union sewage treatment standards or because waste water is having a harmful effect on water quality in rivers, lakes or coastal waters.

### Why we focus on this Performance Indicator

The number of urban areas on the list is important as it is an indicator of the performance of Irish Water in ensuring that waste water generated within communities is not polluting our water or creating a health risk. When Irish Water has provided an appropriate level of waste water treatment for an urban area, the area can be removed from the list. This is determined by the EPA.

The number of supplies on the list, and the population that these supplies serve, are important as they indicate the progress of Irish Water in ensuring public drinking water supplies are safe and secure. When Irish Water has demonstrated that the supply is safe and secure, it can be removed from the Remedial Action List.

#### TECHNICAL NOTE

### REASONS FOR AN URBAN AREA BEING INCLUDED ON THE PRIORITY URBAN AREA LIST

The Priority Urban Area list is a list of urban areas that most urgently need improvement in the waste water treatment provided. Improvement in the level of treatment provided to an urban area may be required for various reasons including:

- ▶ it is failing to meet EU sewage treatment standards;
- ▶ it is discharging raw sewage because there is no treatment plant;
- ▶ it is a key pressure on the water quality of rivers or lakes;
- ▶ it is impacting negatively on bathing water;
- ▶ an improvement (i.e. an increase in treatment level) is needed to protect Pearl Mussels.

## 2.1.5 Performance Indicator 5 - Lead service connections replaced

### Brief Explanation

Lead is a harmful substance that can be found in drinking water when it dissolves from lead pipework, mains connections and plumbing fittings. While there are no lead water mains in Ireland, there are still some lead pipes remaining in the public network (these connect the water mains to individual houses or groups of houses). The presence of lead pipes or fittings in a property depends mainly on the age of the pipe.

### Why we focus on this Performance Indicator

Where lead is found in drinking water, its consumption is harmful to people.

The “National Lead Strategy”, published by the Government in 2015, sets out that lead in drinking water is both the responsibility of water suppliers and property owners. Irish Water, as the water supplier for public water supplies, is therefore responsible for lead pipework in the water distribution network. This is known as public side lead.

The rate of replacement of lead services in the water distribution network is an important indicator of the performance of Irish Water in ensuring water delivered through its distribution network is safe for consumption. As part of its Leakage Reduction Programme, Irish Water is planning to remove all remaining lead pipes from the public water network.

Under normal circumstances the WAB expects to see the continued replacement of lead services until the completion date of 2026.

TECHNICAL NOTE

## ADVERSE HEALTH EFFECTS OF LEAD

There are many acute and chronic effects of lead exposure. At very high levels of exposure, lead can cause damage to most organs in the body, particularly the kidneys and central nervous and blood systems.

However, studies over the last 30 years have shown that lead can affect health as a result of ongoing exposure to lower levels of lead. In particular, the evidence indicates that chronic exposure to low levels of environmental lead can adversely affect cognitive development in children. Chronic exposure to lead can also cause:

- ▶ renal toxicity;
- ▶ disturbances in cardiac conduction and rhythm and increase in blood pressure;
- ▶ hepatic damage;
- ▶ anemia and other hematological effects;
- ▶ reproductive and developmental toxicity;
- ▶ gastrointestinal disturbances.

**Source:** Environmental Protection Agency - Health Services Executive Joint Position Paper Lead in Drinking Water; 2013

## 2.1.6 Performance Indicator 6 - Unplanned Interruptions to Water Supply

### Brief Explanation

This metric monitors Irish Water's performance in delivering a continuous supply of clean drinking water to the homes and businesses that it serves. Unplanned interruptions to water supply are mainly caused by a burst water mains pipe and/or blockages on the network. As this type of interruption is unforeseen and due to the nature of the outage (for example, size of the pipe or its location), the time in which it may take Irish Water to restore supply may vary.

### Why we focus on this Performance Indicator

Monitoring this metric ensures that Irish Water operates in a manner that reduces the time it takes to restore customers' water supply when it has been interrupted. Unfortunately, some supply interruptions are inevitable (i.e. planned interruptions and force majeure) but by monitoring Irish Water's performance and progress over time, the impact of unplanned interruptions can be minimised.

#### TECHNICAL NOTE

### UNPLANNED INTERRUPTIONS TO WATER SUPPLY

Irish Water is required to provide advanced warning of 48 hours to properties affected by interruptions. Where Irish Water provides advanced notice of an interruption of less than 48 hours, this will be considered an unplanned interruption to supply. This metric currently measures the number of properties connected to Irish Water's network that suffer a supply interruption that was not planned by Irish Water.

Irish Water is required to monitor the number of properties experiencing unplanned interruptions to their supply for greater than 12 and 24 hours.

When measuring the duration of an interruption, the starting point for the length of time a supply has been interrupted is the earliest of either the first customer contact stating there is no water or data from Irish Water's network management showing a pressure drop that would result in a supply interruption. The time is recorded up to the latest of a customer informing Irish Water that normal pressure has been restored or data from Irish Water's network management indicating that a normal supply has been restored.

In the event of a supply being intermittently interrupted, where supply is restored for more than 60 minutes before it is again interrupted, this is considered as two separate interruptions. However, if the length of time between interruptions is less than 60 minutes, the duration of the interruption will be timed from the beginning of the first to the end of the last interruption.

In reporting on this metric, Irish Water currently provides the 'greatest estimated number of properties' that it considers may have been impacted by an unplanned interruption to supply. The targets set for Irish Water include revising these figures to provide a more accurate representation of how many properties are likely to have been impacted by these unplanned interruptions.

## 2.2 Improvements in Water Quality, including the elimination of boil water notices

### 2.2.1 Performance Indicator 7 - Overall compliance with microbiological indicators for drinking water

#### Brief Explanation

Microbiological indicators measure the level of bacteria in drinking water. These are the most important health indicators of drinking water quality, particularly the presence of *E. coli* in water. The presence of this bacterium in drinking water is a good indication that a water supply has been contaminated.

#### Why we focus on this Performance Indicator

Irish Water is responsible for the production, distribution and monitoring of drinking water in public water supplies. Where monitoring shows a failure to meet the water quality standards for drinking water in a public water supply, Irish Water is required to take action. When Irish Water notes a microbiological failure it must notify the EPA and investigate why it happened. It must also consult the Health Service Executive to confirm if the failure might impact the health of any person who drinks the water. This may result in, for example, a boil water notice being issued.

This indicator is important, therefore, as it reflects whether treatment plants managed by Irish Water are operating correctly and that drinking water supplies are safe and secure from bacterial contamination. Under normal circumstances the WAB expects to see a compliance rate of close to 100%.

#### TECHNICAL NOTE

### RISKS OF *E. COLI* IN DRINKING WATER

*E. coli* is an indicator organism, the presence of which in drinking water indicates that the supply has become contaminated with human or animal waste or that the disinfection systems is not operating adequately. The presence of *E. coli* in drinking water is an indication that other more harmful micro-organisms may be present and that action is urgently required to identify the cause of the failure and to ensure that treatment is improved to adequately disinfect the water.

**Source:** Environmental Protection Agency Advice Note No. 3 - *E. coli* in Drinking Water

## 2.2.2 Performance Indicator 8 - Boil Water Notices

### Brief Explanation

If a public water supply becomes contaminated with bacteria or a pathogen, a Boil Water Notice may be issued. A Boil Water Notice is a formal notice issued to all households and businesses in an area advising them that drinking water from the public water supply is not safe to drink unless it is boiled and cooled beforehand. Irish Water must notify the EPA when a failure in water quality is noted. However, Irish Water will usually only issue a Boil Water Notice after consulting with the Health Service Executive, the statutory authority on public health matters, to confirm if the failure might impact on people's health.

### Why we focus on this Performance Indicator

The number of boil water notices issued is an important indicator of drinking water quality and as a measure to protect public health of customers. The number of people affected by boil water notices issued, therefore, is an important indicator as to whether Irish Water is ensuring public drinking water supplies are safe and secure.

Under normal circumstances the WAB expects that no consumer should be on a long-term Boil Water Notice. Boil water notices should be kept at low levels and for as short a period as possible.

#### TECHNICAL NOTE

### REASONS WHY A BOIL WATER NOTICE MIGHT BE ISSUED

The most common reason for issuing a Boil Water Notice would be where routine testing of the drinking water supply has shown the presence of harmful bacteria (such as E. coli), or pathogens such as Cryptosporidium.

- ▶ In some cases a Boil Water Notice may be imposed where there is a risk of contamination but where test results are yet to be confirmed.
- ▶ Boil Water Notices that remain in place for greater than 30 days are classified as long-term notices.

### 2.2.3 Performance Indicator 9 - Compliance of Urban Waste Water Treatment (UWWT); Plants with EPA discharge licences

#### Brief Explanation

The objective of waste water treatment is to collect the waste water generated within communities, remove the polluting material, and then release the treated water safely back into the environment. Without such treatment, the waste water produced would pollute our waters and create a health risk. A waste water discharge licence is required for treatment plants that are discharging from areas with a population equivalent of 500 or more.

#### Why we focus on this Performance Indicator

The percentage of population served by waste water treatment plants that are compliant with their discharge licence is an important indicator of the performance of Irish Water in ensuring that our treatment plants are not polluting our water or creating a health risk. Untreated waste water, commonly referred to as raw sewage, can be contaminated with harmful bacteria and viruses. This can pose a health risk to people who come into contact with contaminated water and can threaten aquatic ecosystems and the amenity value of our waters.

### 2.2.4 Performance Indicator 10 - Agglomerations with no Wastewater Treatment

#### Brief Explanation

This metric intends to capture Irish Water's performance in reducing the number of agglomerations which discharge untreated wastewater into the environment. Between 2013 and 2019, Irish Water has completed work at 15 sites to reduce the number of agglomerations with no wastewater treatment to 35, at the end of 2019.

#### Why we focus on this Performance Indicator

Monitoring this metric would assist in ensuring that Irish Water uses the revenue it receives to deliver improvements and increased compliance with European and Irish law while providing service to customers. It is important that Irish Water carries out its duties in the safest and least environmentally harmful way.

## 2.3 Responsiveness to the needs of Communities and Enterprise

### 2.3.1 Performance Indicator 11 – Ease of Contact

#### Brief Explanation

Supplying water for consumption and managing wastewater are Irish Water’s core functions. How it interacts with its customers is an important indicator of its overall performance and is important in engendering trust in the organisation.

#### Why we focus on this Performance Indicator

Irish Water deals with large volumes of customers on a daily basis. Customers usually contact Irish Water when something has gone wrong and are looking for a response. These customer contact indicators reflect the interaction that a customer has with Irish Water and allows an assessment of Irish Water’s performance through its contact centre.

#### TECHNICAL NOTE

#### COMPONENTS OF EASE OF CONTACT

There are four components to the ease of telephone contact performance indicator:

- ▶ Ease of telephone contact – call abandonment rate: This indicator is defined as the percentage of calls that are abandoned while a caller is waiting in the queue to speak to a customer service agent, having been directed through the Interactive Voice Recognition system;
- ▶ Ease of telephone contact – Customer Satisfaction Score: This indicator is defined as Irish Waters performance in a Customer Survey conducted by an independent research company engaged by Irish Water;
- ▶ Ease of contact – speed of telephone response is calculated as the total number of calls answered by an agent within 20 seconds of entering the queue to speak to an agent ÷ total number of calls that enter the queue to speak to an agent.

## 2.3.2 Performance Indicator 12 - Irish Water Customer Complaints management

### Brief Explanation

Customer complaints handling refers to the rate at which Irish Water resolves complaints that customers have made regarding some aspect of the service they received from Irish Water.

Irish Water is required under both the Irish Water Domestic Customer Handbook and Non-Domestic Customer Handbook to adhere to the timeframe as set out in this metric. Additionally, under the Performance Assessment Framework Irish Water is also monitored on its performance.

### Why we focus on this Performance Indicator

By monitoring these indicators, the WAB is able to measure Irish Water's performance in responding to complaints it receives. Monitoring this metric will also encourage appropriate response times when customers contact Irish Water with a complaint.

## 2.4 Energy and Emissions

### 2.4.1 Performance Indicator 13: Energy and Emissions

#### Brief Explanation

Energy efficiency targets encourage the development and implementation of efficiency strategies and policies. Irish Water should challenge itself to continually deliver energy improvements in how it is operating its assets and to continue to implement energy efficient design for all its projects and programmes.

#### Why we focus on this Performance Indicator

Irish Water is the largest consumer of electricity in the public sector in Ireland. As a public body, it is obligated to improve its energy efficiency as set out in the Climate Action Plan 2021. The WAB monitor and report on Irish Water's performance in reducing its energy consumption, as it is of importance to customers and helps the Government's commitment to deliver a secure, low carbon future.

#### TECHNICAL NOTE

#### ENERGY AND EMISSIONS

Irish Water's Total Primary Energy Requirement is monitored and reported by the Sustainable Energy Authority of Ireland (SEAI) in its Annual Reports on Public Sector Energy Efficiency Performance. Total Primary Energy Requirement (TPER) is a measure of energy consumption that also accounts for energy consumed and/or lost beyond an organisation's boundary, i.e., reflects the electricity generated and distributed to enable electricity use by the end customer. Further detail can be found in the SEAI's Annual Reports.

# Glossary of Terms

**Agglomeration** - an agglomeration is an urban settlement (village, town or city area) which is connected through a pipe network to a wastewater treatment plant.

**Chlorination** - Water chlorination is the process of adding chlorine or chlorine compounds such as sodium hypochlorite to water. In particular, chlorination is used to prevent the spread of waterborne diseases.

**Cryptosporidium** - A disease-causing protozoon widely found in surface water sources.

**E.Coli** - Coliforms, specifically Escherichia coli (E. coli), are the universal indicator microorganisms of faecal contamination of water. These bacteria, which are of definite faecal origin (human and animal), are excreted in vast numbers and their presence in a water supply is proof that faecal contamination has occurred and is a definite indication that pathogens may be present.

**Gigawatt hours (“GWh”)** - A measure of energy volume.

**Million litres of water per day (“MLD”)** - A measure of water volume per day.

**Pathogen** - Microorganisms that can cause disease in humans, other organisms or animals and plants. They may be bacteria, viruses, or protozoa and are found in sewage, in runoff from animals, farms or rural areas populated with domestic and/or wild animals, and in water.

**Population Equivalent** - in waste-water treatment the population equivalent is a reference that describes the specific load of a wastewater treatment plant.

**Remuneration** - Reward for employment in the form of pay, salary, or wage, including allowances, benefits (such as company car, medical plan, pension plan), bonuses, cash incentives, and monetary value of the noncash incentives.

**Trihalomethanes** - Trihalomethanes are a group of four chemicals formed, along with other disinfection by-products, when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water.

**Turbidity** - Turbidity is a measure of the degree to which the water loses its transparency due to the presence of suspended particulates. The more total suspended solids in the water, the murkier it seems and the higher the turbidity. Turbidity is considered as a good measure of the quality of water.

