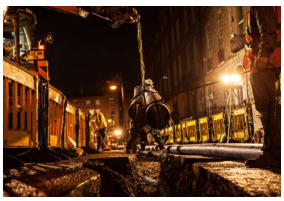
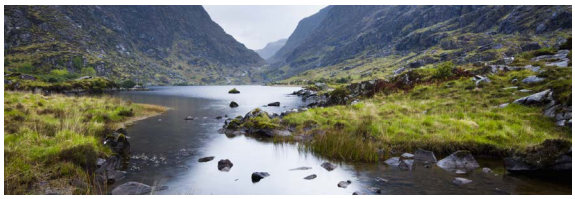
UISCE ÉIREANN : IRISH WATER





Irish Water Business Plan

Transforming Water Services in Ireland to 2021

ervia

UTILITIES | INFRASTRUCTURE | SERVICES

Contents

Executive Summary

Water is one of the most essential resources on earth, critical for human health, the production of food and for industrial activity. The provision of clean drinking water and the disposal of wastewater in a manner that protects the environment is vital to our daily lives, and for economic and social development. However, today Ireland's national water services are under severe stress and are simply not delivering to the standard required by a modern economy.

Key issues merit mention. At the beginning of 2015, 121 drinking water treatment plants, supplying 940,000 people, required major upgrading to avoid drinking water contamination. Up to 49% of all drinking water was lost before it reached our taps. 23,000 people were on boil water notices and at least 180,000 properties were at risk of not meeting the EU guideline on the maximum levels of lead in drinking water.

It is not just the drinking water network that is facing significant challenges. Over two-thirds of the sewer network used to transport the country's wastewater was considered to be in need of major repair. Untreated sewage was being discharged into our rivers and seas at 44 different locations across Ireland and Ireland is being pursued by the European Commission for persistent failure to meet European Directive standards for wastewater treatment.

The poor state of water services in Ireland is the result of decades of underinvestment combined with a highly fragmented industry structure. As with all Government dependent funding, historically, water services experienced constrained and variable year-on-year funding, resulting in significant underinvestment over many decades. In addition, in the past, water services were managed by 31 separate Local Authorities. This lack of integration resulted in duplication and significant inefficiencies and inconsistencies in the planning, construction, operations and maintenance of our water and wastewater networks.

It is no surprise, therefore, that today many critical national water and wastewater assets are very old, with some dating back to the 19th century. Operating costs are very high at approximately twice that of the UK. There is also a serious lack of spare capacity in the networks that is required for service resilience and for social and economic development. For example, 156 wastewater treatment plants are currently undersized, and there is less than 2% spare drinking water capacity in Dublin.

Irish Water was established to take on these challenges. As a State owned single utility, Irish Water will ensure that a national and long term approach to the planning and development of our water services is taken, duplication is eliminated and that a systematic approach is applied to the operation and maintenance of the water and wastewater networks. Furthermore, Irish Water can source funding independently of the Government. This single utility approach to managing water services has long been the norm across Europe, and has applied in Ireland for other essential services such as electricity and gas.

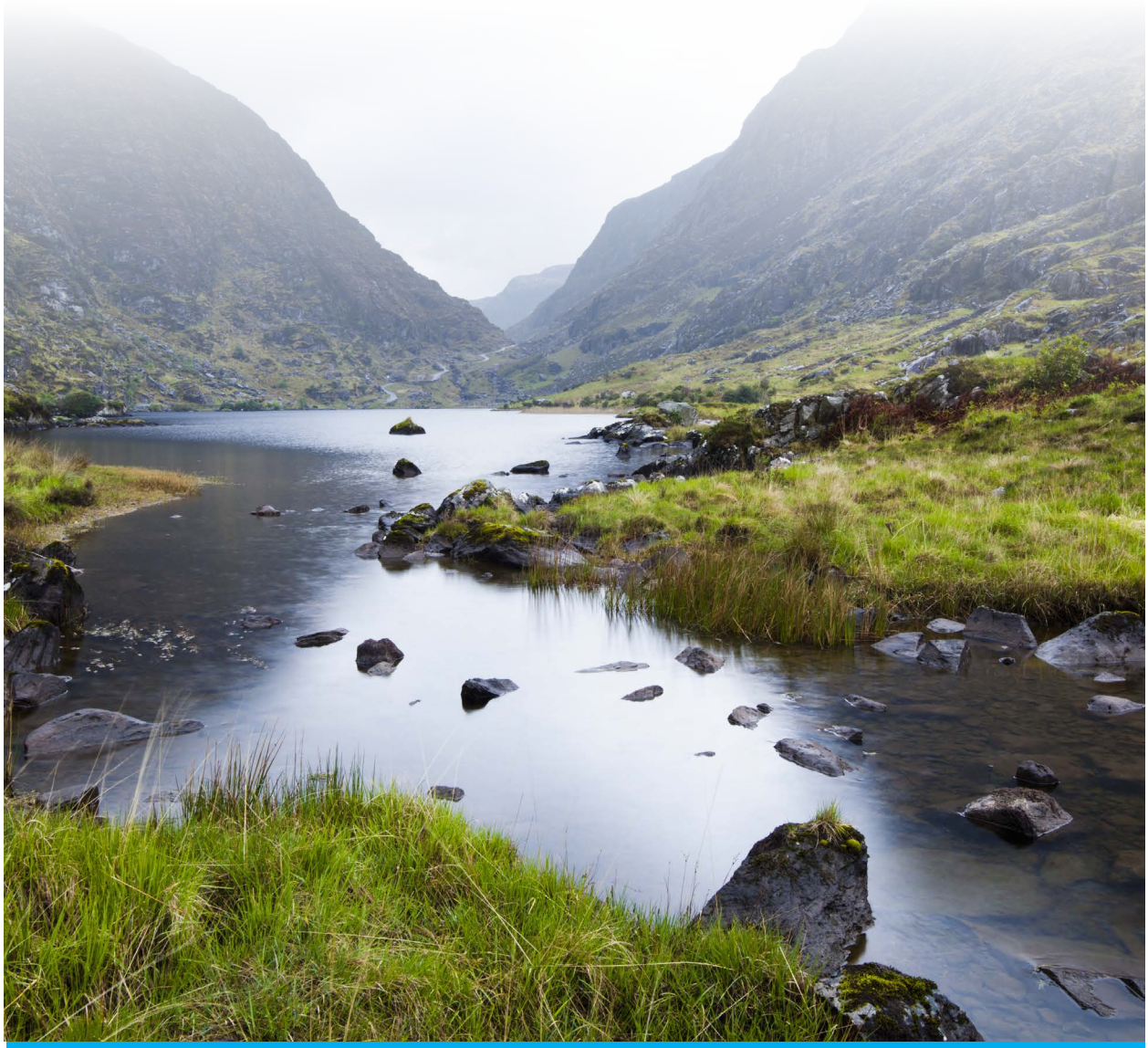
To transform our water services, Irish Water, guided by its parent Ervia, has developed a seven year business plan with the overriding objective of delivering a quality service to customers. This plan is focused on nine key deliverables which include; transforming the previous service delivery model to deliver €1.1bn in efficiencies and cost savings; implementing best utility practices in operations, maintenance and capital investment delivery; investing €5.5bn to bring our water infrastructure and services to an acceptable level; building a solid commercial company that will raise funding independently of the Government to invest directly in water infrastructure; and supporting economic and social development as our economy recovers and grows.

By 2021 this plan will ensure that the current risk of drinking water contamination affecting 940,000 people is eliminated, that all current boil water notices are lifted and that leakage in the water network is reduced, by over 10%, to less than 38%, as a first step towards reaching sustainable levels of leakage. Irish Water will also implement a national lead strategy benefiting at least 180,000 homes. By 2021, there will be no wastewater discharge without treatment. Irish Water will also deliver much needed water and wastewater capacity in support of social and economic development.

The challenge of fully transforming water services in Ireland should not be underestimated. It will take a multi-year, multi-billion euro programme continued through several successive investment cycles. This plan is the first step on the path to delivering that vision.

Chapter 1

Introduction

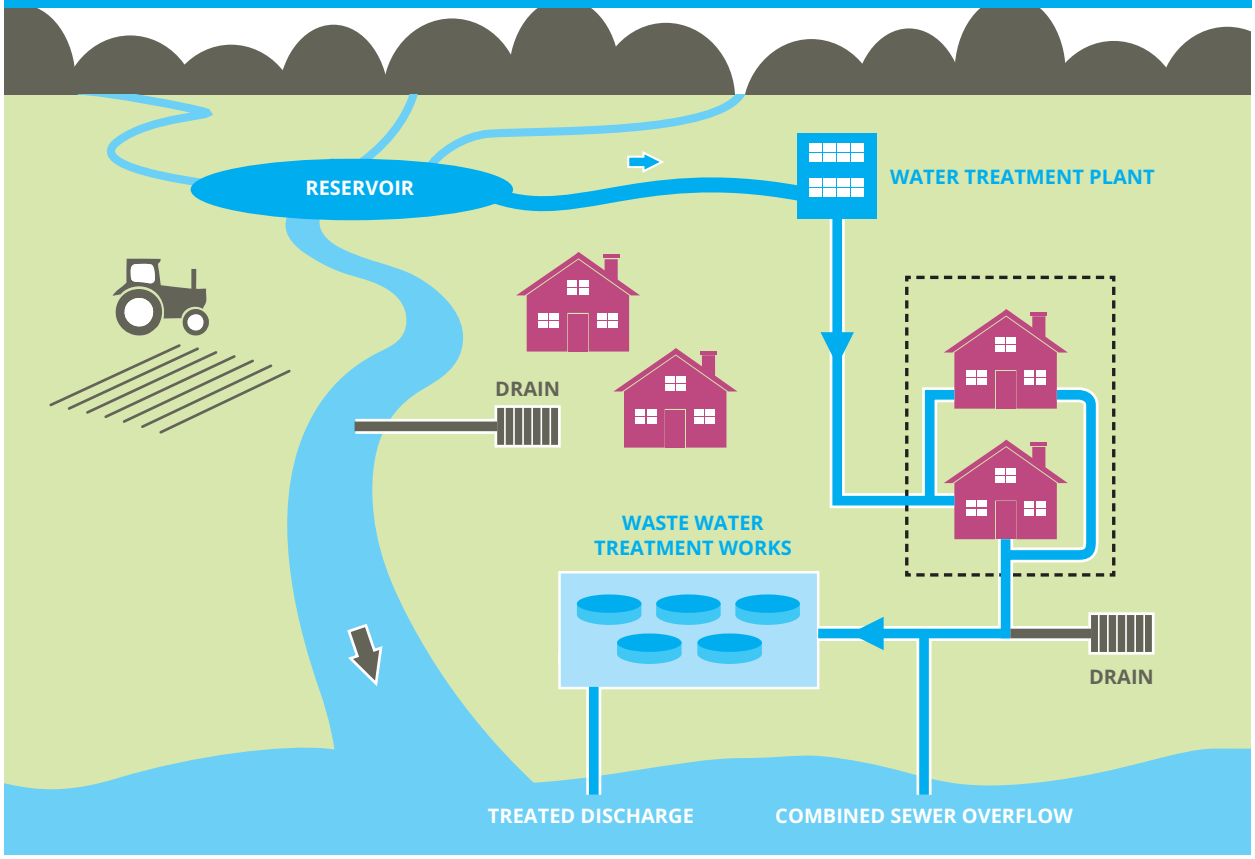


Chapter 1 Introduction

Water is one of the most essential substances on earth, critical for human health, the production of food and for industrial activity. The provision of clean drinking water and a reliable wastewater service, in a manner that protects the natural environment, is critical to a country's economic and social development.

Access to clean fresh water and safe disposal of wastewater are often taken for granted. Water is a valuable resource but it is expensive to produce and manage. It is a complex process to turn raw water from our rivers, lakes and groundwater into clean drinking water and deliver it to the tap. Wastewater must be collected and treated before it can be reintroduced safely back into the environment. In the past, total spend on public water and wastewater services in Ireland has been approximately €1.2bn per annum, with c. €1bn funded by the Exchequer. However, this level of spend has not been sufficient to ensure that Ireland has water and wastewater services that meet the requirements of a modern economy.

Figure 1.1 Depiction of water and wastewater activities



While Ireland is in the fortunate position of having a plentiful supply of fresh water, it cannot be complacent in its management. Already there is a potential shortage of water to meet the future needs of the Eastern and Midlands region. The Irish water services sector has suffered from decades of under-investment. Ireland's bulk water abstraction per inhabitant is the second highest in Europe and its potable water network has significant levels of leakage (49%). This is nearly twice the level of the UK. The current state of the water and wastewater assets vary greatly. Ireland's wastewater treatment and EU Directive compliance does not compare favourably with our European partners.

Factors contributing to this are geographically dispersed operations, little or very poor asset data with inconsistent asset analysis, varied local application of policies and standards and variable customer service levels. To address these issues, there is a pressing requirement to reform Ireland's water services and establish a model that would allow for targeted efficient maintenance and investment of capital at a national scale.

Irish Water was established to deliver the Government's reform programme for the water services sector.
The task assigned to Irish Water by the Government is to build a new national water utility to provide safe, affordable and environmentally compliant water services to all customers.

Irish Water's mission:

"All of our customers should receive a safe and reliable supply of drinking water and have their wastewater collected and safely returned to the environment. We will protect the environment in all our activities and support Ireland's social and economic growth through appropriate investment in Water Services".

In addition to Irish Water having internal governance structures and being accountable to its parent Ervia, Irish Water is also accountable in a broader context to its stakeholders including the public, industry, the Commission for Energy Regulation (CER), the Environmental Protection Agency (EPA) and the Government, and will operate in an open and transparent manner. It is also obliged to consult with the Health Services Executive (HSE) on matters relating to public health.

This document presents Irish Water's seven-year plan for the period 2015 to 2021. The key objective of this plan is to deliver on the case for reform outlined by Government and to establish a high performing leading national utility. This document sets out the key outcomes which Irish Water, working with our partners, in the Local Authorities will deliver for customers, stakeholders and the Irish economy.

The strategy represents the first phase in implementing the vision as defined by the Water Services Strategic Plan (WSSP), which is with the Minister for Environment, Community and Local Government for his approval. This sets out the long-term strategic objectives for water services in Ireland.

The scale of the challenge facing Irish Water should not be underestimated. The transformation of the delivery of our water services working with 31 local service providers into a single way of working to modern utility practice, while reducing costs and improving services, is a significant undertaking and will take time. It must be approached on a structured and phased basis over a number of years and will require on-going commitment from Government and all key stakeholders.

Equally, the repair and upgrading of our water treatment plants, wastewater treatment plants, water network and sewer network will require a multi-billion euro investment programme over many years. There will not be sufficient funding available in the shorter term to deliver everything that is needed. In implementing the capital investment programme, Irish Water will prioritise investment decisions to ensure that it utilises available capital most effectively by making investments that deliver the biggest impact while maximising value-for-money.

This document sets out both the key components of the transformation and the key infrastructure improvements that will be delivered under the capital investment programme during the term of this business plan. Irish Water recognises that it is on a journey and is fully committed to reducing costs and improving the service delivery model over several business plan cycles to align to peer company efficiency levels.

Chapter 2

Current status of the Irish water industry

Chapter 2 Current status of the Irish water industry

- Irish Water has taken over responsibility for a large network of fragmented and disjointed water and wastewater assets, some dating from the 19th Century, providing services to a relatively dispersed population based on existing Local Authority boundaries.
- Constrained by funding, the water sector has suffered from decades of under-investment. This has resulted in a lack of proper maintenance and upgrading of ageing and variable quality infrastructure.
- 49% of all water produced for supply to the customer is lost through leakage on the network. This is nearly twice the level of the UK.
- There is significant non-compliance with drinking water standards. At the start of 2015, 23,297 consumers were on boil water notices, 121 water schemes were listed on the EPA's Remedial Action List and at least 180,000 properties were at risk of not meeting EU lead standards for drinking water.
- Ireland is the subject of an Infringement Case by the European Commission for failure to meet the requirements of the EU Urban Waste Water Treatment Directive.
- Lack of historic asset data has resulted in unreliable operation of plants, inefficiencies in plant maintenance and sub-optimal capital investment decision-making.
- Ireland's water industry benchmarks very poorly to European peers - operating costs are more than twice that of benchmark UK water companies by some measures, albeit partly as a result of Ireland's dispersed population base and the number of water treatment plants.
- Irish Water has been established to take on these challenges, working in co-operation with 31 Local Authorities. The scale of this task is enormous and cannot be underestimated. It will require a multi-billion euro investment programme and a major transformation in how services are delivered. This will take many years to achieve, will require a singular focus from Irish Water and the commitment and support of key stakeholders (Government, Local Authorities and Regulators).

Water and wastewater network assets

On its establishment, Irish Water assumed responsibility for a large portfolio of fragmented and disjointed water and wastewater assets (treatment plants, network pipes, etc.). **It should be noted that at present a comprehensive and detailed database of water and wastewater assets is not available.** Irish Water is in the process of collating the available data from the 31 Local Authorities and all outstanding information not recorded heretofore. A summary of the estimated scale of Irish Water's operations is set out in Table 2.1.

Irish Water assets and operations	
Assets:	
Water abstraction and treatment points all sizes (no.)	856
Water treatment plants >1 million litres per day production (no.)	235
Water pipelines mapped (km)	58,000
Treated water reservoirs all sizes (no.)	1,347
Wastewater treatment plants all sizes (no.)	1,074
Licensed wastewater treatment plants (no.)	385
Certified wastewater treatment plants < 500 PE* (no.)	526
Wastewater network mapped (km)	15,000
Wastewater network estimated (km)	25,000
Operational Activities:	
Customer base (no.)	1.56m (1.36m** domestic and 200k non-domestic)
% of population supplied with drinking water	>80% (3.3m)
Public water zones (no.)	c. 1,000
Drinking water treated per day (litres)	1,670m
Agglomerations where wastewater is collected (no.)	>1,000
Wastewater treated per day (litres)	1,600m

* PE - Population Equivalent **full service equivalent to account for customers with only one service

Table 2.1 Irish Water - water and wastewater assets and operational activities

Irish Water's operations include several thousand water extraction points, treatment plants, pumping stations and wastewater discharge points, approximately 58,000km of mapped water pipelines and an estimated 25,000km of wastewater pipelines.

Irish Water supplies drinking water to approximately 80% of the public (3.3m people), with the remainder supplied by group water schemes and private wells. This is delivered through some 1,000 separate water supply areas (public water supply zones) and involves the abstraction, treatment and delivery of 1,670 million litres of drinking water each day.

Irish Water collects wastewater from over 1,000 separate communities connected to the wastewater network (wastewater zones known as "agglomerations") and treats 1,600 million litres of wastewater daily, before it discharges it back into our rivers, harbours and coastal areas.

The origins of the fragmented nature of the Irish water and wastewater network can be traced back to the 19th Century and the early formation of public water supplies, based on individual urban council areas and river basins. The origin of the current system dates from the 1878 Public Health Act and the role of each Sanitary Authority. With expansion and development water services remained fragmented given the sparse rural nature of a significant part of the Irish population and the development of water and wastewater services within individual Local Authority boundaries. This is one of the key factors that has lead to higher costs of operations in Ireland compared to peer utilities in Europe.

Key directives and regulations impacting water operations in Ireland

The European Commission sets environmental policy and compliance standards for water and wastewater management across the EU. It does this to safeguard quality and to ensure the sustainability of water and environmental resources. The Commission achieves this via policy Directives, the most important of which are:

- The Drinking Water Directive – 98/83/EC;
- The Urban Waste Water Treatment Directive - 91/271/EEC, and
- The Water Framework Directive – 2000/60/EC.

The Drinking Water Directive sets the standard of water for human consumption across member states. Its objective is to protect human health from the effects of contamination, by ensuring that drinking water provided is clean and fit for human consumption.

The Urban Waste Water Treatment Directive sets the standard for the protection of the water environment from the adverse impacts of the release of treated and untreated sewage and other industrial discharges.

The Water Framework Directive sets out the standard in relation to the protection and improvement of the overall water environment. Its objective is to ensure that member states deliver plans to arrest and reverse pollution of water resources and to achieve "good" water quality status.

These Directives are transposed into Irish Law through statutes and regulations. The primary regulations (the Drinking Water Regulations SI.122 of 2014 and the Waste Water Treatment Regulations SI.254 of 2001), set out in the standards that are to be met for the country to be in compliance with the Directives. It is the role of the **Environmental Protection Agency (EPA)** as the environmental regulator for water and wastewater services to monitor and enforce the standards set in the regulations to protect consumers and to ensure the implementation of the Directives.

Regarding the Drinking Water Directive, the EPA monitors and reports on drinking water quality. Each year the EPA produces a Remedial Action List of the water supplies where, as regulator, it has identified that specific actions are needed to be taken to manage risks to consumers.

Regarding wastewater regulations, the EPA licences and certifies treatment plants (dependent on their size) for the treatment of wastewater.

In September 2013 (prior to the establishment of Irish Water), the EU Commission issued a letter of Formal Notice to Ireland that it was to commence proceedings against the State in relation to failure to comply with the requirements of the Urban Waste Water Treatment Directive. This letter referenced urban centres across the country with inadequate wastewater collection and treatment systems.

In Ireland, the **Health Services Executive (HSE)** has a key role in assessing and advising on potential risks to public health and safety. The HSE role covers areas such as notification of issues to consumers requiring water restrictions (e.g. boil water notices) and policy regarding the addition of fluoride to support dental hygiene.

As part of the programme of sectoral reform, the Government decided to extend the remit and authority of independent economic regulation to the water sector. In this model it is the role of the regulator **Commission for Energy Regulation (CER)** to act as a proxy for competition and to protect the best interests of customers by ensuring that capital and operational expenditure are appropriate, that service standard levels are met and that tariffs are transparent and fair.

Historical inefficiencies in the structure of the water industry

It must be acknowledged that Local Authorities have had to manage water services in Ireland against a backdrop of significant constraints, in particular lack of funding. Despite this, major strides were made with the limited resources available to them. In particular as EU Directives drove increasingly high standards of both drinking water and wastewater compliance, significant progress has been made in addressing drinking water quality and wastewater compliance. Local Authorities also managed to continue to deliver the services despite lack of funds for maintenance, operations and repair of many assets on the ground.

The following analysis is therefore a critique of the structural challenges that the old model presented and is not a criticism of the dedicated people involved in service delivery all across the country. However, the structure, organisation and funding model require change to address the key weaknesses associated with the Irish water sector, which are set out here.

Constrained and unsustainable funding model

The water sector funding model was based on variable year-on-year funding, dependent on available Exchequer resources and resulted in:

- Long-term substantial under-investment in Ireland's water and wastewater sector, compounded by increasing EU standard requirements, driving the need to increase, rather than reduce, investment.
- No ability to access alternative funding.
- Ad-hoc investment on a scheme by scheme basis, which favoured larger one-off projects which tended to be over-sized and conservative in design, leading to capital inefficiency.
- A major backlog in investment in water services. The historical average spend was €423m per annum over the period 2004 to 2009 and €382m over the period 2010 to 2013 (see Figure 2.2). As a reference point over the duration of this business plan, Capex spend of €689m per annum on average, is targeted to be delivered.

Average Capital Expenditure 2004-2021 (€m)

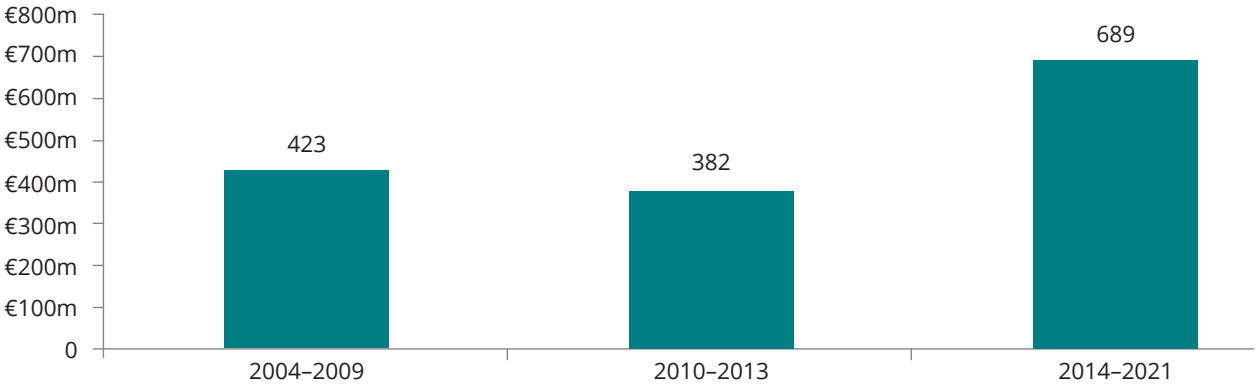


Table 2.2 Average Capital Expenditure (Capex) 2004 - 2021

Fragmented structure with diseconomies of scale

The fragmented nature of the water industry resulted in:

- Duplication of management across 34 (now 31) Local Authorities with obvious barriers to economies of scale, and limited sharing of resources.
- An inability to standardise technology and procedures to drive efficiency and an over-reliance on the knowledge of key individual staff members.
- Planning along Local Authority boundaries which resulted in a fragmented and uneconomic network of water and wastewater assets leading to over 1,000 separate water supply zones, 856 water treatment plants and 1,074 wastewater treatment plants, and a dispersed set of water and wastewater networks. This is in contrast to a much lower number of larger water treatment plants in particular, in the UK (see benchmarking section below).
- A significant overhead in the management of such a disparate and large asset base. This is a key contributing factor leading to expenditure per connection in Ireland being more than twice the average of UK water companies (see benchmarking section below).

Inconsistent operations and maintenance of plants/networks

The lack of a single national approach to operations and maintenance has lead to:

- Non-standardised approach to operations of treatment plants and networks.
- Lack of consistent, evidence-based maintenance planning to ensure reliable performance and to avoid critical system deficits.
- Inconsistent work planning and tracking to record work done, cost incurred and performance of assets.
- Lack of formal recording of all assets.
- Lack of formal structure to gather and record plant condition and performance data to use as part of asset planning, maintenance planning and investment decisions, leading to asset deterioration resulting in poor condition and sub-optimal prioritisation of operating and capital spend.
- Inconsistent approach to the protection of individual water supply sources, e.g. risk-based assessments to determine and prioritise protection measures not in place for all water supply sources.
- Insufficient training and development for staff to keep pace with changing technology, resulting in sub-optimal operations and maintenance for certain facilities.

Ageing and poor quality water services infrastructure

The legacy of under-investment has exacerbated the problems with Ireland's deteriorating and poor quality water services infrastructure. In particular:

- The average age of the water mains infrastructure in Ireland is estimated at 65 to 85 years. This compares to an EU average of 36 years (source: European Benchmarking Cooperation 2013).
- Some of our largest treatment plants date from the 19th century and are in critical need of investment and upgrade, for example the Vartry Water Supply Scheme.
- The cast iron mains in our cities and towns are often heavily corroded and vary in age from 50 to 140 years. This gives rise to high leakage, rust discolouration and high risk of failure causing supply disruption.
- It is estimated that nationally 49% of water produced is lost due to leakage from the distribution network due to its age and quality.
- While there is little or no lead in the water distribution system, at least 180,000 properties are at risk of not meeting EU lead standards for drinking water (an estimated 140,000 properties have individual lead service pipes and between 30,000 to 40,000 properties have shared or looped mains serving them).
- Many of our sewers are in very poor condition, with high leakage into and from sewers due to lack of funding for maintenance and repair for decades.
- Historically, combined sewer systems were constructed in urban areas where storm water is added to the sewers. This leads to flooding problems in heavy rainfall conditions, overflows to rivers and streams and generally adds stress and capacity requirements onto wastewater networks and treatment plants. It also has significant cost implications.

Variable customer service standards

- Local Authorities operated individual customer service procedures with significant variability in services offered.
- The provision of local town/area services leads to variable service provision, lack of tracking of plant/customer issues and is an expensive service delivery model.
- A highly fragmented non-domestic customer billing and collection system is also in place with over 500 different tariff price points for non-domestic customers.

Impact of historic underinvestment on Ireland's water services

The significant under-investment in our water services infrastructure over decades has resulted in a system that is not fit for purpose to meet the needs of a modern economy. In many areas it is under severe stress and there are clearly challenges right across all aspects of water services. A snapshot of these challenges is set out in this section in terms of (a) Drinking Water Quality, (b) Drinking Water Capacity, (c) Wastewater Quality, (d) Wastewater Capacity, and (e) Infrastructure Deficit. Today we are in breach of both European and domestic licence conditions. Ireland is being pursued by the European Commission for persistent failure to meet European Directive standards for wastewater collection and treatment. We are wasting natural resources and polluting our environment. Our national water sector performance benchmarks poorly in comparison to its European peers. The problems are significant and it will take a multi-year, multi-billion euro programme to address this critical national challenge.

Significant issues facing the industry include:

Drinking water quality

- 530 of the existing 856 water treatment plants require investment.
- 121 of these plants (listed as part of the EPA's Remedial Action List at the start of 2015), serving 940,000 people, require major upgrading in order to eliminate the risk of contamination of drinking water supplies, including:
    - ~ 23,297 customers were on boil water notices at the start of 2015, with many more at risk due to the presence of Cryptosporidium and E.Coli.
    - ~ At least 180,000 properties at risk of failing European standards for lead in drinking water at the start of 2015.
- We still retain large open reservoirs for drinking water storage that require additional treatment processes to ensure water quality.

Drinking water capacity

- The capacity headroom (additional production above peak daily demand) in the Greater Dublin Area is 2% against an industry standard of >15%, exposing Dublin to the risk of water shortages at an economic cost of almost €100m per day (Indecon 2014), and with an impact on potential foreign direct investment.
- An estimated 45-49% of water treatment plants in Ireland are below the 15% capacity headroom target.
- The main water treatment plant supplying Cork city dates from the 1920s and is operating well beyond its design capacity.
- There is a need for additional capacity to support economic growth and meet new residential and commercial/ industrial development.

Wastewater quality

- The EPA has reported that sewage is being discharged at 44 locations across Ireland, including into rivers and bathing areas, with either no treatment or preliminary treatment only[1]. This includes 7 large urban areas such as Arklow, Cobh and Carrigaline.
- 43 agglomerations do not comply with the secondary treatment requirements of the Urban Waste Water Treatment Directive (UWWTD). In addition, 10 agglomerations, discharge to waters classified as 'sensitive areas', as defined by the UWWTD, do not meet the requirements of more stringent treatment (i.e. nutrient removal).
- As more sampling is carried out by Irish Water and more comprehensive data is reported it is likely that additional schemes will be identified as non-compliant.

[1]*Preliminary treatment is removal of rags, fats, grit and large objects from sewage.*

Wastewater capacity

- 156 wastewater plants are identified as overloaded. They do not meet required standards of discharge and cannot take additional wastewater without making the problem worse.
- 30 plants are 'at capacity', including the main Limerick City plant which requires immediate upgrade to meet planned new industry needs.
- The Greater Dublin Area depends on one large treatment plant at Ringsend which requires both process upgrading and capacity expansion.
- As well as addressing existing capacity shortfalls, there is a need for critical capacity expansion to support growth in some areas of the country. This includes network 'bottlenecks' and excessive overflows from sewers.

Poor infrastructure condition

- Much of our water mains are twice the age of the average European network and are in poor condition.
- A critical 4km tunnel section of the Vartry Water Supply Scheme, which is the third largest water treatment plant in the country and was built in the 1870s, is in imminent danger of collapse. This would impact drinking water for 200,000 people.
- There is a significant amount of cast iron pipes in our cities in poor condition with significant rusting and associated leaking. PVC and asbestos cement watermains from the 1960's and 1970's are often fragile and prone to regular bursts.
- Water mains in many rural towns are in poor condition and subject to frequent bursts with associated loss of supply and damage. This is particularly acute in parts of Kerry and Mayo.
- 49% of treated water is lost through leakage across the water network. This is nearly twice the level of the UK.
- It is estimated that over two-thirds of the 25,000 km sewer network is in need of repair, either due to structural weaknesses, infiltration or other defects.

Benchmarking of Ireland's water industry

Table 2.3 presents a comparison of Irish Water's asset and operating characteristics compared to UK water companies. The table shows that:

- Leakage is almost double that of the UK benchmark.
- Operating Expenditure (Opex) per customer, or on a kilometre basis, is double the UK average. Although these comparisons partly reflect the dispersed nature of Ireland's population, these differences are also due to the lack of automation of plants and the number of water and wastewater treatment plants in Ireland.

	England & Wales Average	Scottish Water	NI Water	Irish Water
Water population served (000)	4,307	4,944	1,700	3,300
Mains length (km)	28,161	47,300	26,700	58,000
Sewer pipes (km)	68,335	50,086	15,250	25,000
Water treatment works (no.)	86	256	24	856
Waste water treatment works (no.)	635	1,836	1,034	1,074
Water treated (Ml/d)	1,189	2,044	559	1,670
Area served (km^2)	21,409	80,239	14,130	69,825
Leakage %	22%	34%	28%	49%
Key Opex Benchmarks				
Controllable Opex per-population Served (2013 prices) (€)	94.2	72.0	113.8	212.36
Controllable Opex per km combined (2013 prices) (€000)	3.9	3.7	4.6	8.44

Table 2.3 Irish Water asset and operating characteristics compared to UK water companies[2]

[2]*Source: Irish Water Interim Review Assessment, prepared by NERA for the Commission for Energy Regulation 24th July 2014 and based on Annual Regulatory returns for England & Wales, Scottish Water and Northern Ireland Water (last year of full data availability 2009-10) and information provided by Irish Water.*

Chapter 3

Benefits of the utility model

Chapter 3 Benefits of the utility model

As described in Chapter 2, the Irish water services sector has suffered from decades of under-investment and poor asset management due to historic inefficiencies, and the fragmented structure of the delivery model. This has led to a number of major deficits to be addressed in Ireland's water and wastewater services.

Irish Water was established to take on these challenges. Its mandate is to bring a singular focus to addressing the challenges facing our national water services; provide the ability to access additional capital; accelerate capital investment programmes; restructure the current fragmented service delivery model and deliver significant operating efficiencies. It is delivering on this mandate by establishing itself as a best practice utility. There are significant benefits of a single utility being responsible for the delivery of water services in Ireland. These are set out below.

Benefits of a utility

Delivery of significant capital spend	Ability to deliver the necessary investment in the water infrastructure by securing domestic customer revenues and international funding. Delivery of best utility practice to investment decisions - a national approach to investment planning, with the integration of investment planning and delivery in one organisation. Delivery of strategic priority capital projects as a result of financing capacity, cost efficiencies and integrated strategic planning. Implementation of systems and reporting to deliver evidence-based capital investment decision making and delivery of approved projects.
Standard approach to asset management	National approach to asset management. Integrated evidence-based decision making covering asset management, operations and capital spend programmes. Single management of information with an integrated approach to development, identification, collection and analysis of information. Improved risk management and corporate governance and a clear decision / risk audit trail.
Standard approach to operations and maintenance (O&M)	Standard approach to operations and maintenance. Consistent evidence-based approach. Risk-based assessments to determine and prioritise maintenance. Consistent policies, processes and standards implementation to ensure safe and efficient operation of all water services assets. Implementation of a work management system to allocate, track and close out all work orders and application of industry standard utility systems such as GIS, asset management and hand held terminals.

Best practice utility customer service	Singular focus on the improvement of water and wastewater services for customers (e.g. lower level of boil water notices, increased compliance levels, lower level of major pollution incidents and reduced supply interruptions). A single point of contact capable of handling all customer queries. Clear handling / turnaround standards for resolving enquiries. Ability to monitor customer perceptions and experiences to assure service satisfaction. Implementation of a consistent national tariffs and connections process.
Ability to attract external funding/ financing	Ability to borrow from international banking and capital markets, based on an economic regulatory model that is well known to investors. This is critical for the water sector to secure the necessary capital to invest in water infrastructure. Implementation of national water charging for domestic customers. Potential to self-fund in the longer term with domestic and non-domestic charges and access to capital markets. The optimal level of external funding is based on having an investment grade rating for the company.
Delivery of significant Opex efficiencies and economies of scale	Significant efficiencies in operating costs (e.g. major procurement efficiencies, flexible cost-base, etc.). Significant efficiencies and economies of scale in the delivery of capital spend. A single body clearly accountable to the CER for efficiency and quality of service performance. Utility scale to benchmark against water utilities in Europe. Delivery of a nationwide metering programme that will reduce consumption and leakage resulting in the need for less capital investment.
Supporting national economic, social and environmental objectives	Delivery of infrastructure that supports National Economic and Social Planning. Delivery of services in a sustainable manner which contribute to the protection of the environment. Compliance with European and national Directives and statutory regulations. A focus on the highest health and safety standards for delivery of water services.

Chapter 4

Nine key deliverables

Chapter 4 Nine key deliverables

Irish Water is committed to **nine key deliverables** as part of this business plan. Together these deliverables are designed to address the challenges that are set out in the earlier sections of this plan and seek, over the timeframe of this plan, to deliver fit for purpose water services. This would allow Irish Water meet the environmental, economic and social needs of Ireland and position the company to grow and prosper as a 100% Irish company, owned by the people of Ireland and operating in the best interests of Ireland.

1. **Establish the highest health and safety standards.**
2. **Implement a €5.5bn capital investment programme.**
3. **Deliver capital efficiency savings of €500m.**
4. **Evolve Irish Water into a high performing utility.**
5. **Transform the water services operating model.**
6. **Deliver operating cost savings of €1.1bn.**
7. **Achieve best practice customer service.**
8. **Put Irish Water on a solid commercial footing.**
9. **Support economic growth in line with economic and spatial planning policy.**

Each of these key deliverables is set out in more detail below.

1. Establish the highest health and safety standards

Irish Water is committed to implementing the highest health and safety standards. To deliver on this objective Irish Water will implement a comprehensive Safety Management system including a Safety Leadership programme for its staff and develop a water industry health and safety consultative forum. To support this, Irish Water will focus on HSQE (Health & Safety, Quality and Environment) inspection and audit programmes including behavioural audits designed to engage and develop a learning organisation.

Irish Water is committed to a culture that encourages reporting of all incidents and 'near misses' to ensure that we learn from them, seek to avoid repeat incidents and enable preventative actions to be put in place. Irish Water will target 0.5 lost time accidents per 100,000 man hours.

2. Implement a €5.5bn capital investment programme

Irish Water is committed to delivering a Capex programme of €5.5bn over the period to 2021 as outlined in Table 4.1.

This very significant level of investment is targeted at addressing the major deficits in terms of Drinking Water Quality and Capacity, Wastewater Quality and Capacity and repairing the most critical infrastructure that is in need of urgent investment. The major part of this investment will be delivered under two Capital Investment Plans (CIPs). The first plan (CIP1) sees Irish Water investing some €1.38bn, with CER approval to increase this to €1.7bn, depending on funding up to 2016 which coincides with Irish Water's first regulatory price control period, (see Chapter 5). CIP2 runs from 2017 to 2021.

It should be noted that the capital proposed in CIP2 for the period to 2021 is Irish Water's estimate of what will be required but precise programmes and projects will be subject to review and approval by the CER as part of the normal regulatory process.

Programme	Capex Projections								
	2014	2015	2016	2017	2018	2019	2020	2021	Total
	€m	€m	€m	€m	€m	€m	€m	€m	€m
Capital Inv. Plan	343	391	522	533	595	777	728	806	4,694
Metering	220	277	77	-	-	-	-	-	574
Irish Water Programme	28	13	2	-	-	-	-	-	43
Local Authority Balance Sheet	53	150	-	-	-	-	-	-	203
Total Capex	**644**	**831**	**601**	**533**	**595**	**777**	**728**	**806**	**5,514**

Table 4.1 – Irish Water Capital Expenditure to 2021

Based on a €5.5bn Capital Programme, tables 4.2 to 4.6 summarise the key challenges that need to be addressed (as outlined in Chapter 2) and the improvements that Irish Water will deliver by 2021, to comply with relevant directives and licences and to identify important customer benefits. Interim deliverables are also shown for 2017. A summary list is provided in **Appendix 1.**

Drinking water quality

Drinking Water Quality Indicators	Q1 2015	2017	2021
1) Schemes on the EPA's Remedial Action List	121	100	0
2) Boil Water Notices	23,297	<1,000	0
3) Lead*:			
- Common Lead Shared Services	30,000-40,000	10,000	0
- Individual Lead Pipes	140,000	120,000	50,000

Table 4.2 – Drinking Water Quality Impact

** This will be achieved through either treatment using ortho-phosphate (subject to the approval of the regulators) or by replacing pipes.*

Drinking water capacity

Drinking Water Capacity Indicators	Q1 2015	2017	2021
4) Capacity headroom in Greater Dublin & Mid Eastern Region	2%	7%	>15%
5) Plants with capacity headroom < 15%	45%-49%	39%	30%
Example of specific water capacity improvement:			
• Upgrading of Cork Lee Road plant.			

Table 4.3 – Drinking Water Capacity Impact

Wastewater quality

Wastewater Quality Indicators	Q1 2015	2017	2021
EPA Compliance			
6) Discharge with no treatment or preliminary treatment only	44	10	0
7) Discharge with no treatment or preliminary treatment only, into large urban areas - subset of (6)	7	1	0
Urban Waste Water Compliance (UWWTD)			
8) Agglomerations not meeting requirements on secondary treatment of discharges	43	24	0
9) Agglomerations not meeting requirements of more stringent discharges (current list)	10	4	0

Table 4.4 – Wastewater Quality Impact

Wastewater Capacity

Wastewater Capacity Indicators	Q1 2015	2017	2021
10) 156 plants overloaded as reported by the EPA			
- Plants overloaded > 2,000 PE*	36	32	0
- Plants overloaded < 2,000 PE	120	<120	<60
Examples of specific wastewater capacity improvements:			
Upgrading of the Limerick City plant and the Ringsend plant.			

Table 4.5 – Wastewater Capacity Impact

** PE - population equivalent*

Infrastructure

Infrastructure Indicators	Q1 2015	2017	2021
11) Network leakage	49%	45-49%*	<38%
Example of specific infrastructure investment:			
Upgrading of Vartry Water Scheme - Tunnel Replacement.			

Table 4.6 – Infrastructure Impact

**Targeting the lower end of the range.*

The domestic metering programme is key to identifying network leaks, and also to delivering long-term savings through avoided capital and operating expenditure.

Table 4.7 provides cumulative Capital spend for each of the five categories listed above.

Area of Investment*	Cumulative to 2017	Cumulative to 2021
Drinking Water Quality	€310m	€950m
Drinking Water Capacity	€295m	€1,250m
Wastewater Quality	€811m	€1,250m
Wastewater Capacity	€457m	€700m
Infrastructure	€736m	€1,364m
Total	**€2,609m**	**€5,514m**

Table 4.7 – Capex Committed by Category

**Subject to CER Approval and optimisation of capital spend.*

The above numbers are best estimates by category as in many cases an investment in water or wastewater infrastructure impacts both on quality and capacity of water or wastewater. Prioritisation in the context of a regulatory review may lead to adjustment between categories.

3. Deliver capital efficiency savings of €500m

Irish Water will achieve efficiencies of €500m in the delivery of its capital programme. This will be delivered by:

- **Standardising technologies** - capital spend and long-term operating cost savings. For example, the use of an innovative treatment process at Ringsend which could deliver up to €170m in savings through cost avoidance and capacity upgrades.
- **Re-scoping for long-term growth** – design of schemes that are future proofed for 20-25 years. For example, the proposed new wastewater treatment plant at Shannon Town has been re-scoped to upgrade the existing plant to maximise its asset life and achieve cost savings, with source control of trade waste discharge also factored in to achieve the most sustainable outcome.
- Using asset management techniques to **optimise existing assets**, extending their lives and deferring the need for major new plant.
- Applying a **uniform and consistent approach to budget and cost management, centralised procurement and capital delivery**. For example, the implementation of standard utility systems (such as Primavera, Oracle and PCM) to ensure control and visibility of budget, spend and performance.
- Rationalisation of water supplies, **promoting regional solutions** and utilising sources across county boundaries. For example, rationalisation of proposals at Cork City (Lee Road) and Cork County (Inniscarra) water supply to form a single solution.

The CER has provided a small allowance for research and development of new technologies. Whilst the fund is modest, Irish Water plans to leverage off this fund and work with research companies and universities to develop expertise in technologies that could deliver long-term cost savings.

4. Evolve Irish Water into a high performing utility

Most of Ireland's utilities have existed for between 40 and 80 years. Irish Water is in existence for less than 2 years. In that time it has recruited the skills and resources to run the utility, taken over responsibility for national water services and has started to address the challenges by:

- beginning to address the severe infrastructural issues.
- collecting data on assets and their condition.
- developing a national infrastructure planning capability.
- assessing the scale of the non-compliance, service deficits and required efficiency savings while in parallel establishing the utility itself.

Running any major utility is a complex task. Establishing one from scratch and taking over existing assets and services which are in poor condition while maintaining services is an enormous challenge. It will take time, working with the 31 Local Authorities to establish a fully functioning utility and to evolve into a high performing utility. Over the term of this business plan, Irish Water will deliver that evolution. The following sets out the key outputs of a modern utility. The systems required as the platform for this work were provided under the establishment programme for Irish Water.

Asset management

- Continue to establish the capability to manage the national water and wastewater assets to best practice.
- Establish a national asset register with full information on condition and current performance.
- Enhance current national infrastructure modelling and planning capability.
- Continue to refine and develop the Capital Investment Plans to address quality and capacity challenges and in particular focus on supporting economic growth.
- Build the capability to manage the specification and design requirement for all infrastructure projects based on comprehensive technical policies and standards.
- Ultimately develop an asset management strategy that meets ISO 55000 or equivalent industry standard.

Capital delivery

- Build on the existing capability to ensure that the capacity is there to accelerate the delivery of an increased capital investment programme.
- Ensure that the project management, quality control and governance is in place to manage a major programme of capital projects to ensure that they are delivered, on time, to quality, to budget and to required safety standards.

Operations and maintenance

The challenge is to move from a disparate service delivery model with varying levels of service and multiple approaches across the country, to a best practice integrated model. Over the term of this plan Irish Water will:

- Introduce standard operations and maintenance procedures to ensure reliable and quality delivery of services to customers.
- Set performance standards and implement the performance reporting systems to ensure services are delivered to standard on a national basis.
- Roll out the work management systems built for Irish Water. This will introduce standard systems and processes for logging work orders, tracking the work and closing out and reporting on this work. A key element is introducing hand held technology to ensure more efficient mobilisation of the workforce and adherence to standard work procedures and reporting systems.

Fundamental to delivering this function will be the transformation of the Local Authority service delivery model to utility best practice. This major change project is the subject of a separate and significant initiative and deliverable under this plan.

Customer operations

At the core of this capability is the challenge to implement a full suite of systems and practices that deliver utility best practice customer service in a number of key areas as follows:

- A centralised call centre that deals with all customer queries in an efficient and professional manner.
- A billing and collection capability that manages customer accounts focusing on the customer with accurate and timely bills, multiple easy payment options and efficient resolution of customer queries.
- A customer centric approach to all engagements and interactions with the customer, supported by a strong marketing and brand team.

A key challenge in 2015 was the delivery of a new billing system introducing domestic charges to our customers.

Regulation

As a regulated utility, it is clearly critical to ensure that the long-term interests of customers are protected and that the utility's financial viability is protected and enhanced. To this end Irish Water will continue to build the skills and experience within the organisation to be able to:

- Understand the financial dynamics at play in an economic regulatory model.
- Develop and explain clearly, justified, transparent proposals to regulators as required to meet regulatory objectives.
- Logically challenge internal and external proposals where required.
- Be able to work constructively with regulators to drive for the best long-term outcome for the customer.

Organisation and culture

A key challenge for the leadership of Irish Water is to ensure an integrated organisation that delivers all of the above in a seamless way. This requires this new utility to evolve in a way that ensures an open and 'can do' culture with a focus on delivering our promises and meeting the needs of our customers. Our people are key to this objective and the organisation must evolve and continue to adopt the key building blocks of:

- A focus on employee engagement.
- Systems and processes that nurture talent and develop it to its full potential.
- A focus on performance, and a performance management system that encourages high performance.

5. Transform the water services operating model

It is clear that the current fragmented model needs to be addressed. This involves transforming from the current 31 Local Authority approach to one single way of working reflecting best utility practice, with a focus on Asset Management, Operations and Customer Service. In essence this will:

- Centralise some activities at a national level within Irish Water.
- Move to regional models for the delivery of a number of services.
- Standardise the use of technology to deliver efficiencies and economies of scale.
- By agreement reduce staffing numbers over time.
- Significantly reduce overall operating costs towards best peer utility practice.

In the early years of this business plan, Irish Water will establish appropriate longer term target level Opex benchmarks, taking account of the dispersed nature of Irish population and water assets, and the time period over which these targets will be achieved. These targets will be based on best peer utility benchmarks, who over several business plan cycles, reduced their operating costs to current efficient levels.

This is key to delivering the transformation of water services and Local Authorities have already engaged in this process with the establishment of Irish Water and the adoption of changes required to deliver services for the national utility. The knowledge on how to improve services, deliver cost savings and improve asset performance rests with existing local staff who have experienced the difficulty of managing on limited funding for years. So the opportunity and benefits of increased investment will assist all parties with a stake in this transformation: Irish Water, Local Authority staff and customers.

However, this will require significant change to organisations, work practices and staffing levels on an agreed basis. Irish Water is committed to a partnership approach to defining and delivering this change with Local Authority staff and their representatives.

Significant incremental changes have already been delivered in 2014 and the "Transformation Plan" was agreed with Local Authorities in August 2014. The design of the Water Industry Operating Framework (WIOF) is being worked on and will be rolled out over the term of this plan.

6. Deliver operating cost savings of €1.1bn

Operational costs amounted to €768m in 2014. This business plan targets significant reductions in overall operational costs as set out below. Included in this reduction in operational costs is an approximate reduction in staffing of 1500 in the period from 2014 to 2021. There are three categories of operating costs (opex) namely; inherited opex, growth opex and utility/other opex.

Inherited Opex represents the inherited operating costs associated with delivering day-to-day water services in the sector. This plan will deliver €1.1 bn in inherited opex efficiencies by 2021. This level of efficiency is aligned to the CER's efficiency targets of the first Price Control period to the end of 2016, with the plan assuming similar levels of efficiency improvements for years 2017 to 2021. In real terms this represents an approximate **33% reduction** in total operating costs over the period. This will be primarily achieved through:

- **Payroll & Associated Overheads savings**. Payroll and associated overhead savings will be achieved by implementing the Transformation Plan initiatives, including the Water Industry Operating Framework (WIOF), which will deliver a water industry organised and sized to achieve cost efficient operations and customer service.
- **Repairs & Maintenance savings**. Driven by the benefits delivered through leakage reduction, investment in asset/infrastructure upgrades, rollout of trade effluent monitoring, increased automation and procurement efficiencies through contract negotiation, category management and supply chain optimisation.
- **Design, Build & Operate (DBO) savings**. The initiatives designed to deliver repairs and maintenance savings will also deliver savings in DBO costs.
- **Energy & Consumables savings**. These savings will be driven by procurement efficiencies in the purchase of electricity, chemical optimisation and a reduction in water production (and associated electricity demand) associated with the fixing of leaks and reduced customer demand, associated with the introduction of domestic tariffs. Irish Water is committed to delivering on its challenging energy efficiency targets.

Growth Opex consists of the additional opex associated with the capital programme required to deliver the necessary improvements to water services. For example, to stop raw sewage being pumped into our rivers and seas, Irish Water will have to build new waste water treatment plants. This will involve significant new capex to build, and new opex (energy, chemical, staff costs etc.) to operate, these plants. This growth opex will amount to an increase in real total operating costs over the period of approximately 13% by 2021.

Utility/Other Opex This represents the cost base associated with running the Irish Water Utility, set up with the specific objective of delivering best practice. Utility opex initially increases as a result of specific transformational projects (in particular WIOF) and reduces in later years as efficiencies materialise. On a real basis utility opex reduces by c. 4% over the period from 2017 to 2021. In addition, it is important to note that over this period the asset base significantly increases in size given the level of investment, and so Irish Water will effectively absorb the additional utility opex associated with the growth of the business, as the organisation scale and complexity increases. Also, a key strength of setting up Irish Water as a national water services utility is its ability to adapt quickly to change. The service delivery model will be constantly kept under review to ensure that it meets customers' needs in the most efficient way possible.

Although the targeted level of opex reductions over the life of this business plan is extremely challenging, it is important to note that:

- The potential to reduce opex, whether related to inherited or new activities, will be constantly explored and incorporated into future financial plans as they are identified.
- All opex costs will be closely scrutinised by the CER as part of the Price Control process. If the CER deems that any element of Irish Water's cost base is inefficient it will disallow those costs.

7. Achieve best practice customer service

With an ageing infrastructure and inadequate levels of investment, the provision of water and wastewater services to Irish consumers has been inadequate for many years. For example, 23,297 consumers were on boil water notices (many for substantial periods of time) in early 2015, and network leakage was estimated to be 49%.

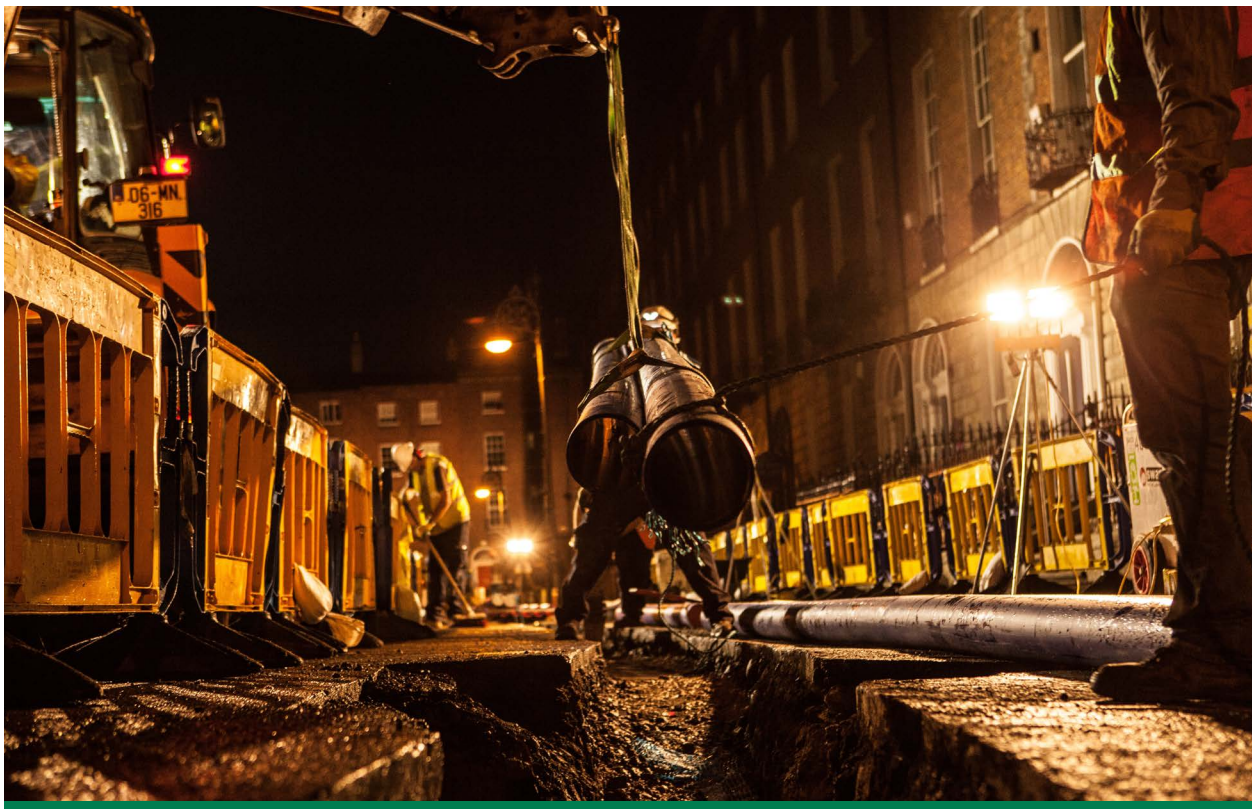
Current water services are provided on a fragmented basis, based on Local Authority boundaries. This has led to differences in standards and inconsistency in the scope of services provided to customers locally. This legacy of fragmented operations is also more expensive to maintain and lacks the efficiency from having centrally managed service provision.

Delivering a quality service for customers is Irish Water's overriding objective. Irish Water is committed to:

- A capital investment plan that will focus on the eradication of boil water notices and the fixing of the worst areas of leakage on our system. Irish Water will:
    - ~ Resolve the majority of boil water notices by the end of 2015.
    - ~ Reduce the level of leakage to below 38% by 2021.
- Introduce a single unified customer contact process for all customers across the country, through a dedicated, resourced and trained national customer contact centre, where every customer will receive a high quality and prompt standard of customer service and engagement.
- Develop Codes of Conduct, Customer Charters and simplified standards of service, so that all consumers are aware of the service levels that they are entitled to.
- Listening to our customers and engaging with them in open public consultation and in all stakeholder forums coordinated through Regulators, to put the needs of our customers at the centre of our future plans.
- Optimise operational and investment costs to deliver value for money for customers.

Irish Water will deliver on the following targets in advance of 2021:

- 80% of calls to be answered in less than 20 seconds, with less than 5% of calls abandoned.
- 100% resolution, or understood steps to resolution, within 5 working days.



8. Put Irish Water on a solid commercial footing

A critical element of Irish Water's strategy is to establish a strong financial and funding position for the organisation and the water services industry. To deliver on this objective, Irish Water will:

- Increase Earnings before Interest, Tax, Depreciation, and Amortisation (EBITDA) from an estimated €38m in 2015 to €363m by 2021.
- Access and secure debt from international bank and capital markets and Government equity/capital contributions over the period to 2021 to fund the committed €5.5bn capex programme.
- Deliver investment grade target metrics by 2019, with Funds From Operations(FFO)/Net Debt of approximately 10%, Interest Cover of >2.5x and Net debt to Regulated Asset Base (RAB) of <70%.

Irish Water will achieve these by:

- Introducing domestic customer charges - a very significant and public facing project.
- Implementing a domestic metering programme to over 1.05m households to promote the conservation of water and reduce consumption.
- Harmonising tariffs and charges for non-domestic customers.
- Introducing a new and equitable connections charging policy that ensures efficient service provision to new customers.
- Improving revenue collection rates by offering customers a variety of accessible payment channels and options, and seeking to recover uncollected revenue in line with legislative measures.
- Delivering cumulative capital and operational efficiency targets of €1.6bn by 2021.

9. Support economic growth in line with economic and spatial planning policy

Irish Water is focussed on delivering critical infrastructure necessary to support social and economic development for the country. Reliable, high quality water supplies are increasingly important to attract foreign direct investment into Ireland especially in the IT and pharmaceutical sectors and also in supporting indigenous industry and employment. To achieve these objectives Irish Water will assess the demands for water and wastewater services, based on national and regional spatial policies and plans, together with population and economic growth predictions. Our plans will ensure continuous service to all Irish Water's existing customers, whilst providing additional capacity to meet future population growth and industrial development.

Over the period of this business plan, Irish Water is focussed on delivering critical infrastructure for:

- Industrial development, including for Glanbia in Waterford, Regeneron in Limerick, Kerry Group and Intel in Kildare and Allergan in Westport.
- Major Strategic Development Zones, including at Cherrywood and Dublin Docklands.
- Housing and office zonings across the country in line with the Government's 2020 Housing Strategy. This includes resolving bottlenecks in the eastern region, notably in Mulhuddart, Blanchardstown, Clonee, Dunboyne, Swords, Woodbrook and the Airport zone.

In addition to providing critical water and wastewater infrastructure, this investment will directly support jobs in the water sector and indirectly in the construction, commercial and housing sectors.

Chapter 5

Irish Water's business and financial model

Chapter 5 Irish Water's business and financial model

Introduction

Outlined below is a summary of Irish Water's financial plan and funding requirement for the period to 2021. It is premised on the delivery of the Government's objective of a sustainable funding model delivered through a regulated framework. It aligns with the CER regulatory position to 2016, the Government's Domestic Tariff policy to 2018 and Irish Water Management's estimates for the remainder of the plan. The financial projections also align to both the Water Services Strategic Plan (WSSP) and Capital Investment Plans (CIPs).

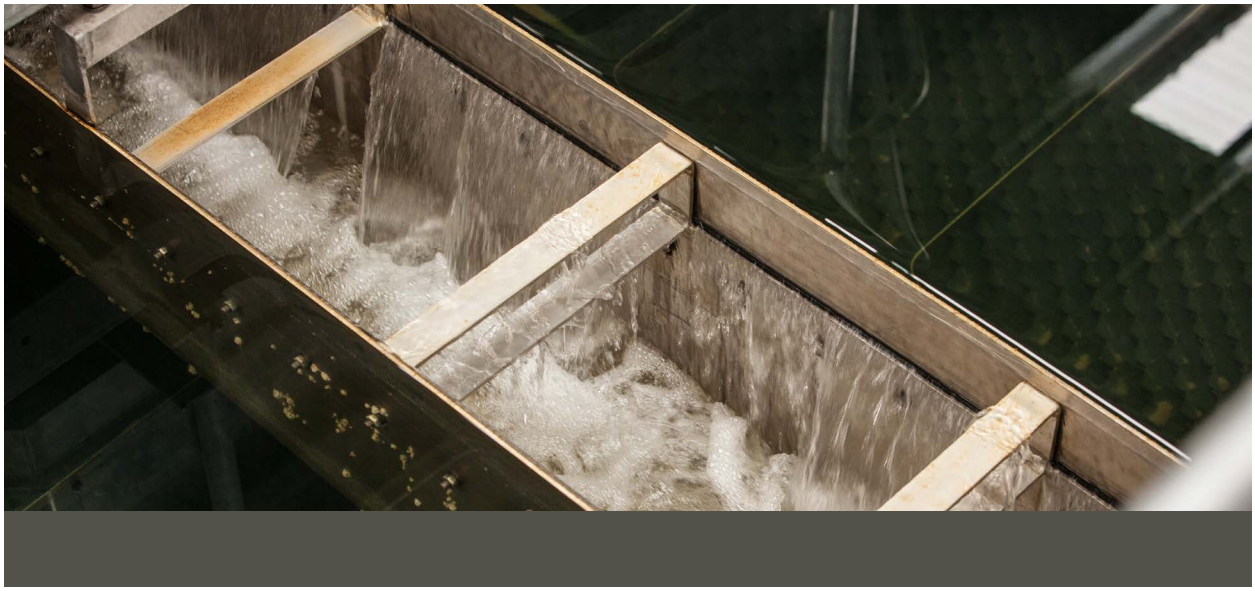
As a regulated business, this financial plan will likely cover three separate Price Control Periods[3]. **Interim Price Control 1 (IPC1)** will run from 1st October 2014 to 31st December 2016. This is likely to be followed by a second Interim Price Control (IPC2) for 2017 and 2018, and by the first full-term Price Control running from January 2019 for five or six years.

IPC1 is in place today, having been approved by the CER in 2014. Included in this business plan are the associated monetary amounts that were allowed by the CER in their IPC1 decision. However, it should be noted that the regulatory allowances assumed in this business plan for the period post December 2016 have not yet been approved by the CER. This approval will be sought as part of future regulatory price control periods.

Key tenets

Irish Water's financial plan is premised on the following key tenets:

- **Regulation** - As part of its reform of the sector, the Government decided to extend the model of independent economic regulation to the water sector to drive the benefits thereof to the advantage of customers (via access to low cost funding to allow capital expenditure, Opex efficiencies, customer focus, asset and operations focus and taking a long-term strategic viewpoint).
- **Sustainable Funding Model** - The establishment of Irish Water, as a regulated utility (which will drive Opex and Capex efficiencies, fund long-term capital expenditure, raise new income sources and reinvest profits and cash flow generated) will allow the utility to become financially self-funding, with the ability to raise funding in its own right from external lenders.
- **Investment Grade Status** – To enable Irish Water to become financially self-funding an investment grade rating is required.



[3]A Price Control is the period of time over which an Economic Regulator looks at the allowed revenue that the regulated utility is allowed to earn. During the period, the Regulator will determine the level of efficient expenditure and investment allowed to the utility.

Regulatory background

Regulation - as part of the programme of reform of the sector, the Government decided to extend the remit and authority of independent economic regulation to the water sector.

The economic regulatory model includes the following benefits:

- A primary responsibility to protect the interest of customers.
- Objective challenge of the capital and operating spend of the utility by the Regulator.
- A continuous focus on driving efficiencies.
- Independent setting of customer tariffs.
- A framework to ensure a fair return is provided on invested capital.

In this model the regulator acts as a proxy for competition and protects the best interests of customers by ensuring that capex and opex levels are appropriate, that service standard levels are met and that tariffs are transparent and fair. An additional benefit is that lenders and bond investors are attracted to utilities as they have stable and transparent regulation. They know that capital will be fairly rewarded and that the risk of lending to the utility is low. This allows the utility to borrow low cost debt from lenders/bond investors, which benefits customers in the short and long run.

Stable transparent economic regulation is a critical enabler for Irish Water to secure much needed capital to invest.

Key financial highlights

Irish Water moves to a firm financial footing over the period of the business plan as reflected in:

- Raising new revenue through the introduction of domestic water charges and the harmonisation of tariffs and charges for non domestic customers.
- EBITDA increasing from an estimated €38m in 2015 to €363m by 2021 driven by new income sources above, lower opex and a growing Regulated Asset Base (RAB).
- Accessing and securing external debt and Government equity/capital contributions over the period to fund the committed €5.5bn capex programme.
- Delivering investment grade target metrics by 2019 allowing Irish Water to access alternative sources of finance.

Summary Income Statement

Table 5.1 below presents a summary projected Income Statement for the years 2014 to 2021

€m	2014	2015*	2016	2017	2018	2019	2020	2021
Revenue**	687	899	993	1,014	1,041	1,041	1,057	1,076
EBITDA	(108)	38	170	238	287	303	333	363
Profit before Tax	(129)	(38)	22	51	74	53	56	79

Table 5.1 – Summary Projected Income Statement 2014-2021

* *Forecast as at March 2015.*

*** Revenue: The outcome will depend on CER key decisions in relation to Irish Water's allowed capital spend, return on equity employed, opex and other key financial parameters.*

- Revenue increases from €899m in 2015 to €993m in 2016 as part of IPC1 and then is forecast to increase slowly thereafter, to €1,076m in line with inflation in 2021. The slow increase post 2016 reflects the fact that opex is falling as a result of increased operational efficiencies, offset by higher depreciation and interest as a result of the €5.5bn capex investment in the network.
- EBITDA is projected to turn slightly positive in 2015 to €38m, and to increase to €363m in 2021. This arises as the Regulated Asset Base (RAB) grows which (a) generates a regulated return thereon, and (b) generates free cashflow as allowable depreciation (non-cash) increases.
- Delivery of EBITDA growth, through the regulatory model and framework is paramount to the investment and financing strategy of Irish Water. Embedded in the assumptions is that all profits and cash flow generated by the business are reinvested in the business.
- Profit before tax increases from a loss position in 2014/15 to a small profit of €22m in 2016, growing to €79m by 2021. Profit before tax is a reflection of EBITDA adjusted for both accounting depreciation and net interest costs.

Summary Statement of Financial Position

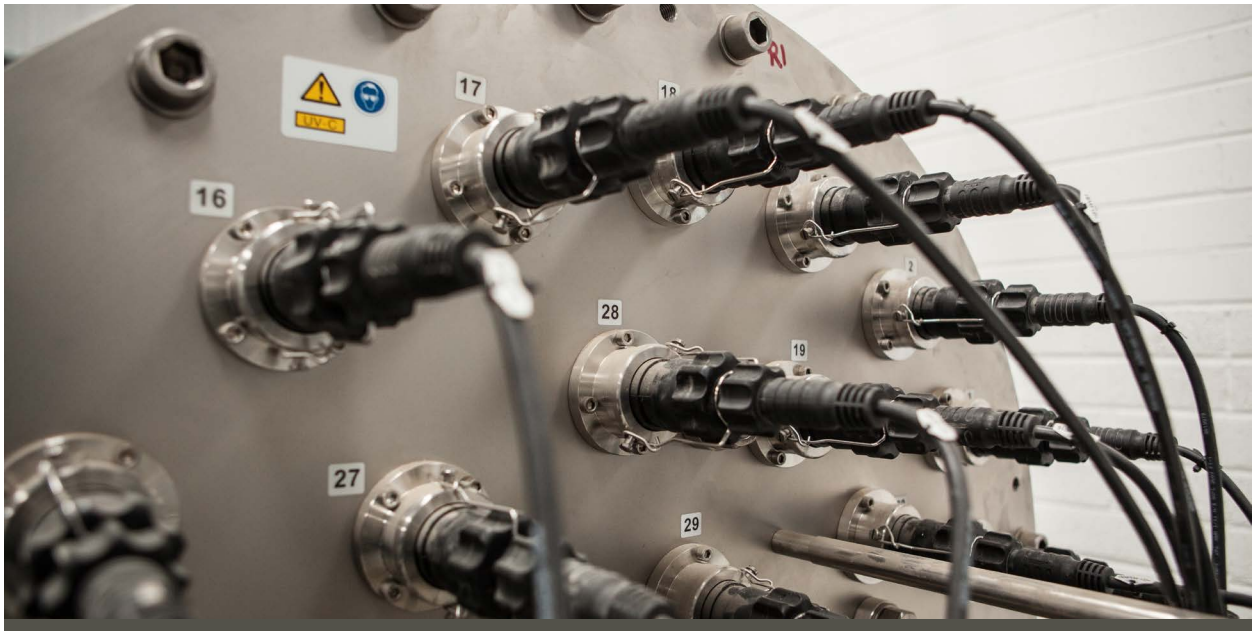
Table 5.2 below presents a summary Statement of Financial Position for the years 2014 to 2021.

€m	2014	2015*	2016	2017	2018	2019	2020	2021
Tangible Assets	744	1,541	2,060	2,480	2,944	3,570	4,131	4,775
Total Assets	866	1,739	2,260	2,687	3,160	3,792	4,360	5,010

Table 5.2 – Summary Statement of Financial Position 2014-2021

** Forecast as at March 2015.*

- Tangible Assets (net of depreciation) increase from €1.5bn in 2015 to €4.8bn in 2021 as the €5.5bn capital programme is delivered. The capital programme is funded through a mix of both external finance and Government equity/capital contributions.
- Total assets increase in line with investment in the capital programme.



Appendix 1

Irish Water's key metrics summary

Appendix 1: Irish Water's key metrics summary

	METRIC	2015	2021
1. Drinking Water Quality	Schemes on EPA remedial action list	121	0
	No. of customers on boil water notices	23,297	0
	Lead shared service pipes	30,000-40,000	0
	Individual Lead pipes	140,000	50,000
2. Drinking Water Capacity	Headroom Capacity in Greater Dublin & Mid Eastern region	2%	> 15%
	Plants with capacity headroom < 15%	45-49%	30%
3. Infrastructure	Network Leakage	49%	< 38%
4. Wastewater Quality	Discharge with no treatment or preliminary treatment only	44	0
	Discharge with no treatment or preliminary treatment only from large urban areas	7	0
	Agglomerations not meeting requirements on secondary treatment of discharges (EPA 2013 List)	43	0
	Larger Agglomerations not meeting requirements on more stringent treatment of discharges (EPA 2013 List)	10	0
5. Wastewater Capacity	Plants overloaded > 2,000 PE (EPA 2013 List)	36	0
	Plants overloaded < 2,000 PE (EPA 2013 List)	120	< 60
6. Financial	EBITDA	€38m	€363m
	FFO/Net Debt	0.2%	9.5%
	Gearing	90%	63%
	Interest Cover	0.9	3.0
7. Customer Service	Call answering - 80% answered in < than 20 seconds;	60%	80%
	Fewer than 5% calls abandoned	20%	5%
8. Safety	Lost time accidents per 100,000 man hours	not available	0.5

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