

Uisce Éireann

Capital Investment Plan

2025 to 2029

Capital Investment Plan for CRU Review



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1. Executive Summary

Overview

Uisce Éireann (UÉ), Ireland's national utility for the provision of water and wastewater services, supplies 1.7 billion litres of drinking water to our customers every day and collects and treats more than 1.2 billion litres of wastewater before we safely return it to the environment.

Providing safe, secure and sustainable water services is vital for our society, supporting public health, protecting our environment and precious water resources and enabling social and economic growth. We are continuing to invest in and prioritise improvements for the most critical needs in drinking water quality, leakage reduction, water availability, wastewater compliance, efficiencies and service for consumers.

This document is UÉ's Capital Investment Plan setting out our budgetary plan for capital investment in the water services network for the period 2025 to 2029. It has been prepared for submission to the Commission for Regulation of Utilities (CRU) as part of the Regulatory Control Period 4 (RC4) 2025 to 2029.

In preparing the Capital Investment Plan, UÉ must optimise investment decisions by prioritising the best possible Outcomes, while balancing risk and compliance, deliverability and maximising value for money within the funding allocation for the 5-year period.

A glossary of terms and abbreviations used in the document is included in Appendix 1.

Setting the context

The UÉ investment planning process and the preparation of the UÉ Capital Investment Plan is influenced by a number of key policies and plans that align Government's Policy Objectives and UÉ's Strategic Objectives for the delivery of water services in Ireland.

One of the key documents is the Government's Water Services Policy Statement (WSPS) which sets out the range of policy objectives. The overall intention of the WSPS is to give clear direction to strategic planning and decision making on water and wastewater services in Ireland.

The WSPS 2024 to 2030 was published by the Government in February 2024 and has been incorporated into the Capital Investment Plan.

The key themes in the WSPS are:

- **Availability & Reliability:** water services will support regionally balanced economic and social development through accessible, dependable and reliable water services.
- **Safety & Quality:** water services will be safe and protect human health.
- **Sustainability:** water services will be efficient, resilient and sustainable in the long term.

Sections 6 to 8 of this Capital Investment Plan set out the approach to address WSPS policy themes and the related Outcomes which will be targeted within the RC4 period 2025 to 2029.

Another key document that influences the Capital Investment Plan is UÉ's Water Services Strategic Plan (WSSP). The WSSP sets out UÉ's objectives for the provision of water services over a 25 year period, and provides a longer-term strategic direction to the preparation of investment plans. The WSSP was published in October 2015 and is due to be updated in Q2 2025 to cover the next 25 years to 2050.

Consultation with our stakeholders

UÉ has endeavoured to ensure the Capital Investment Plan takes account of the needs and priorities identified by our stakeholders. Collaboration with stakeholders at an early stage provides benefits in terms of achieving consensus. UÉ has applied a two-stage consultation process that was undertaken between April and September 2023. Feedback from this process has been considered where appropriate within the Capital Investment Plan. UÉ will continue to engage with stakeholders and provide progress updates on the RC4 process as key milestones are reached.

Methodology

Preparation of the Capital Investment Plan to align with UÉ's objectives in the WSSP, and the Government's direction in the WSPS, includes an approach to informed decision making as well as a ten-step methodology that is explained in Section 4.4.

UÉ has adopted the use of three main methodologies outlined in Section 5 in developing cost estimates for investments that form part of the Capital Investment Portfolio, in line with common practices of other utilities.

To achieve UÉ's strategic objectives, it will be necessary to consider and prioritise investment, together with our methodology for supporting growth and economic development.

Proposed Investment Portfolio

Section 9 of this document defines the Capital Investment Plan against expenditure categories. All financial figures shown in the Capital Investment Plan are shown in 2022 prices. The proposed Investment Portfolio by WSPS Policy Theme and WSSP Strategic Objective is shown in *Table A* below.

With increasing understanding of the performance and capital needs of our water and wastewater assets, there will inevitably be changes to delivery priorities over the plan period. The ability to prioritise and re-assign expenditure will be dependent on timing and availability of capital and the capacity of the supply chain to absorb additional works.

Significant investment will be required over multiple periods to address the known asset and service needs. Addressing the historic under investment in Ireland's water and wastewater infrastructure will take decades to achieve.

The RC4 Capital Investment Plan intends to build on the successful progress made during Revenue Control 3 (RC3). The scale of the RC4 Capital Investment Plan represents expenditure of circa €8.1 billion (bn) (stated in 2022 prices), developed to address the delivery of critical Outputs and Outcomes, address capacity constraints to support the Government's Housing for All policy, and reduce key risks identified in UÉ's asset base. This Capital Investment Plan also includes progression of strategic national projects, the Water Supply Project (WSP) and Greater Dublin Drainage (GDD).

WSPS Themes	WSSP Strategic Objective	2025 to 2029 (m)
Availability and Reliability	Ensure a Safe and Reliable Water Supply (including WSP)	€1,997
	Provide Effective Management of Wastewater (including GDD)	€227
	Invest in our Future	€1,170
	Support Social and Economic Growth	€1,450
Safety and Quality	Ensuring a Safe and Reliable Water Supply	€948
	Provide Effective Management of Wastewater	€1,267
Sustainability	Ensuring a Safe and Reliable Water Supply	€1,332
	Protect and Enhance the Environment	€150
Total		€8,496
Regulatory Adjustments incl. New Connections		(€426)
Grand Total		€8,070

Table A – Investment Portfolio by WSPS Policy Objective and WSSP Strategic Objective

Delivery Plan

In tandem with the review process undertaken by the CRU for RC4, UÉ will continue the process of planning the delivery of the Capital Investment Plan 2025 to 2029. This will validate the timelines, Outputs and Outcomes to be achieved. This validation process will consider issues such as the supply chain capacity, design and procurement approaches, industry transformation initiatives and other resource constraints in the achievement of the targets and objectives identified in the Capital Investment Plan. Notably, UÉ will also transition to a fully integrated national water services authority within the lifetime of this Capital Investment Plan.

Proposed Outcomes

A key aspect of our investment planning for RC4 is development of the Outcomes that we aim to achieve. Highlights are outlined below in *Figure A*, and a detailed list is included in Section 9.2.1.























Treatment Plants (new & upgraded)  Water - 163  Wastewater - 61	Pumping Stations  Water/ Wastewater -118	Water Source  Impounding Reservoirs 24  Rationalise WTP - 26
Additional Network Capacity  Watermains -126km  Sewer and Rising Main - 113km	Network Rehabilitation  Watermains Rehabilitation - 663km  Sewer Rehabilitation 34km	Additional Treated Capacity  Water - 43 MLD  Wastewater 57 Projects
Leakage  Net Water Savings - 120MLD	Remedial & Priority Action Lists  RAL Completed Works - 33  PAL Completed Works - 23	Sustainability  Energy Efficiency 25.4 GWh  Renewable Energy 4.7 GWh/yr
Site Refurbishments  Major Sites - 3	Treated water storage  Support security of supply - 10.7 MLD	Significant Pressure  Completed Works - 25
Untreated Agglomerations  Completed works - 11 sites	ECJ  Completed works - 4 sites	Replace lead services  No. of replaced services - 31,283

Figure A: Key Outcomes and Outputs for RC4 Capital Investment Plan 2025 to 2029

Risks to Delivery

Successful delivery of the Capital Investment Plan is subject to risks arising from multiple sources. The uncertainty with annual budgetary processes, emerging needs, resourcing challenges, changes in the regulatory and policy landscape, financial and economic constraints, as well as the geopolitical context may involve changes to the stated investment priorities and impact on the delivery of proposed Outcomes and Outputs. It is important to recognise that the Capital Investment Plan was, by necessity, developed using data that was generated at a point in time and baselined for analysis. However, UÉ's investment portfolio is dynamic and is kept under constant review to ensure it continues to optimise available funding. As part of its RC3.5 decision (CRU20085) published in August 2020, the CRU acknowledged the requirement for UÉ to recognise and develop a change control process. Our change control process will continue to provide governance on material changes during the investment period. Similar to RC3, UÉ will submit an annual RC4 Capital Investment Plan Monitoring Change Control report to the CRU, informing stakeholders on:

- the progress being made to deliver on the RC4 targets and commitments, and
- any need to re-prioritise due to changing circumstances that have arisen.

2. Introduction

UÉ's Capital Investment Plan is the capital budgetary plan for water and wastewater services for the five-year period from 2025 to 2029 (inclusive).

This Capital Investment Plan sets out the continuing investment in water and wastewater assets so that UÉ can deliver the most urgently needed improvements in drinking water quality, leakage reduction, water availability, wastewater compliance, service for consumers, protection of the environment, and provide for social and economic development to enable communities to thrive in a sustainable manner.

This document outlines the projects and programmes of investment to meet these needs and forms the Capital Investment Plan for submission to the CRU as part of RC4.

2.1 Purpose of the Capital Investment Plan

The purpose of the Capital Investment Plan is to set out the investment required to deliver on the strategic objectives identified in the Government's WSPS and UÉ's longer term WSSP as well as other key policy and strategic plans such as the River Basin Management Plan (RBMP), the National Planning Framework (NPF), National Development Plan (NDP) and the National Adaptation Framework (NAF).

UÉ is required to prepare an investment plan under Section 34 of the Water Services (No. 2) Act 2013, which defines an investment plan as follows:

"An investment plan shall set out and particularise the investment in water services infrastructure that Irish Water¹ considers necessary for the effective performance by it of its functions"

The Capital Investment Plan is one of a suite of documents which will be submitted to the CRU as part of the revenue control process for the period 2025 to 2029 (RC4).

2.2 Our Legal Context

UÉ works within the legal context of the Water Services Acts 2007 to 2022. The following are particularly relevant to preparing our Capital Investment Plan:

- The **Water Services (No. 2) Act 2013** sets out the functions and powers of the CRU as the economic regulator of UÉ.
 - Section 33 requires UÉ to prepare a WSSP, setting out its long term (25 years) objectives for the provision of water services.
 - The making of an investment plan by UÉ is addressed under Section 34 of the Act.
- The **Water Services Act 2017** provides for a new approach to the funding of domestic water services. It includes the preparation of a WSPS by the Minister for Housing, Planning and Local Government and a Strategic Funding Plan (SFP) by UÉ.

¹ Irish Water, now known as Uisce Éireann following the commencement of the Water Services (Amendment) Act 2022

2.3 Water Services Policy Statement (WSPS)

Section 18 of the 2017 Water Services Act provides that a WSPS prepared by the Minister shall:

Contain information concerning the policy objectives and priorities of the Government regarding the provision of water services in the State for such period as may be specified in the statement.

The first WSPS was published in 2018 and covered the period 2018 to 2025. It set out a series of high-level objectives across three themes:

- Quality
- Conservation
- Future Proofing

The most recent WSPS was published in February 2024. It identifies high level objectives and priorities for the delivery of water and wastewater services over the period from 2024 to 2030. It was prepared in line with the Water Services Acts to give clear direction to strategic planning and decision making on water and wastewater services in Ireland.

The latest WSPS continues to set the direction of water services across three themes and related objectives and priorities as shown below:

- **Availability and Reliability**
The priorities under this theme are focussed on improving public and private water services through continued investment in infrastructure, both through UÉ and the Group Water sector.
- **Safety and Quality**
Prioritising the protection of drinking water sources, minimising contamination, and providing for robust, effective oversight by regulatory authorities will help to deliver on this theme.
- **Sustainability**
Under this theme, priorities are to ensure that public water services are sustainable, that climate targets are met for the sector, and that water conservation forms a cornerstone of water policy.

UÉ has implemented and aligned its objectives with the WSPS themes and high-level priorities through its WSSP. The mapping of initial and updated WSPS Themes to WSSP Strategic Objectives and Aims are presented in *Table 2.3* below.

WSPS Initial Theme	WSSP Strategic Objective	WSSP Strategic Aim	WSPS Updated Theme
Quality	WW (Wastewater) – Provide Effective Management of Wastewater	WW1 – Manage the operation of wastewater facilities in a manner that protects environmental quality	Safety and Quality
	WS (Water supply)- Ensure a Safe and Reliable Water Supply	WS1 – Manage the sustainability and quality of drinking water from source to tap to protect human health	Safety and Quality
Conservation	WS – Ensure a Safe and Reliable Water Supply	WS3 – Manage Water Supplies in an efficient and economic manner	Sustainability
	EN – Protect and Enhance the Environment	EN1 – Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment	Sustainability
		EN2 – Operate our Water Services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives	Sustainability
		EN3 – Manage all our residual waste in a sustainable manner	Sustainability
IF – Invest in Our Future	IF4- Research and Innovation	Sustainability	
Future Proofing	WS – Ensure a Safe and Reliable Water Supply	WS2 – Manage the Availability, Sustainability and Reliability of Water Supply now and into the future	Availability & Reliability
	WW – Provide Effective Management of Wastewater	WW2 – Manage the availability and resilience of wastewater services now and into the future	Availability & Reliability
		WW3 – Manage wastewater services in an efficient and economic manner	Availability and Reliability
	IF – Invest in Our Future	IF1 – Asset Management	Availability & Reliability
		IF2 – Balanced Sustainable Investment	Availability & Reliability
		IF3 – Sustainable Funding Model	Sustainability
	SG1 – Support national, regional and local economic and spatial planning policy	Availability and Reliability	

	SG – Support Social and Economic Growth	SG2 – Facilitate Growth	Availability & Reliability
		SG3 – Ensure that water services are provided in a timely and cost effective manner	Safety and Quality
	CE- Meet Customer Expectations	CE1- Establish both Customer Trust and a Reputation for Excellent Service	Availability and Reliability

Table 2.3 – Mapping of initial and updated WSPS Themes to WSSP Objectives

2.4 Water Services Strategic Plan (WSSP)

The WSSP is UÉ’s overarching long term strategic plan, which is required to be prepared under the Water Services (No. 2) Act 2013. The current WSSP was approved by the Minister in 2015 and it covers the period from 2015 to 2040. It details current and future challenges that affect the provision of water services and identifies the priorities to be tackled in the short and medium term.

UÉ is committed to reviewing and updating the WSSP every five years at least and a review of the implementation and operation of the current WSSP was carried out in 2020. This review concluded that the WSSP 2015 is still valid and appropriate to provide strategic direction for the planning of water services by UÉ. It also recommended that a research study “Water Vision 2050” should be carried out to get a better understanding of long-term future scenarios and challenges that may emerge in advance of preparing a new WSSP.

The “Water Vision 2050” study informed the new WSSP 2050, which is currently in development and will cover the period 2025 to 2050. It will set out our long-term objectives to 2050 and provide the means by which we will achieve these objectives. UÉ plans to submit the final WSSP to the Minister in December 2024 for approval, with a launch of the plan scheduled for Q2 2025.

Table 2.4 below from our current WSSP sets out UÉ’s strategic aims. These strategic aims and actions are currently under review as part of the development of the WSSP 2050.

WSSP Code	WSSP Strategic Objective	WSSP Strategic Aim
CE	Meet Customer Expectations	CE1 Establish both Customer Trust and a Reputation for Excellent Service.
WS	Ensure a Safe and Reliable Water Supply	WS1 Manage the sustainability and quality of drinking water from source to tap to protect human health.
		WS2 Manage water supplies in an efficient and economic manner.
		WS3 Manage the availability, sustainability and reliability of water supply now and into the future.

WW	Provide Effective Management of Wastewater	WW1 Manage the sustainability and quality of drinking water from source to tap to protect human health.
		WW2 Manage the availability, sustainability and reliability of water supply now and into the future.
		WW3 Manage water supplies in an efficient and economic manner.
EN	Protect and Enhance the Environment	EN1 Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.
		EN2 Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives.
		EN3 Manage all our residual waste in a sustainable manner.
SG	Support Social and Economic Growth	SG1 Support national, regional and local economic and spatial planning policy.
		SG2 Facilitate growth in line with national and regional economic and spatial planning policy.
		SG3 Ensure that water services are provided in a timely and cost effective manner.
IF	Invest in Our Future	IF1 Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.
		IF2 Balanced Sustainable Investment. Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.
		IF3 Sustainable Funding Model. Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required Outcomes.
		IF4 Research and Innovation. Promote research and develop proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.

Table 2.4 – Summary of Strategic Objective and Aims (WSSP, 2015)

2.5 Other Statutory Plans and Programmes

In addition to the Government’s WSPS, there are number of related policies and publications that influence and impact on our Capital Investment Plan 2025 to 2029, thereby contributing to the overall picture of where and how we target investment in water services:

- The [NPF](#) to 2040 and [NDP](#) (for period 2021 to 2030) published by the Government in October 2021 under Project Ireland 2040.
- The [RBMP for the period 2022 to 2027](#) was published by the Department of Housing Local Government and Heritage (DHLGH) in September 2024. UÉ has engaged with the DHLGH, Environmental Protection Agency (EPA) and other stakeholders during the preparation of the RBMP and it is expected that the programme of measures in the RBMP will require investment from UÉ that have been considered while preparing the Capital Investment Plan.
- [‘Housing for All - a New Housing Plan for Ireland’](#) is the Government’s housing plan to 2030 and was published by the Government in September 2021.
- The [Climate Action Plan 2024](#) (CAP24) is the third annual update to Ireland’s Climate Action Plan 2019. This plan is the second to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021 and following the introduction of economy-wide Carbon Budgets and Sectoral Emissions Ceilings.
 - The supplementary Annex of Actions, approved by Government and published on 7 March 2023, provides the specific actions required to implement the targets set out in the Climate Action Plan, and includes information regarding Outputs, Lead Departments, timelines, and stakeholders.
 - The supplementary Annex of Actions which accompanies the CAP has also been approved by Government, subject to Strategic Environmental Assessment and Appropriate Assessment. For 2024 a new approach to the Annex has been implemented that will see only new, high-impact actions included in the Annex, while the full roadmap of actions to support the delivery of our climate targets remains within the CAP itself.
- Ireland’s 4th [National Biodiversity Action Plan](#) (NBAP) sets the national biodiversity agenda for the period 2023 to 2030 and aims to deliver the transformative changes required to the ways in which we value and protect nature.

Emerging Policy and Legislation

UÉ is aware of emerging policy in the areas identified below which will likely have an impact on investment needs:

- The [new Drinking Water regulations](#)² enhance existing requirements to protect human health and includes provisions for how UÉ will, using an overarching application of a risk-based approach to water safety from source to tap, manage and monitor drinking water standards. The regulations provide for additional requirements including improved access requirements, stricter parameters on quality and increased powers for regulators. UÉ is developing methodologies to objectively risk assess water from source to tap. UÉ is also being resourced to fulfil the risk assessment and management requirements for approximately 1000 drinking water catchments (c. 300 surface water and 700 groundwater) and over 500 water resource zones. IT requirements to support the risk assessments are being developed. Drinking Water Safety Plan (DWSP) risk assessments, when complete, will better inform the extent of risk mitigation that needs to be implemented and inform the ongoing review of RC4 investment prioritisation and beyond.

² Statutory Instruments. No. 99/2023 - European Union (Drinking Water) Regulations 2023, published on 10 March 2023.

- On 20 December 2022, the Government passed the [Water Environment \(Abstractions and Associated Impoundments\) Act 2022](#) (the Abstractions Act), which will ensure our national abstractions align with the requirements of the Water Framework Directive. The Abstractions Act commenced on 28 August 2024³.
- The Government’s [Circular Economy and Miscellaneous Provisions Act 2022](#) sets out a structured framework of regulatory policy and economic measures that are designed collectively to optimise the opportunities in transitioning to a circular future.
- UÉ is committed to designing, building, and operating assets in a sustainable ‘cradle to cradle’⁴, circular economy approach, aligning with Waste Policy (AMT-POL-026⁵) and Waste Management Strategy (AMT-STR-007). The Circular Economy Design process ensures circular economy, resource efficiency and sustainable waste management approaches are integrated across every project’s lifecycle. UÉ has committed to achieving zero recoverable waste to landfill by 2030, and adopting circular economy approaches are essential to achieving this target.
- The [Energy Efficiency Directive \(2012/27/EU\)](#) was transposed into Irish legislation via SI 426 of 2014. These regulations “set out a range of obligations on public bodies relating to the efficient use of energy so that the public sector will demonstrate an exemplar role, including the areas of energy audits, energy efficient public procurement and purchase or lease of energy efficient buildings”. UÉ is committed to designing, building, and operating assets to ensure energy efficiency, aligning with Energy Policy (AMS-SI-POL-007⁶). The Energy Efficient Design (EED) process is required to ensure energy efficiency, decarbonisation, and process performance are integrated throughout the project design and delivery to actualise energy and carbon reduction. This process is used by all involved in water services design, procurement, construction, refurbishment, and operational processes to develop low carbon water and wastewater services with minimised whole life cycle costs.
- The Climate Act (2021) and subsequent CAPs require UÉ to achieve a 51% reduction in Carbon Dioxide equivalent (CO2e) emissions by 2030. UÉ has set an ambition to reach Net Zero in 2040. In addition, UÉ seeks to generate 40% of its electrical energy needs from renewables by 2035.
- A proposal for a recast of the [Urban Wastewater Treatment Directive](#) (UWWTD) was published by the European Commission in October 2022. A draft final text was subsequently negotiated, agreed and published in April 2024. It has been adopted on 5 November 2024 and is expected to enter into force by the end of 2024, with a 30-month period thereafter for transposition into Irish Law. The provisions in this document would have significant implications for Member States, including Ireland. UÉ is currently working to understand these implications and the potential impact on the

³ Water Environment (Abstractions and Associated Impoundments) Act 2022 (Commencement) Order 2024 see [here](#)

⁴ In a ‘cradle to cradle’ circular economy model we make, use and reuse as opposed to the standard ‘cradle to grave’ linear economy model where we make, use and dispose

⁵ See [here](#) for more information

⁶ See [here](#) for more information

RC4 Capital Investment Plan and beyond. One of the notable proposals is the requirement for integrated urban wastewater management plans for agglomerations that meet certain criteria. Such plans would likely include surface water collection systems which are not within UÉ's sole remit and would, therefore, require collaboration with other stakeholders. Measures arising from such plans will be expected to encompass the reduction of unpolluted rainwater entering into collecting systems, optimised management of existing infrastructure and additional measures, including priority for green infrastructure supporting biodiversity. Other notable proposals are for energy neutrality, tighter tertiary treatment standards and quaternary treatment. Quaternary treatment is an advanced level of treatment completely new to Ireland which aims to remove micropollutants from wastewater. An Extended Producer Responsibility scheme is proposed to cover most of the costs of quaternary treatment by the pharmaceutical and cosmetics industries however significant additional investment will be needed overall to meet the requirements of this new major legislative driver.

UÉ has developed a range of more detailed implementation plans consistent with the WSSP which have inputted to the preparation of the Capital Investment Plan 2025 to 2029. Key UÉ plans are listed and described below:

- [National Water Resources Plan](#) (NWRP)
- [Lead in Drinking Water Mitigation Plan](#) (LDWMP)
- [National Wastewater Sludge Management Plan](#) (NWSMP)

2.5.1 National Water Resources Plan

UÉ's NWRP is the first plan for the entire public water supply in Ireland. It allows us to integrate Government policy, legislation, and external factors, including climate change, that have the potential to impact our water supplies, into the planning and operation of our existing and future supply asset base. The objective of the NWRP is to manage customer and communities needs while meeting their requirements over the short, medium, and long term, by ensuring safe, secure, sustainable, and reliable water supplies.

The NWRP enables UÉ to address needs across our water supplies in the most effective way over time, through the regulated investment cycles. It will ensure that there is a transparent framework to develop the most appropriate projects and programmes to meet statutory obligations in relation to water supply while protecting the environment.

It provides a framework to track Outcomes, allowing interventions to be prioritised to bring the water supply up to the required standards in the next investment cycles, and delivers a plan to ensure that all our customers have access to safe, secure, reliable, and sustainable water supplies, wherever they live.

As this is the first NWRP, the preparation of the plan has been divided into two distinct phases. Following Phase 1, which was carried out in 2021, the NWRP Framework was adopted. In Phase 2 of the NWRP, we summarised the needs across the 539 individual water supplies and identified the solutions to address these needs. Due to the large number of water supplies in Ireland, we delivered Phase 2 as four Regional Water Resources Plans (RWRPs) with all RWRPs adopted by the end of 2023. Appendix 2 contains further information on each of the four RWRPs.

2.5.2 Lead in Drinking Water Mitigation Plan

UÉ has implemented its Lead Mitigation Plan, committing to the implementation of orthophosphate treatment across targeted water supplies as an interim measure to reduce lead exposure.

This strategic initiative will deliver orthophosphate treatment to approximately 90 priority locations across Ireland, ultimately benefiting around 3 million people. Progress is well underway, with several sites already operational and others advancing through construction and planning phases.

Additionally, a Lead Steering Group is being formed to explore strategies for accelerating private-side lead replacement, involving key stakeholders from UÉ, DHLGH, EPA, HSE, and Local Authorities to drive collective progress.

2.5.3 National Wastewater Sludge Management Plan (NWSMP)

The National Wastewater Sludge Management Plan (NWSMP) sets out a nationwide standardised approach to ensure that treated wastewater sludge is effectively managed, stored, transported, and re-used in a sustainable way, to safeguard public health and the environment.

UÉ has commenced the process of reviewing and updating the NWSMP. The proposed revision of the plan will provide a progress update on the recommendations in the original NWSMP. It will include detail on sludge management and how these activities address climate change, sustainability, and circular economy initiatives. The revised plan will also address changes in legislation and good practice which have occurred since the plan was originally published in 2016.

2.6 Our Regulatory Framework

UÉ is regulated by the CRU, our independent economic regulator and by the EPA, our independent environmental regulator.

Under the Water Services Act (No.2) 2013 UÉ must submit an investment plan to the CRU. The Investment Plan is a key document under the water services regulatory framework that was established by the CRU in 2014. There are several published CRU documents which provide insight into the establishment of the regulatory framework and how it has evolved, including various CRU Revenue Control discussion and decision papers. These can all be found on the [CRU website](#).

The EPA is the drinking water quality regulator, responsible for enforcing the Drinking Water Regulations for public water supplies. The EPA issues and enforces authorisations, licences, and certificates, for wastewater discharges. In addition, the EPA issues reports annually on a number of topics within its remit to which UÉ takes due regard, including: Annual Drinking Water Quality Report; Biannual Remedial Action List; Annual Water Quality Indicator Report; the Annual Urban Wastewater Treatment Report; Urban Wastewater Priority Areas and the Annual Bathing Water Quality Report.

The funding model for UÉ is set in the context of the European Union (EU) Water Framework Directive (WFD) and, in accordance with section 34⁷ of the Water Services (No. 2) Act 2013, UÉ is required to submit a SFP to the Minister for DHLGH within three months of the publication of the WSPS.

⁷ As amended by section 19 of the Water Services Act 2017.

UÉ needs to adhere to the Infrastructure Guidelines (IG) which were published on 21 December 2023 by the National Investment Office, Department of Public Expenditure, National Development Plan Delivery and Reform. The IG has replaced the Public Spending Code (PSC) with effect from 1 January 2024.

2.6.1 The Regulatory Periods

As economic regulator, the CRU sets multi-year Revenue Controls for UÉ, which includes setting the maximum amount of capital expenditure that UÉ can invest in its water services regulated asset base (RAB⁸) over a five-year period. The CRU also sets water and wastewater Outcome and Output targets for delivery over the same five-year period across water and wastewater.

UÉ has developed three previous Capital Investment Plans:

- The first of these covered the period October 2014 to December 2016 under Interim Revenue Control 1 (IRC1), determined by the CRU decision CER/14/746. IRC1 represented the transition to UÉ from the Local Authorities who delivered capital programmes that were overseen and largely funded by the Department of Environment, Community and Local Government (DECLG)⁹.
- The second covered the period January 2017 to December 2019 (following a one-year extension) under Interim Revenue Control 2 (IRC2), determined by the CRU decision (CER/16/342). IRC2 represented the transition from projects initiated by Local Authorities to those initiated by UÉ to achieve the objectives and targets under the WSSP.
- The third covered the period January 2020 to December 2024 under RC3, which was determined under the CRU papers CRU/19/148 and CRU20085. RC3 represents the first UÉ's five-year portfolio which, comparing to IRC1 and IRC2, is a dynamic portfolio of projects and programmes covering both water and wastewater.
- This Capital Investment Plan developed for the next regulatory period (RC4) will also be for five years, 2025 to 2029 inclusive.

2.7 Water Investments to Q4 2024

RC3 was the first long term Revenue Control in the water services sector since the establishment of UÉ in 2014, which marked an important milestone. UÉ has invested €4.4bn (stated in 2022 prices) over the RC3 period in water services infrastructure.

Key RC3 investment highlights include (refer to RC3 Lookback submission):

- Construction of 22 new wastewater treatment plants;
- Construction of 7 new water treatment plants;
- Upgrade of 95 existing treatment plants;
- Additional supply capacity of 53 megalitres per day
- Removal of 57 water supplies from the Remedial Action List (RAL)
- A reduction in over 172,000 properties at risk of Trihalomethane (THM) non-compliance
- A reduction of 75 wastewater agglomerations from Priority Action List (PAL)

⁸ The RAB is an accumulation of the value of investments made in the water services network.

⁹ DECLG The Department of Environment, Community and Local Government was renamed during the IRC1 period as the Department of Housing, Planning, Community and Local Government with effect from 23rd July 2016. The department was subsequently renamed as the Department of Housing, Planning and Local Government with effect from 1st August 2017, then as the Department of Housing, Local Government and Heritage from 30th September 2020.

- Replacement of over 36,000 lead services
- Upgrade of 333 reservoirs

During RC3, UÉ engaged Scottish Water International (SWI), a subsidiary of Scottish Water that offers specialist advice to utilities, to undertake an external review of its processes, systems, people, and capability involved in the identification of investment needs. On 22 December 2023, the CRU published the findings from an audit carried out by its external consultants (HR Wallingford) of UÉ's implementation of SWI's recommendations. The CRU acknowledged the significant progress made by UÉ in implementing SWI's recommendations across areas such as identification of investment needs through to delivery of capital projects, change control governance, and handover into operational use. UÉ is implementing remaining SWI/HR Wallingford recommendations in 2024 and will issue a progress update report to the CRU by 31 December 2024. Further details on the SWI Review are set out in Section 9.3.3.

3. Stakeholder Engagement and Consultation

The UÉ Capital Investment Plan is a key document for UÉ’s customers, stakeholders, and wider industry. By the end of 2024 (end of RC3 period) circa €8.1bn (stated in 2022 prices) is projected to have been invested in water and wastewater services since UÉ’s establishment in 2014. This will directly contribute to improved levels of drinking water quality, an increase in water availability and wastewater compliance, reduced leakage levels, and improved service and value for consumers.

In preparing the Capital Investment Plan 2025-2029 for submission to the CRU, we have again engaged with stakeholders, focusing on a two phase specific engagement process. Stakeholders provided guidance on where the next tranche of critical investment should be focused. It was important that UÉ used this engagement to refine the capital portfolio for the RC4 period, such that it best meets the needs of consumers and improves environmental standards. Input from stakeholders was considered in the context of the environment that UÉ operates in, UÉ’s funding structure, and the significant external cost pressures weighing on the portfolio.

UÉ would like to thank all those who engaged with us during this consultation process. A very positive response was received from respondents who welcomed the opportunity to engage in the consultation process and make a submission on the Capital Investment Plan.

3.1 Phase 1 Consultation on the preparation of the Draft Capital Investment Plan

The first phase of the consultation process asked for input in advance of preparing the Capital Investment Plan. It was carried out by UÉ under Section 34(6) of the Water Services (No. 2) Act 2013¹⁰. We consulted with the EPA, the three Regional Assemblies¹¹ and 31 Local Authorities, in their role as planning authorities.

This consultation phase ran for four weeks between 11 April and 5 May 2023. Seventeen submissions were received. Further details of the feedback received in the Phase 1 consultation and UÉ’s responses are included in Appendix 3A.

3.2 Phase 2 Consultation on the Draft Capital Investment Plan

The second phase of this consultation process focussed on the Draft Capital Investment Plan. This consultation phase commenced on 31 July for a 6-week period and closed on 8 September 2023.

In this phase, UÉ consulted with a broader range of 66 stakeholders and received 26 responses as follows:

	Regional Authorities	Local Authorities	Specialist Stakeholder Groups
Consulted	3	31	32

¹⁰ UÉ shall, before preparing an investment plan, consult with—

- (a) the Agency,
- (b) each regional body in respect of whose functional area the investment plan is likely to apply, and
- (c) each planning authority in respect of whose functional area the investment plan is likely to apply.

¹¹ Eastern & Midlands Regional Assembly; Northern & Western Regional Assembly and Southern Regional Assembly

Stakeholder returns

1

10

15

Additionally, a number of standardised submissions were received from non-regulatory stakeholders in respect of one localised issue which were passed to the relevant UÉ Subject Matter Experts (SME) for consideration and response.

To assist stakeholders in making a submission, and to ensure clarity on the scope of what consultees were asked to consider in their feedback, UÉ invited submissions on the following specific consultation questions:

- *Investment cases related to the Quality theme can be found in Section 5 of draft Capital Investment Plan (currently Section 6). Do you have any comments or suggestions on these?*
- *Investment cases related to the Conservation theme can be found in Section 6 of draft Capital Investment Plan (currently Section 7). Do you have any comments or suggestions on these?*
- *Investment cases related to the Future Proofing theme can be found in Section 7 of draft Capital Investment Plan (currently Section 8). Do you have any comments or suggestions on these?*
- *A Draft Investment Portfolio is provided in Section 8 of draft Capital Investment Plan (currently Section 9). Do you have any comments or suggestions as to the make-up and balance of the funding allocation for each WSPS Theme and WSSP Strategic Objective?*

The consultation questions and submissions were based on the WSPS Themes that were in place during the consultation period. Although the themes have been since updated, as outlined in Section 2.3, the contents are deemed to remain aligned.

3.2.1 The Review Process

All submissions were subject to a process to allow for specialist review by the relevant UÉ SME(s). Each return was logged, and the various issues / points raised were captured. These were then mapped to the appropriate WSPS Theme and UÉ supporting Investment Case and forwarded for review by the UÉ SME.

The points raised by the SMEs were considered in finalising the Capital Investment Plan where necessary. Further details of the feedback received in the Phase 2 consultation, and UÉ's responses, are included in Appendix 3B.

There were several queries received that were out of scope of the consultation's terms of reference. As a result, they will not be considered for the Capital Investment Plan and have been forwarded to the relevant UÉ SME(s).

A graphic representation of the review process is shown below.

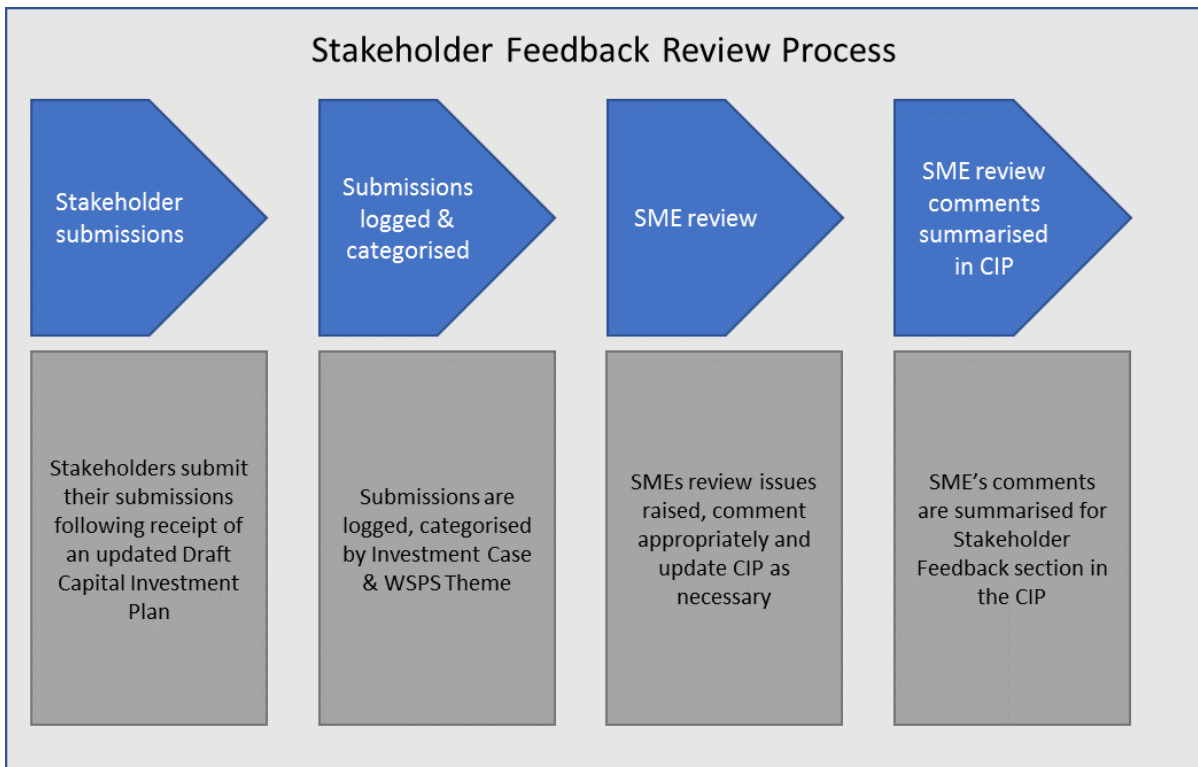


Figure 3.2.1: Stakeholder Feedback Review Process

The CRU's review process for RC4 will also include public consultation on UÉ's investment proposals in advance of its final determination.

4. Informed Decision Making and Investment Planning Methodology

4.1 Informed Decision Making

UÉ's primary function is to provide clean drinking water to customers and to treat and return wastewater safely to the environment. In providing these services it plays a central role in enabling economic growth, protecting both the environment and the health and safety of customers and the public.

There is a recognised legacy of underinvestment over many years in Ireland's water and wastewater assets. This has affected UÉ's ability to adequately deliver services to our customers and meet environmental requirements, at both national and EU level. Since 2014 UÉ has been addressing this underinvestment through sustained capital investment, which is expected to reach circa €8.1bn (stated in 2022 prices) by the end of RC3. This investment has produced significant results; however, there is still some distance to go, in terms of sustained investment, to bring water and wastewater services in line with those of European peers.

Given all currently known investment requirements, including the need to reduce future risk to service and account for future growth, it is estimated that significant investment is still required across our water and wastewater treatment plants (WTPs and WWTPs) and associated water and wastewater networks. With funding and delivery constraints impacting on the portfolio, there is a need to manage this investment over several investment periods. This approach will reduce the highest asset and service risks, maximise value to customers and communities, and improve environmental standards.

It is also clear that to reach European peer service standards, investment will be needed across the entire water and wastewater Investment Portfolio. Historic underinvestment has impacted water and wastewater services, above and below ground. As a result, difficult decisions have been required on which parts of the portfolio should be prioritised for investment in the RC4 Capital Investment Plan.

Areas which receive smaller allocations of funding are not viewed as being of lesser importance, but rather reflect the need to address the strategic priorities set out in the Government's WSPS and UÉ's WSSP, while also recognising the impact of other policies and plans mentioned in Section 2.

Informed decisions on the allocation of funding and the prioritisation of investments across the overall portfolio have been supported through UÉ's Investment Planning process.

UÉ's approach to developing and implementing new solutions focusses on driving research and innovation to effectively address future challenges. This includes expanding collaborations with external stakeholders and improving horizon scanning processes to support informed decision-making. Through this approach, UÉ is committed to delivering long-term value, building trust, aiming high and shaping a sustainable future.

UÉ's investment cases, included in the next sections, outline the key priorities for investment. UÉ has taken a balanced approach to the allocation of funding across the portfolio, including consideration of deliverability and supply chain challenges as well as the changing economic and legislative environment.

The Capital Investment Plan will be a dynamic portfolio of investments, which will be monitored and reviewed by both UÉ and other stakeholders over the period 2025 to 2029. It will be targeted at addressing

the most critical investment needs and responding to emerging policy requirements, which will be reflected in updated investment allocations, if required.

UÉ, through ongoing engagement with stakeholders, has established a list of known asset and service needs that require investment. These needs have been categorised against the strategic framework which is outlined in *Tables 4.2a, 4.2b* and *4.2c*. This has enabled UÉ to understand the policy and strategic objectives alignment and has highlighted existing issues and high-risk needs that must be addressed. These priority needs will be further reviewed in the context of funding availability, supply chain capacity and whether further scoping and investigative studies are required.

Further information on proposed investments, and the investment allocation for RC4, is included in our investment cases and in Section 9.

4.2 Investment Cases

UÉ's asset needs are grouped together into investment cases to prioritise and allocate available funding. The investment cases have the benefit of allowing us to group similar investment types across different assets.

The following tables (*Tables 4.2a* to *4.2c*) set out the link between our strategic objectives detailed in the WSSP, the specific aims under these objectives, and the linked asset needs and investment cases:

- *Table 4.2a* sets this out for water and wastewater under the Availability and Reliability Theme.
- *Table 4.2b* sets this out for water and wastewater under the Safety and Quality Theme.
- *Table 4.2c* sets this out for water and wastewater under the Sustainability Theme.

Strategic Objective	Strategic Aim	Investment Case	Overview of Needs
IF - Invest in Our Future	IF1 - Asset Management. Manage assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost	Service Resilience (Wastewater)	Address Service Resilience and maintain current levels of service in wastewater treatment plants and wastewater networks.
		Service Resilience (Water)	Address Service Resilience by reducing unplanned interruptions to supply and addressing areas of the network suffering from low pressures where possible.
WS - Ensure a Safe and Reliable Water Supply	WS2 - Manage the availability, sustainability, and reliability of water supply now and into the future	Water Quantity	Reduce supply demand deficit; investment will be focused on one or more elements of the water supply process where such investment will significantly reduce the supply demand deficit.
SG - Support Social and Economic Growth	SG1 - Support national, regional and local economic and spatial planning policy.	Treatment Capacity (water and wastewater)	Ensure adequate treatment capacity to cater for social and economic development in line with the National Planning Framework.
	SG2 - Facilitate growth in line with national and regional economic and spatial planning policy	Network Capacity (water and wastewater)	Ensure adequate network capacity to cater for social and economic development in line with the National Planning Framework.

Table 4.2a – Strategic Objectives, for the WSPS Availability and Reliability Theme, linked to Asset Needs and Investment Cases – Water and Wastewater.

Strategic Objective	Strategic Aim	Investment Case	Overview of Needs
WS - Ensure a Safe and Reliable Water Supply	WS1 - Manage the sustainability and quality of drinking water from source to tap to protect human health	Water Quality	<p>Improve drinking water quality through improved measures to remove lead and trihalomethane (THM) contamination.</p> <p>Improve drinking water quality at water treatment plants through improved measures for treating microbiological contamination.</p> <p>Improve drinking water quality through addressing schemes on the EPA Remedial Action List.</p> <p>Reduce the number of properties at risk of chemical (metals and/or reduction in risk of discolouration, taste, and smell - iron or manganese) non-compliance.</p>
WW - Provide Effective Management of Wastewater	<p>WW1 - Manage the operation of wastewater facilities in a manner that protects environmental quality.</p> <p>WW2 - Manage the availability and resilience of wastewater services now and into the future</p>	Treated Wastewater	<p>Improve wastewater treatment to bring wastewater treatment plants into compliance with UWWTD, including untreated agglomerations.</p> <p>Advance capital interventions on a prioritised basis to continue to address the legacy issues of non-compliance with Wastewater Discharge Authorisations, taking account of the priority environmental areas as identified by the EPA through the Priority Areas List.</p>
		Water Body Impact	Reduce urban wastewater significant pressures identified in the 3rd Cycle River Basin Management Plan through understanding the nature of the pressures and progressing interventions to address these.
		Wastewater Network Environmental Compliance & Sewer Flooding	Address the legacy issues of non-compliance with Wastewater Discharge Authorisations. Identify and target frequent flooding areas for improvement works to reduce the frequency of sewer flooding.

Table 4.2b – Strategic Objectives, for the WSPS Safety and Quality Theme, linked to Asset Needs and Investment Cases – Water and Wastewater.

Strategic Objective	Strategic Aim	Investment Case	Overview of Needs
WS - Ensure a Safe and Reliable Water Supply	WS3 - Manage water supplies in an efficient and economic manner	Leakage	Reduce leakage and progress towards Sustainable Economic Level of Leakage.
EN - Protect and Enhance the Environment	<p>EN1 - Ensure that Uisce Éireann services are delivered in a sustainable manner which contributes to the protection of the environment.</p> <p>EN2 - Operate water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives</p>	Sustainability	<p>UÉ recognises the need to urgently increase and accelerate efforts to halt the decline of biodiversity and are committed to ensuring that infrastructure is built and managed responsibly so that ecosystems are protected, and where possible enhanced.</p> <p>Embedding a cradle-to-cradle circular economy approach on the design, build, and operation of our assets.</p> <p>Embedding a circular economy model to the management of sludges as they provide a sustainable source of alternatives to raw materials.</p> <p>Ensure that water and wastewater services, now and in the future, are resilient to climate change.</p> <p>Improve energy efficiency through replacement of existing assets with more energy efficient assets and continue investment in renewables to facilitate generation of energy via renewable sources.</p>

Table 4.2c – Strategic Objectives, for the WSPS Sustainability Theme, linked to Asset Needs and Investment Cases – Water and Wastewater.

4.3 Investment Planning Approach

This section sets out the investment planning methodology which has been used to develop the Capital Investment Plan 2025 to 2029.

The approach allows an appropriate combination of interventions to be identified based on legislative, business, operational and financial constraints and supports UÉ in delivering on the Government’s WSPS Themes and the associated WSSP Objectives, in the most effective and efficient way. It also allows UÉ to monitor and report to stakeholders on the progress made against achieving these targets and objectives.

UÉ uses an asset management approach that focuses on managing asset and service risks and realising value from our water and wastewater assets to achieve the desired objectives across service delivery and environmental improvements. Applying the asset management approach delivers benefits to UÉ including:

- Better customer Outcomes & value for money;
- Safe operations and services for staff and customers;
- Whole lifecycle management of the assets;
- Good asset knowledge informing all investment decisions; and
- Better planning for environmental, sustainability and asset resilience.

The asset management approach is incorporated into the investment planning process and ensures maximum value over the lifetime of UÉ’s assets for its customers.

UÉ’s approach to investment planning is a Ten-Step approach as illustrated in *Figure 4.3* below and detailed in Section 4.4.

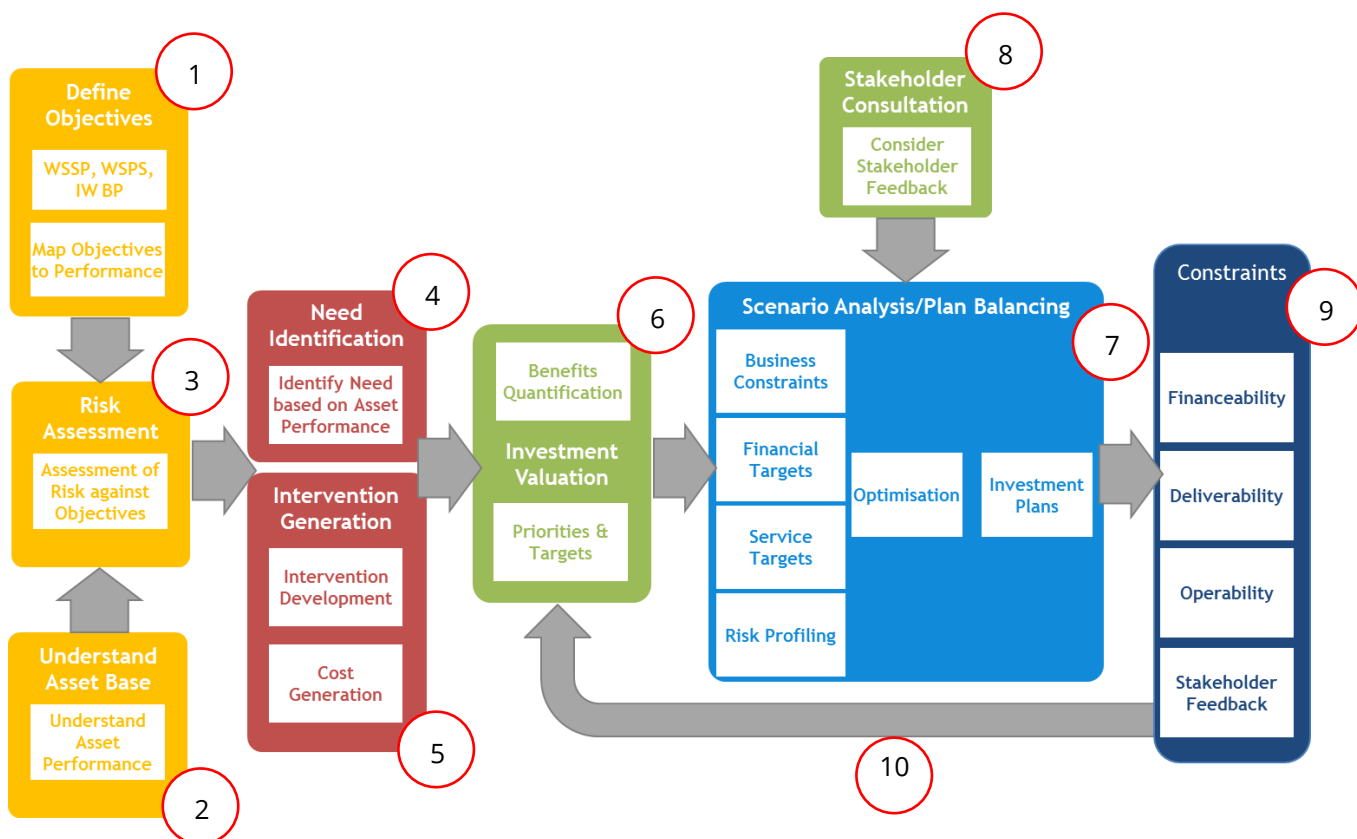


Figure 4.3 – Investment Planning Process

4.4 Ten-step Methodology

Step 1 – Define Objectives

As a national utility, UÉ understands the water and wastewater strategic investment needs at a national level. The purpose of this step is to examine the rationale for potential policy interventions and to ensure the strategic fit of potential projects and programmes with government policy, in particular the WSPS, NPF and NDP. It is designed to clearly specify objectives and desired Outcomes at the outset and ensure early engagement with, and scrutiny of, potential public investment projects and programmes.

Step 2 – Understanding our Asset Base

The discrepancy between the current performance and required performance from our assets is assessed to appropriately identify the need, which is then used for the development of a business case.

A demand analysis is also carried out to assess current demand and forecast future demand for water/wastewater services in the area to be served by each investment proposal.

Step 3 – Risk Assessment

Once the current asset and service performance is established (as far as possible based on the available information), comprehensive identification and analysis of service risks is critical. Identified risks and Outcomes from analysis are clearly recorded and understood to enable identification and prioritisation of needs.

Step 4 – Needs Capture and Identification

This step then assesses why an asset is at risk of failing or has failed in terms of performance. The identified asset and service risk assessments are the core input to confirming needs. This step involves the investigation and confirmation of these needs, including the range of solutions required to resolve or prevent these performance failures. The relevant asset and service risk registers are also reviewed.

Further details on the methodology for needs identification to support growth and economic development are included in Appendix 2.

Step 5 – Intervention Generation

Interventions refer to actions that will reduce risk to service delivery and can include projects, programmes, maintenance, investigative works, or operational measures. Intervention generation includes scoping these actions to achieve our objectives and improve performance of our assets.

During this step, the long list of potential options which could address the needs to be met is set out and includes all the feasible options which can achieve the desired Outcomes. Regional Plans and Strategies may have already put forward a list of options which will need to be reviewed but will form the initial basis for discussion. An assessment of the range of costs (cost estimates) associated with the long list of options is also carried out.

Step 6 – Investment Valuation

The next step is to assess the Outcomes or benefits for the list of interventions. Outcomes can be defined as 'The effects, positive or negative, of the Outputs on the targeted beneficiaries, in the context of strategic objectives'. Or simply put, this is the description of what UÉ is trying to achieve, described as the overall benefit, for example removal of boil water notices or THMs.

The Outcomes are selected from a pre-defined list. The use of a list ensures consistency across UÉ to enable monitoring of projects and programmes of work.

The approach supports informed decision making for different asset classes of investment based on the Outcomes associated with each proposed intervention or proposed programme. This allows decisions affecting different asset types to be made.

As part of the benefit assessment step, a short-list of options for each investment is developed, before a feasibility study and a financial and economic appraisal is undertaken to determine a preferred option. We draw from our value framework and assess each short-listed option on a range of quantitative and qualitative criteria utilising multi-criteria analysis as per the IG. The preferred option may need more detailed analysis to refine scope, cost and schedule in order to determine the Output metrics, and to confirm the previously defined Outcomes.

Step 7 – Scenario Analysis / Plan Balancing

This process involves assessing the prioritised list of interventions and how they achieve our objectives.

At the heart of the plan balancing is making informed investment decisions. This step involves selecting interventions or candidate projects based on a combination of Outcomes and cost in addition to their contribution to specific objectives aligned to key business drivers.

The approach allows asset and service risk to be assessed along with budgetary and deliverability constraints, and the best combination of solutions to meet the constraints to be identified.

As part of this process, the investments are also grouped together into 'investment cases' to prioritise and allocate our available funding. The investment cases have the benefit of allowing us to group similar investment types across different assets.

Step 8 - Consultation with Stakeholders

A key element in the investment planning approach is consultation and engagement with our statutory stakeholders and representative bodies. As part of the process, UÉ has provided an overview of the output of the Initial Plan Balancing step (Step 7) in this Capital Investment Plan. The feedback from stakeholders has been reviewed and incorporated into this submission as appropriate and in particular to inform input to the final two steps in the investment planning process, Investments Constraints and Final Plan Balancing for submission to CRU.

Step 9 – Investment Constraints

The initial list of interventions resulting from the initial plan balancing, in conjunction with feedback from the stakeholder consultation, and consideration of finances, operability and deliverability, has been used to inform the investment decision-making process. UÉ considered the initial plan balancing Output and

stakeholder feedback to validate whether the proposed investments will meet the objectives and targets set out in the WSPS and WSSP.

Step 10 – Final Plan Balancing

Outputs from the business decision making process are incorporated into a further process of refinement at Final Plan Balancing stage. This ensures that the profile of projected investment on interventions fits within the expected funding and wider constraints, while also delivering on priorities and intended targets and benefits.

The ten-step process has informed the development of UÉ's SFP which was approved by the Minister for Housing, Local Government and Heritage on 5 November 2024.

5. Cost Estimation Approach

The following section provides an overview on how UÉ develops cost estimates for investments which form part of the Capital Investment Portfolio. For the purposes of the RC4 submission, all estimates are developed in real terms to a 2022 price base.

5.1 Estimation Methods

UÉ has developed standardised cost estimating methods that have been used in the development of the RC4 submission across its Investment Portfolios. For each investment, the appropriate method is selected depending on a number of factors including the complexity of the proposed investment and the level of scope definition (which varies depending on the investment stage). A summary of the key methods is outlined in *Table 5.1* below.

Method	Description	Typical Use
Method 1: Enterprise Cost Estimating Tool	This method uses an enterprise cost estimating tool which is underpinned by a database of costs developed on historic cost data including Uisce Éireann completed projects, supplier quotations and industry data.	High complexity/low volume investments e.g. standalone projects
Method 2: Run Rates	This method uses historic outturn costs for similar categories of work to develop “run rates” (€ per defined Output).	High volume/low complexity investments
Method 3: Post Tender Estimate	This method uses a combination of tendered construction costs, a contingency allowance (based on a Quantitative Risk Assessment) and indirect costs.	Investments that are post tender

Table 5.1: Key Estimation Methods

5.2 Cost estimate components

There are four key cost estimate components and they are described in *Table 5.2* below.

Cost Estimate Components (in real terms)	Base Estimate	Direct cost of delivering the investment scope i.e. labour, material, plant and equipment; estimated in real terms to base date.
	Indirect Costs	These include costs associated with concept and detailed design, project management, statutory approvals, site investigations and advance works, land acquisition and wayleaves, site supervision and contract administration, road opening and legal costs and other miscellaneous costs.
	Estimate Uncertainty	This factor is applied to the base estimate to account for the lack of scope definition associated with investments at various stages.
	Reference Class Contingency	In line with industry best practice estimates include for “contingency” when developing cost estimates.

Table 5.2: Cost Estimate Components

5.3 Confidence intervals associated with cost estimates

As in Table 5.2 above, ‘Estimate Uncertainty’ and ‘Reference Class Contingency’ are the components of a cost estimate along with the Base Estimate and Indirect Costs that account for a level of risk within an investment. The inclusion of Estimate Uncertainty and Reference Class Contingency is required to estimate the total anticipated outturn cost at a certain confidence interval or P-value. Each possible cost Outcome can be assigned a P-value that reflects the level of confidence that a forecast cost will not be exceeded. For instance, a P-50 (median cost) estimate is the project cost estimate with sufficient contingency to provide 50 per cent likelihood that this cost would not be exceeded. A P-90 cost estimate is the project cost estimate with sufficient contingency to provide 90 per cent likelihood that this cost estimate would not be exceeded.

The P-mean (average cost) refers to the average of all possible cost Outcomes for a project or portfolio. The P-mean cost estimate tends to be slightly higher than the P-50 due to the positive (right tailed) skew of a typical cost distribution (since cost overruns are unbounded on the upside but reductions are limited); using P-50 can result in the systematic underestimation of costs across an Investment Portfolio. Therefore, it is more appropriate and in line with general good practices in portfolio management to use a P-mean value for the purposes of providing cost estimates within a large and complex Investment Portfolio, as the use of P-mean provides a more realistic estimate of the total budget required, accounting for the collective risk across the Investment Portfolio.

UÉ use a notional P-mean value for projects at early stages. As projects progress to the end of the procurement stage, a Quantitative Risk Assessment is carried out to determine the project specific

contingency amount required to complete the project. For high-volume, low complexity programme type works, cost estimates are based on a notional P-mean “run rate”. The use of P-mean for early-stage projects and programmes aligns with good practice portfolio management and inherently implies that a portion of investments will exceed their stated point estimate, while others will be below their stated point estimate.

5.4 Overarching Cost Estimating Principles and Estimating Stages

As described in Section 9, the RC4 Investment Portfolio consists of a dynamic portfolio of investments which are at various stages in the Invest to Outcome (I2O) process (see Section 9.3.3). *Figure 5.4* shows the estimation stages aligned with the I2O stages.

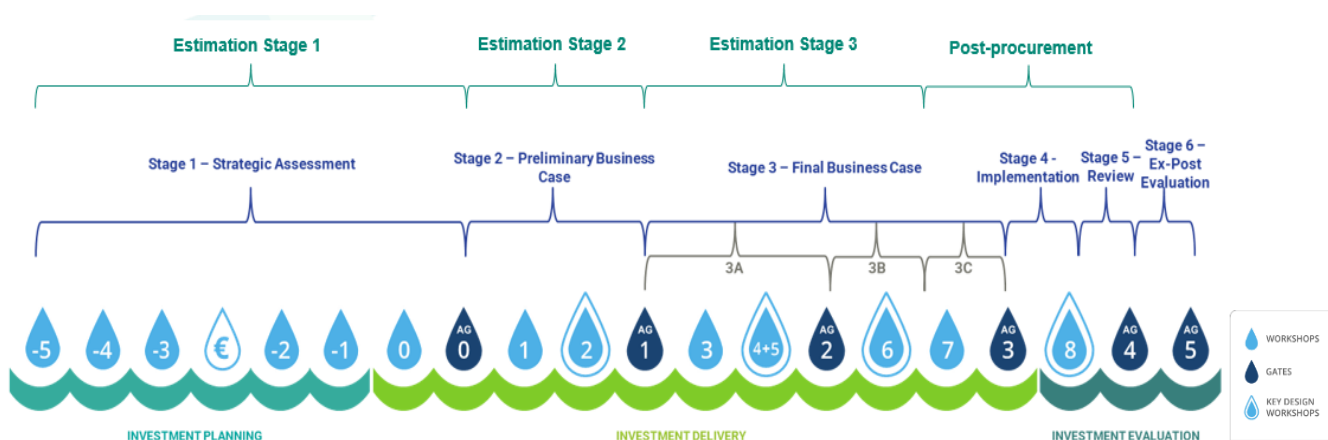


Figure 5.4: Estimation Stages and I2O Stages

Cost estimating activities vary depending on the stage the investment is at; *Table 5.4* below provides a summary of the primary cost estimating activities at each of the three estimation stages.

Estimation Stage	Summary
Stage 1	The primary cost estimating activities at this stage are in relation to the assessment of the range of costs associated with the long list of options. While anchoring around one option must be avoided, the stage should, nonetheless, assess the range of potential costs and benefits across the options.
Stage 2	The primary cost estimating activities at this stage relate to the assessment of the cost estimates for the long and short-list of options to feed into the financial and economic assessment.
Stage 3	The primary cost estimating activities at this stage relate to the assessment of the cost estimates for the preferred option at detailed design.

Table 5.4 Cost Estimation Stages

5.5 Adherence to Infrastructure Guidelines for early-stage project cost estimates

Cost estimate accuracy at Stage 1 Strategic Assessment and Stage 2 Preliminary Business Case (Estimation Stages 1 and 2) are generally deemed as Class 5 as per the Association for the Advancement of Cost Engineering International (AACEi) classification¹². As per the IG, the following points are pertinent:

- The Preliminary Business Case “gives early consideration to costs of undertaking investment proposals. While it is recommended that anchoring around one option be avoided, the proposal nonetheless assesses the range of potential costs associated with meeting the identified objectives and solving the problem identified”.
- “To the extent costs are known, they are presented as indicative and subject to considerable variation as proposals are developed and progress through the stages of the lifecycle.”
- “Under no circumstances are funding commitments made on the basis of early indications of cost ranges. Care must also be taken in communicating early estimates of investment proposal costs and it is recommended the level of uncertainty attaching be explicitly highlighted.”

The text above reflects UÉ’s position for early-stage investments prior to the selection of the preferred option. Therefore, in line with the above points, estimates provided for investments at this stage will come with a high degree of uncertainty.

For the purposes of the RC4 submission, UÉ has provided estimates on a portfolio basis for investments that are pre-Approval Gate 1 (AG1) as a range of options are still being considered. Point estimates aligned to the P-mean will be provided as projects pass AG1 and enter Stage 3 and a preferred option is selected.

5.6 Base Date and Inflation

As described earlier, all cost estimates are generated to a 2022 base date. Cost inflation beyond the base date has been estimated based on the Output of the UÉ Index.

As described in UÉ’s response to the CRU’s 2022 Irish Water Revenue Control 3 – Interim Review Consultation (CRU/202267)¹³, UÉ has developed a Hybrid Inflation index which combines various individual indices to appropriately reflect the pressures on UÉ’s capital investment programme. Given the heightened inflationary pressures in recent years, Harmonised Index of Consumer Prices (HICP) has not accurately reflected construction inflation and consequently, an alternative, more appropriate index was derived.

All capital expenditure forecasts for 2025 to 2029 have been estimated based on the application of the UÉ Hybrid Inflation index. The nominal amounts have subsequently been deflated by forecasted HICP, to include Real Price Effects associated with delivery of the capital investment programme embedded in the overall submission number.

The UÉ Index inflation percentages used for the period 2023 to 2029 are shown in *Table 5.5* below.

¹² AACEi considers Class 5 as the least defined phase as understanding of scope definition is minimal. Class 5 cost estimates are also known as rough order of magnitude estimates.

¹³ See UÉ’s 2022 Capital Expenditure Submission [here](#)

	2023	2024	2025	2026	2027	2028	2029
UÉ Index	6.1%	4.5%	3.4%	3.1%	3.1%	3.1%	3.1%

Table 5.5: UÉ Hybrid Index Inflation Percentages

6. Addressing the Availability and Reliability Theme

As introduced in Section 4.2 of this report, the investment cases enable the grouping of similar investment types across different assets. This section gives more detail on each of these outline investment cases from a future proofing perspective, setting the context for each objective.

6.1 Availability and Reliability – Ensure a Safe and Reliable Water Supply

Ensuring a safe and reliable water supply is a key objective of UÉ. The challenge of delivering a safe and reliable supply requires that this be achieved by abstracting water from its source, bringing it through treatment processes and distributing it through extensive networks and storage to be eventually delivered into the consumer's tap. It also requires the operation of an extensive supply chain to provide the chemicals, support operational and maintenance services to enable this to happen on a consistent basis. In addition, it is also necessary to ensure that the provision of this service takes account of the changes in requirements that will impact it in the future e.g. population change, non-domestic demands etc.

WSSP Objective

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aim are relevant to this section.

- Strategic Objective: Ensure a Safe and Reliable Water Supply
- Strategic Aim: Manage the availability, sustainability and reliability of water supply now and into the future.

6.1.1 Water Quantity Investment Case

The NWRP provides a 25-year road map to ensure safe, secure, reliable, and sustainable drinking water supplies for all consumers, whilst safeguarding the natural environment. The water supply available for use varies depending on the available yield, weather conditions, leakage, treatment capacity and other factors. The NWRP has assessed all supplies nationally and has looked at various weather events to understand if there will be water available for use in these scenarios, e.g. a Dry Year Critical Period.

Where a supply is not capable of meeting such a weather event through 25 years (2019 to 2044), that supply is said to be in deficit. Where supplies are said to be in deficit, investment will be focused on one or more elements of the water supply process, where such investment will significantly reduce the supply demand deficit. The NWRP has outlined preferred approaches on how this supply demand deficit will be addressed for each water resource zone.

Prioritisation will be given to the supplies with the greatest deficits supplying the greatest number of consumers. Other factors considered during investment prioritisation are supplies where low flow interventions and provision of water via mobile water tanks (tankering) are required on a frequent basis.

Scale of need

UÉ is responsible for abstracting water from over 1,000 individual sources and operating over 700 WTPs. Ireland has a temperate climate with relatively high annual average rainfall, so while it is easy to assume that there is plenty of water available for supply, this is not always the case. Rainfall is unevenly distributed across the country, with more falling in the west than the east. The areas with the lowest rainfall have the

greatest population density, meaning resources in our most populated areas can become stressed. The country's population is expected to increase by 21% or 1.2 million people over the next 25 years¹⁴, which will impact on the demand for water. We currently abstract water from rivers, lakes and groundwater aquifers for the purpose of water supply. We need to make sure we leave enough water in the environment to protect the health of water bodies and wildlife. Newly introduced abstraction legislation, required to ensure that Ireland can meet its obligations under the Water Framework Directive, may reduce the amount of water we are able to abstract from some of our sources in the future.

The NWRP has identified a national Supply Demand deficit of 685MLD. The resolution of this deficit will be delivered over multiple investment cycles. The priority for RC4 is to increase capacity to WTPs with critical headroom capacity. In addition, work will take place to determine the preferred solution for supplies identified within the NWRP as having high supply demand deficits. Given the scale of these projects, the resolution of these deficits is expected to be completed after RC4.

Activity for RC4

Through the preparation of a NWRP, UÉ has identified water supplies that have a deficit of water available for use or will have at some stage in the future. These supplies are said to have a "Supply-Demand Deficit" and will be prioritised for investment depending on the level of deficit experienced now or in the future. The NWRP has also identified the feasible solutions which can be considered when solutions are to be brought forward for investment. Some of the investigatory work required to determine the preferred solution, may be delivered as a programme of works¹⁵, however, most of the work to deliver the enduring solution will be delivered as standalone projects. Because of the many environmental, sustainability and planning challenges facing these projects, the timelines for completion can span more than one investment period.

6.2 Availability and Reliability – Supporting Social and Economic Growth

One of UÉ's remits is to manage our asset base and investment plans to support social and economic growth.

WSSP Objective

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aim are relevant to this section.

- Strategic Objective: Support Social and Economic Growth
- Strategic Aim:
 - Support national, regional and local economic and spatial planning policy.
 - Facilitate growth in line with national and regional economic and spatial planning policy.

¹⁴ Based on CSO Population and Labour Force Projections 2023-2057.

¹⁵ The nature of the investigatory work required to determine a preferred solution might have a national or regional aspect across multiple locations, and as such could be delivered as a programme of works. An example could be the ground investigatory work required to determine new ground water sources of water.

6.2.1 Treatment Capacity for Growth Investment Case (Water and Wastewater)

Water

The NWRP has assessed all supplies nationally and has looked at the ability of all WTPs to meet current and future demands. In addition, the ability of the WTPs to meet varying weather events such as “Dry Year Critical Periods” and “Winter Critical Periods” has been assessed.

Where a WTP is shown to be the limiting factor to meet such weather events over 25 years (2019 to 2044), that supply is said to have a capacity deficit. Where WTPs are said to be in capacity deficit, investment will be focused on that element of the treatment plant, which will enable an increase in capacity to be achieved.

In addition to the work completed by the NWRP, an annually reviewed Water Treatment Capacity Register provides an up-to-date national view on changes to available water treatment capacity. The NWRP has outlined preferred approaches on how this supply demand deficit will be addressed. Priority will be given to the supplies with the greatest deficits supplying the greatest number of consumers.

Background

The country’s population is expected to increase by 21% or 1.2 million people over the next 25 years. This will impact on the demand for water. Ensuring the treatment capacity of its WTPs is a key objective for UÉ.

Water - Scale of need

UÉ is responsible for abstracting water from over 1,000 individual sources which is then treated in over 700 WTPs. Over 300 water supplies have been identified by the UÉ Water Supply Capacity Register as having some level of service improvement requirement. These needs, including headroom, will be prioritised based on the supplies with the greatest capacity issues and/or also regarding the number of consumers supplied.

Water - Activity for RC4

UÉ proposes to deliver improvements to its water supply assets through a range of programmes and standalone projects. Water treatment capacity deficits exist over all sizes of plant. For capacity issues with smaller plants, these will be addressed using the newly established “Water Treatment Programme”. While this programme is aimed at dealing with water quality issues, it also has the capability to address WTP capacity issues. Where capacity issues relate to larger plants, these works will typically be delivered through standalone projects.

Water network improvements to cater for growth will be delivered through UÉ’s Growth and Development Programme. This programme will deliver strategic water infrastructure upgrades to facilitate future growth and development.

Wastewater

Providing wastewater treatment capacity for growth is a key priority for UÉ. The annual publication of the Wastewater Treatment Capacity Register provides a national view on remaining available capacity at all WWTPs. This enables us to understand the extent to which new connections to the network and growth

can be accommodated in each agglomeration. UÉ uses the register to understand where capacity upgrade projects are needed.

All WWTP upgrade projects provide capacity for growth, whether the primary driver for the project is growth or compliance. In planning the upgrade, design horizons of 10 and 25 years are used to size the upgrade to ensure that WWTPs remain compliant as the load within the relevant wastewater agglomeration increases.

Wastewater - Scale of need

The current Wastewater Capacity Register published in 2023 indicates that there are over 170 WWTPs, with no available capacity to cater for growth today. A further 56 WWTPs are within 10% of their capacity and will require an upgrade in the short to medium term to continue to cater for growth. An additional 109 WWTPs may be constrained from a capacity perspective due to the ability of these to achieve full compliance with wastewater discharge authorisations. These issues are impacting across the asset base from the smallest WWTPs to larger WWTPs. An ultimate ambition of UÉ will be to ensure all WWTPs have appropriate available capacity in place to service growth.

A number of investment cycles will be required to address the current known needs in this area.

Wastewater - Activity for RC4

Two key programmes of work within the RC4 investment plan will focus on the area of capacity for growth, namely the Small Towns and Villages Growth Programme, and the Large Towns and Cities Growth Programme.

The Small Towns and villages Growth programme was initiated during the RC3 investment period (2020 to 2024) and will continue into the RC4 investment period (2025 to 2029). This programme is focused on WWTPs that have a current load of less than 2,000 Population Equivalent (PE), and are either non-compliant or overloaded, or are projected to become so, within the next 5-10 years. There are now over 300 candidate sites identified under the programme and these have been reviewed by each Local Authority to rank them in terms of housing pressures. UÉ uses these rankings to determine which projects to advance from the candidate list on this basis. UÉ will continue to review the candidate list on a regular basis during RC4.

The Large Towns and Cities Growth Programme will be established in RC4 to look forward using the applicable growth rates, as published by each Local Authority, in accordance with NPF requirements. Candidates for inclusion in this programme will be WWTPs with capacity greater than 2,000 PE.

Outcomes and Targets

Please refer to *Table 9.2.1b* in Section 9.2, which lists the proposed Outcomes and associated targets for the RC4 period.

6.2.2 Network Capacity for Growth Investment Case

High population growth rates, coupled with low levels of historic investment in water and wastewater networks, has increased the risk of strategic networks constraining future growth and development.

This is particularly the case in our Cities, Regional Growth Centres and Key Towns, where demand is highest. Strategic network reinforcement and network extension projects needed in the RC4 period will provide for growth capacity, as well as addressing environmental compliance drivers (wastewater) and providing security of supply (water supply). These strategic reinforcements will be focused in areas where the greatest level of growth has been identified to occur, taking account of the NPF and Regional Spatial and Economic Strategy (RSES) settlement hierarchies.

Scale of need

Assessment of networks to date has identified a large deficit in network capacity (both water and wastewater) to facilitate planned future growth and development ambitions as set out under Local Authority Development Plans. The ability of water and wastewater networks to service zoned lands now, or within the life of the Local Authority development plan, is communicated to the relevant Local Authorities as part of the statutory consultation process in drafting each of the development plans.

Activity for RC4

Existing projects and programmes progressed under RC3 specific to addressing wastewater network constraints will continue into RC4, including the Network Extension Programme, Local Infrastructure Housing Activation Fund (LIHAF) / Major Urban Housing Delivery Sites (MUHDS) Programme, and the Local Network Reinforcement Programme. These initiatives will all be delivered by the Growth and Development Programme.

Outcomes and Targets

Please refer to *Table 9.2.1a* and *b* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

6.3 Availability and Reliability – Invest in Our Future

A failure to invest in capital maintenance results in an increasing number of asset failures, which has a knock-on impact on costs, service to our customers, and the environment. This simply defers necessary investment which results in further asset degradation and greater ultimate costs of remediation. Historically, capital maintenance in Ireland's water services sector has been well below normal long-term maintenance levels.

The capital maintenance deficit that has built up over decades in Ireland is difficult to quantify. We have started to address this by building up our capital maintenance activities over the previous investment periods. This needs to continue into RC4. If UÉ did not carry out any capital maintenance, then the spend on reacting to asset failures would increase further over time and result in decreasing levels of service and performance for our customers.

In addition, the development of asset class strategies provides for an asset life cycle approach where, when implemented, the strategies prevent breakdowns as much as is possible. They also minimise disruption and loss caused by breakdowns and failures, as well as improving the operational effectiveness and safety across the sites associated with the strategies. UÉ will continue to develop asset class strategies for all assets over the coming years.

WSSP Objective

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aim are relevant to this section.

- Strategic Objective: Invest in Our Future
- Strategic Aim: Asset Management - manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.

6.3.1 Service Resilience (Water) Investment Case

UÉ aims to abstract, treat, store, pump and distribute water to approximately 1.7 million customers every day. In order to minimise supply interruptions to customers and to ensure that quality water is constantly supplied, UÉ must provide a resilient service. Constant investment in service resilience is needed to increase the level of service.

Scale of need

UÉ is responsible for abstracting water from over 1,000 individual sources and then treating this water in over 700 WTPs. Water is then stored, pumped and delivered through over 63,000 km of distribution, pumped rising and trunk water mains. The assets vary in age, condition and material, with some watermains over 100 years old.

Activity for RC4

UÉ plans to address Service Resilience in the water distribution network by reducing unplanned interruptions to supply and addressing areas of the network suffering from low pressures, where possible. UÉ's Leakage Strategy aims to continue establishment of a national "Calm Network" during the RC4 investment period.

The various works initiatives under the Leakage Reduction Programme will directly address the resilience issues in the network.

Customers, businesses, and regulatory bodies recognise that leakage reduction is an important part of ensuring there are resilient water supplies in the future. The Find & Fix and Pressure Management initiatives will primarily address public side leakage.

Mains Rehabilitation, lead/backyard service replacements, metering and DMA works will focus on the capital maintenance element of the overall programme. These initiatives will drive service resilience in the network and improve confidence in our data for leakage reporting purposes.

As an example, mains rehabilitation and the replacement of shared backyard service connections will improve service to customers by reducing supply interruptions, improving poor water quality and low pressures. Mains rehabilitation will provide security of supply in areas of the network where there are frequent bursts, and improved water quality where the condition of the water main is causing water quality issues.

The upgrading of our strategic water network will cater for new housing development across the country. It will also greatly improve the resilience of our networks for our existing customers by increasing the capacity of our supply network and providing greater levels of security of supply.

UÉ is developing Asset Class strategies for both above and below ground assets. This will enable us to maintain and replace our assets in a more strategic nature.

Maintaining current levels of service in WTPs is achieved through the effective delivery of a range of capital maintenance programmes. Asset service risk in water treatment is managed through the maintaining and replacing of assets at WTPs. The capital maintenance fund is directed at replacing assets that have failed or are failing. In addition to this, many of the larger scale capital maintenance type works are included in other programmes, which may also address water quality or water quantity deficits. Separate unique programmes are also being developed to ensure the resilience of water intakes, surface and ground water abstractions and treated water storage.

Outcomes and Targets

Please refer to *Table 9.2.1a* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

6.3.2 Service Resilience (Wastewater) Investment Case

Investment in wastewater network capital maintenance consists primarily of renewal of sewers, manholes, pumping stations and rising mains. The purpose of planned capital maintenance in wastewater networks is to manage asset and service risks, including risk to the environment and the public. Without continued investment, the number of pipe collapses and rising main bursts would increase, which would have the knock-on consequence of increasing the number of pollution incidents and flooding incidences.

Maintaining current levels of service in WWTPs is achieved through the effective delivery of capital maintenance programmes. Asset service risk in wastewater treatment is managed through the maintaining and replacing of defective assets at WWTPs. The capital maintenance fund is directed at replacing assets that have failed or are failing.

Scale of need

There are over 1,000 WWTPs across the country managed by UÉ and each requires maintenance to prevent deterioration in the current levels of service. In many cases, the roll out of maintenance programmes will result in an improvement in service levels.

Historically funding allocated for planned capital maintenance in wastewater networks was very limited. Priority was primarily given towards funding for new infrastructure to facilitate growth, with rehabilitation undertaken as reactive maintenance work. The consequence of this historical approach was deteriorating levels of service.

There are circa 2,600 wastewater pumping stations connected to the network, 2,600 Storm Water Overflows (SWO), and an estimated 26,000 km of wastewater network. Based on condition assessment of surveyed network to date, approximately 5% of the network length is in poor structural condition (collapsed or collapse imminent) and requires renewal.

Activity for RC4

Investment in several programmes will continue in RC4, targeting the delivery of maintenance and service resilience works. These will focus on asset classes that present the greatest risks to service and health and safety. As well funding the replacement of failed and failing assets, these include dedicated programmes for electrical panels, pressure vessels, vent stacks, fire safety, site welfare and site security to provide safe working conditions and comply with regulatory Health & Safety Legislation. Dedicated larger projects will be progressed to address high risks in our critical assets.

Investment in wastewater networks is being prioritised based on a risk-based approach across the wastewater network assets.

The planned capital maintenance is supported by several dedicated investigative and monitoring programmes. This is required due to the lack of accurate asset and performance data on the wastewater networks. These programmes include the Critical Sewer Survey Programme, Network Survey and Monitoring Programme, WWPS Telemetry Programme and the SWO Assessment, Survey & Monitoring Programmes.

All SWOs associated under the Wastewater Discharge Authorisation are to be surveyed and assessed on a prioritised basis. Provision of event duration monitors of the stormwater overflows is being prioritised to understand the frequency of activation (spills); Shellfish and Bathing Waters being examples of high priority areas to be monitored.

The Network Survey and Monitoring Programme identifies, through analysis of customer incident data, hotspot areas where there are repeat flooding and sewer blockage incidents. This is undertaken prior to surveying the network assets in these areas to identify the root cause.

The Infiltration and Inflow Reduction Programme under Asset and Service Resilience will continue and expand in the RC4 period. The objective of the programme is to reduce groundwater leaking into sewers and manholes (infiltration). Potential Outcomes that can be achieved include reducing impact on waterbodies from SWO spills (located at WWTPs and/or on wastewater networks), managing sewer flooding risk, reducing energy and operational costs, and providing capacity for facilitating future growth and development.

Outcomes and Targets

Please refer to *Table 9.2.1b* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

7. Addressing the Safety and Quality Theme

This section gives more detail on each of the investment cases under the Safety and Quality theme, setting the context for each objective.

7.1 Safety and Quality- Ensuring a Safe and Reliable Water Supply

UÉ has developed Ireland's first water resources plan. NWRP will be the first such plan for the entire public water supply in Ireland. The objective of the NWRP is to manage customer and communities' needs while meeting their requirements over the short, medium and long term, by ensuring safe, secure, sustainable and reliable water supplies. Safe and reliable water supplies are essential to public health, social and economic growth. UÉ currently operates over 700 WTPs. Water quality from some of these WTPs does not meet the current Drinking Water Quality Regulations because of microbiological contamination or exceedances of other water quality parameters (chemical).

Many of these treatment plants take their water from small water sources which are vulnerable to contamination and the impacts of climate change. The water supply distribution networks typically operate as isolated systems which are not interconnected. It is also estimated that, nationally, approximately 37% of the water we treat is lost due to leakage. In addition, some customers' service pipes are made from lead, which can contribute to contamination of water by dissolving into the water.

WSSP Objective

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aim are relevant to this section.

- Strategic Objective: Ensure a Safe and Reliable Water Supply
- Strategic Aim: Manage the sustainability and quality of drinking water from source to tap to protect human health.

7.1.1 Drinking Water Safety and Quality Investment Case

This section outlines UÉ's investment proposals to meeting the Drinking Water Quality objective. The World Health Organisation (WHO) has promoted a risk-based approach based on Drinking Water Safety Plans because they provide an integrated framework for operation and management of water supply systems.

This risk-based approach is also incorporated into the Drinking Water Directive (DWD) (EU Directive 2020/2184¹⁶). UÉ uses a range of risk assessment approaches to determine the supplies with the highest risk and will increasingly adopt the DWSP approach across the next investment period. UÉ's barrier approach to safe and secure drinking water is summarised in Section 5.6 of the NWRP. A risk analysis is carried out to determine the risk severity score for each barrier (1- good barrier to 5 - very poor barrier). The barrier assessment incorporates actual condition information of the barrier with treated water performance data results to calculate an overall barrier risk score. This barrier assessment will, over the period of RC4, be aligned with the UÉ DWSP which evaluates risk on a wider range of criteria. A risk-based approach involves an assessment of how particular risks can be managed by addressing the entire process

¹⁶ Transposed into Irish law by S.I. No. 99/2023 - European Union (Drinking Water) Regulations 2023.

of water supply from source to tap. To be effective, investment must deliver tangible risk reduction in the shortest possible period and in the most efficient and cost-effective manner.

Drinking Water Safety and Quality (Microbiological)

UÉ uses a risk-based approach, combined with actual water quality results, to assess the level of microbiological contamination risk to water supplies nationally. Currently this approach is based on the water treatment barrier assessment as set out above. This barrier assessment will in future be aligned to the UÉ DWSP Risk Assessment approach. This approach is a detailed audit approach which assesses water quality risks from catchment through to treatment and network and on to consumers' taps. Some examples of this type of risk are contamination from E.coli and cryptosporidium. Sites are prioritised for investment based on the level of risk determined at that site. The investment will be focused on one or more elements of the water treatment process where such investment will significantly reduce the microbiological risk.

In certain situations, it may be more cost effective to lower risk by interconnection with nearby water supplies, or to rationalise certain supplies to water supplies with lower risk.

Drinking Water Safety and Quality (Chemical)

Similar to the above, UÉ uses a risk-based approach, combined with actual water quality results, to assess the level of chemical contamination risk to water supplies nationally. Some examples of this risk are excessive levels of iron, manganese, or lead in drinking water. This also includes risk from excessive levels of disinfection by-products. Sites are prioritised for investment based on compliance monitoring and on the level of risk determined at that site.

The investment will be focused on one or more elements of the water treatment process where such investment will significantly reduce the chemical risk. In certain situations, it may be more cost effective to lower risk by interconnection with nearby water supplies, or to rationalise certain supplies to water supplies with lower risk.

Investment on the network side will focus on the replacement of lead service connections on the public side and shared backyard services and rehabilitation of old cast iron mains where water quality issues have been identified and confirmed.

Scale of Need

UÉ is responsible for operating over 700 WTPs. The size of these WTPs varies significantly across the country, with the largest 72 plants producing 73% of the water supplied, and the smallest 500 producing about 6% or 106 MLD of the total supply. This is an extremely high number by international standards e.g., Northern Ireland has less than 25 WTPs. The NWRP sets out preferred approaches on how this number will be reduced. However, it will take many investment cycles to achieve this rationalisation of schemes. Across the current water supplies UÉ seeks to identify all water quality risks, but it is not possible to mitigate all risks on all these supplies. For this reason, UÉ seeks to prioritise investment based on the supplies with the highest risks. The supplies with high-risk values attributed to microbiological (e.g. E.coli and cryptosporidium) failures and chemical (e.g. manganese and THMs) are considered of highest priority.

Activity for RC4

IRC2 and RC3 investment periods focused on standardisation to decrease variations in water quality service provision. Mitigations to address water quality challenges were delivered through several targeted programmes that aimed to resolve specific water quality issues across a large number of WTPs e.g. the Disinfection Programme sought to ensure microbiological compliance on at-risk water supplies. Following the successful completion of these targeted works, a more comprehensive approach is now planned for the RC4 period. This approach will include investment in catchment interventions to further protect drinking water sources and the development of the “Water Treatment Programme” which will deliver investment mitigations across the full water treatment process. This programme will also mitigate for high-risk secondary disinfection sites. This approach will seek to address high risks across a wider range of sites nationally. In addition to this programme approach, separate one off projects for upgrades of larger WTPs will be undertaken to mitigate risks.

DWSPs for networks will be developed in RC4. These plans will assess the water quality risks associated with UÉ networks and enable more focused and prioritised capital interventions.

Water quality issues on the network will be mitigated primarily through the lead replacement programme and the mains rehabilitation programme.

Outcomes and Targets

Please refer to *Table 9.2.1a* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

7.2 Safety and Quality – Providing Effective Management of Wastewater

The effective collection and treatment of wastewater prior to discharge back to the environment is essential to protect the quality of that environment and the resource that it provides, not only as a source for drinking water, but also in respect of other beneficial uses such as supporting recreational activities in communities. This capacity must also be adequate to provide for planned population and economic growth.

UÉ collects and treats wastewater in over 1000 agglomerations nationally. The standards to which the infrastructure must operate are set out in regulations, primarily the Urban Wastewater Treatment Regulations (which implement the UWWTD and the Wastewater Discharge Authorisation Regulations), under which the EPA set controls on UÉ discharges.

A large proportion of urban sewer networks function as combined systems carrying both wastewater and surface water runoff from impermeable, hard standing areas (e.g. roads, pavements, roofs). During periods of heavy rain, excess surface water run-off mixes with wastewater, and this can result in discharges through SWOs directly into waterbodies.

The intermittent discharges from SWOs can cause pollution and impact water quality of the waterbodies. The challenge is to understand how these complex network systems are operating and to design and implement appropriate interventions to mitigate the impact of discharges on the environment.

WSSP Objective

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aims are relevant to this section.

- Strategic Objective: Provide Effective Management of Wastewater
- Strategic Aims:
 - Manage the operation of wastewater facilities in a manner that protects environmental quality
 - Manage the availability and resilience of wastewater services now and into the future
 - Manage wastewater services in an effective and economic manner

7.2.1 Treated Wastewater Investment Case

Wastewater Discharge Authorisations (WWDAs) are the statutory approvals issued by the EPA to regulate UÉ wastewater discharges to rivers, lakes, groundwater, transitional and coastal waters in Ireland. Wastewater discharges from 500 PE or less, require authorisation by a Certificate of Authorisation. Wastewater discharges from 500 PE or greater require authorisation by a Waste Water Discharge Licence (WDDL). UÉ is required to have a WWDA to discharge effluent from a WWTP.

These regulations require a ‘combined approach’ to licensing, which applies the requirements of the UWWTD and the Water Framework Directive (WFD). In practice this means that Emission Limit Values (ELVs) are set to provide at minimum the level of treatment as required by UWWTD. The ELVs are also set to protect and restore water bodies ecological status in line with environmental objectives that are set for that water body. Consequently, the requirements of the WDDL are in some cases more stringent than the UWWTD.

Scale of need

A large body of work remains to be completed to bring all WWTPs in line with WWDA requirements. UÉ is advancing capital interventions on a prioritised basis to continue to address legacy and emerging issues of non-compliance with ELVs.

This is done by taking a risk-based approach to prioritisation. UÉ is committed to addressing issues relating to the UWWTD and European Court of Justice (ECJ) case¹⁷ against Ireland for non-compliance with the UWWTD. In addition, UÉ has committed to ending the discharge of untreated wastewater in the agglomerations listed by the EPA (originally 50 in number). UÉ is taking account of the priority environmental areas, as identified by the EPA through the PAL, and areas where wastewater discharges are significantly impacting on water bodies (see Water Body Impact below). Work across multiple investment periods will be required to achieve full compliance with WWDA requirements.

¹⁷ The 2019 ECJ judgement (see [here](#)) referring to Ireland’s failure to ensure that (1) waters are collected in a combined urban wastewater and rainwater system (WWTP) for some agglomerations and (2) satisfactory [secondary or equivalent treatment and/or disposal of wastewater is in place for other agglomerations, in compliance with relevant European Directives](#).

Activity for RC4

Capital interventions required to bring WWTPs into compliance with UWWTD effluent standards and WWDAs will be continued in the RC4 period. The final remaining WWTP capital project relating to the ECJ judgement (see point 1 from footnote 17 above) will be completed during the RC4 period. UÉ will also continue to advance projects that are addressing the untreated agglomerations, with the majority being completed within the 2025 to 2029 period.

Maintaining compliance will be carried out through appropriate capital maintenance programmes (see Service Resilience Wastewater – Section 6.3.2). Consideration will also be given to the initiation of projects in a timely manner to ensure adequate capacity is available for growth while remaining compliant (see Treatment Capacity for Growth Investment Case – Section 6.2.1).

Outcomes and Targets

Please refer to *Table 9.2.1b* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

7.2.2 Water Body Impact Investment Case

A pressure on a water body can be defined as a discharge (or discharges) that impact the ecological status of the water body preventing it from meeting its objectives (i.e., good, or high status). The impact of discharges from UÉ WWTPs and networks (urban wastewater) will primarily be identified under the 3rd Cycle RBMP (2022 to 2027, as required under the WFD).

Scale of need

The 3rd Cycle RBMP identifies 217 urban wastewater significant pressures on 208 water bodies. This equates to 4% of water bodies nationally. Less than 10% of the significant pressures identified across all sectors are attributed to urban wastewater. Most of the urban wastewater pressures identified are associated with primary discharges from WWTPs, with the balance associated with storm water overflows from the wastewater networks and the WWTPs.

Across the 208 water bodies, it is estimated that 158 WWTPs and 33 wastewater networks are associated with urban wastewater impact. Each will be required to be assessed to understand the impact, and to determine the measures required to mitigate the impact.

Six wastewater networks require upgrading to meet UWWTD compliance and to address the 2019 ECJ judgement (Cork City, Fermoy, Midleton, Mallow, Roscommon and Athlone relating to point 2 from footnote 16 above).

The EPA PAL identifies the above six wastewater networks as requiring improvement. The PAL also identifies an additional six other wastewater networks as requiring action.

Impacts from SWOs are considered through national programmes (Drainage Area Plan, SWO Survey & Assessment, Water Quality Modelling). During periods of higher intensity rainfall, spills from the SWOs occur to reduce risk of flows backing up and causing road and property flooding as well protecting the downstream WWTPs from being overwhelmed.

There are approximately 2,600 SWOs nationally which are being assessed to understand and quantify risk.

A number of investment cycles will be required to address the current urban wastewater pressures.

Activity for RC4

RC4 activity will focus on 158 WWTPs from which the primary discharges have been identified as significant pressures under the 3rd Cycle of the RBMP and the activities undertaken will span across the whole project lifecycle from assessment of needs, progressing detailed designs to construction. UÉ is targeting completion of all remaining assessments on WWTP primary discharges by 2027 to provide a clear understanding of the measures required to address the pressures identified. For WWTPs that have projects already in train, the work will continue into RC4. Additional projects to mitigate the significant pressures will be progressed during the RC4 period on a prioritised basis. For wastewater networks that have projects in train to comply with the UWWTD, the work will continue into RC4 with Fermoy, Roscommon and Athlone at construction stage and design solutions for the entire Cork City wastewater network being progressed.

For all remaining wastewater networks on the PAL, projects are advancing and work will continue into RC4.

RC4 activity will be across the 33 agglomerations where discharges from SWOs have been identified as significant pressures under the 3rd Cycle of the RBMP. The activities to be undertaken will vary across each of the agglomerations and will involve progressing assessment of needs, concept design, planning and detailed design, and construction work. UÉ is targeting completion of all remaining assessments on SWOs in the RC4 period to provide a clear understanding of the measures required to address the pressures.

For wastewater networks that have projects already in train, the work will continue into RC4. Additional projects to mitigate the significant pressures will be progressed during the RC4 period on a prioritised basis.

Increased deployment of permanent event-duration monitors at SWOs nationally will provide improved data on their long-term performance. This data will support decision making on the targeting of future investment to address impacts due to excessive spills from SWOs.

Outcomes and Targets

Please refer to *Table 9.2.1a* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

7.2.3 Wastewater Network Environmental Compliance & Sewer Flooding Investment Case

Sewer Flooding impacts roads, property and the environment and can be caused by hydraulic overload, pipe collapses, blockages, or pump failures.

Overload is generally associated with rainfall events and the lack of network capacity to cope with stormwater flows, whereas the other causes are because of poor asset condition or due to asset failure.

Under a Drainage Area Plan Programme, an assessment of a sewer system's performance and condition, investigating hydraulic, operational, structural, and environmental performance for current, short-term,

and long-term development scenarios, is carried out. This enables identification of root cause of existing sewer flooding risk and the identification of solutions to manage the risk to an appropriate level of service.

Investment across multiple investment periods is required to manage flood risk to appropriate service levels with priority given to properties impacted by the highest frequency of repeat internal property flooding.

Due to the impact of climate change and the increase in impermeable area (urban creep), it is recognised that it is unsustainable for UÉ to continue upsizing the wastewater network to cater for increasing storm flows.

One of the notable proposals under the recast of the UWWTD is the requirement for integrated urban wastewater management plans for agglomerations that meet certain criteria. Such plans would be required to encompass separate surface water management, which is beyond the remit of UÉ, and accordingly will involve collaboration between various stakeholders. Drainage Area Plans covering the wastewater networks would be a component of the integrated urban wastewater management plans.

These plans could also play a key role in understanding and managing existing and future flood risk from all urban drainage infrastructure under a more holistic and collaborative approach. The plans will also enable an optimised management of existing infrastructure in our cities and large towns and support additional measures including sustainable drainage, green infrastructure while supporting biodiversity.

Scale of need

There are 163 areas with properties that are prone to sewer flooding risk (either internal and/or external) that have been identified to date. These areas are being assessed and it is anticipated that the number of areas will increase as assessments and investigate works continue.

A large body of work remains to be completed to bring all wastewater networks in line with WWDA requirements. UÉ is advancing capital interventions on a prioritised basis to continue to address legacy and emerging issues of non-compliance with the WWDA.

This is done by taking a risk-based approach to prioritisation. UÉ has committed to addressing issues relating to the UWWTD and ECJ case against Ireland for non-compliance with the UWWTD. In addition, UÉ is committed to addressing wastewater networks in the agglomerations as identified by the EPA through the PAL, and areas where discharges from SWOs are significantly impacting on water bodies (see Water Body Impact).

Work across multiple investment periods will be required to achieve full compliance with WWDA requirements and to manage sewer flooding risk.

Activity for RC4

The Drainage Area Plan programme will continue into RC4, covering the larger urban areas where most sewer flooding incidents occur, to understand the level of flood risk and to enable options to be developed to manage flood risk.

Capital investment associated with 15 of the wastewater network projects/programmes are delivering benefits in terms of reducing sewer flooding risk impacting properties. In recognition of the time and scale of investment required to address sewer flooding nationally, a programme of Local Flood Protection

Measures will continue to be needed. This is to mitigate risk of property flooding using small scale local interventions where feasible.

Removal of impermeable (hardstanding and roof) areas and the associated surface water run-off that it generates is an important priority. This is because it results in high storm flows in the wastewater network, overloading them and causing sewer flooding and spills from SWOs. The increased use of Sustainable Drainage systems in the public realm to eliminate or reduce surface water run-off inputs into the wastewater network will be required.

This will be needed to manage flooding risk, provide environmental benefits, and provide capacity for growth, in addition to providing resilience against climate change. A significant amount of collaboration and forward planning will be required between multiple stakeholders to realise the use of Sustainable Drainage Systems in terms of delivering a wide range of societal and environmental benefits.

Outcomes and Targets

Please refer to *Table 9.2.1b* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

8. Addressing the Sustainability Theme

As introduced in Section 4.2 of this report, the investment cases enable the grouping of similar investment types across different assets. This section gives more detail on each of these investment cases from a sustainability perspective, setting the context for each objective.

8.1 Sustainability – Ensure a Safe and Reliable Water Supply

UÉ manages approximately 64,000km (58,000km distribution; 6,000km service pipes) of water networks nationally. The network performance is measured using a Leakage Management System and utilises the water balance approach to measure each component of water use and loss.

UÉ has been making steady progress in reducing leakage across the country from 46% down to 37%. However, the performance of the existing network is poor by international standards. From 2028, our performance will be regulated as part of the EU Drinking Water Directive. Investment is therefore required across several water network programmes to drive down network losses, improve pressure by developing a national calm network, maintain headroom and future proof network management capability.

WSSP Objectives

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aim are relevant to this section.

- Strategic Objective: Ensure a Safe and Reliable Water Supply
- Strategic Aim: Manage water supplies in an efficient and economic manner.

8.1.1 Leakage Investment Case

The NWRP takes a three-pillar approach to safeguarding our future water needs:

- Lose Less: by reducing the amount of water lost through leakage.
- Use Less: by encouraging water conservation and efficiencies in everyday life.
- Supply Smarter: Improving capacity or connectivity to enable more water to be supplied and an increase in resilience.

UÉ's Leakage Strategy focuses on the "Lose Less" pillar and sets out the strategic plan to support this element of the NWRP. The strategy aims to drive down leakage in RC4 and future investment periods in an effective and efficient manner.

UÉ is committed to maintaining its below ground water network in a sustainable manner to ensure a clean, safe, and secure supply of drinking water for its customers now and into the future. A key element is achieving a level of leakage on the network that is economic, supports growth, is appropriate to its stakeholders' requirements and is environmentally sustainable.

Given the sharp increase in demand for water towards the end of 2023, UÉ recognised the need to establish a project focussed on coordinating all existing activities being carried out under a "leakage reduction" umbrella in the Greater Dublin Area. Project Optimum was established to ensure that these existing leakage activities were focussed, targeted and prioritised effectively, while also reviewing potential for new or modified approaches to leakage reduction and data improvement. This project has been set-

up to assist the business-as-usual leakage activities, which continue to deliver target Outputs and Outcomes as per the Capital Investment Plan, with significant investment continuing to take place in the areas of find and fix, mains rehabilitation, pressure management, metering and customer side leakage.

The project recognises the critical role that accurate data plays in effectively targeting leakage interventions in a timely manner. It will also seek to deliver improved processes and reporting to ensure that the required information is available in support. These will operate at both a customer and network metering/DMA operability level to ensure that timely and accurate information is available to enable leakage intervention activities.

Scale of need

UÉ is committed to reducing net leakage by 120 MLD over the RC4 period, enabling achievement of a strategic business objective. This will be a significant challenge and will require appropriate resources nationally to achieve the required net leakage reduction.

Activity for RC4

The planned leakage activities for RC4 are:

- Find & Fix – finding and repairing leaks on the public network;
- First Fix – repairs of domestic customers-side leaks and customer supply pipes, in line with First Fix policy;
- Pressure reduction – a national programme of works to implement a “calm network” approach to network operation. This will help to maintain leakage reduction gains in the network;
- Watermain rehabilitation – a programme of works to replace existing pipe network. This programme is prioritised as a means of reducing interruptions to supply for customers, improving water quality, and replacing pipes with high burst frequency;
- Metering - capital maintenance of the water meter asset base, comprising distribution input, District Meter Area (DMA), non-domestic and domestic meters; and
- DMA works – a programme of works to maintain over 6,000 DMAs, which is the cornerstone of any successful leakage programme.

Outcomes and Targets

Please refer to *Table 9.2.1c* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

8.2 Sustainability – Protecting and Enhancing the Environment

As custodians of Ireland’s water and wastewater assets, UÉ has a responsibility to show sustainable stewardship in how it carries out activities and in how it preserves and enhances these national assets to underpin social and economic progress for Ireland, now and into the future.

In continuing to provide safe, clean water and wastewater services, the ambition is to ensure that our network is climate resilient, water and wastewater treatment is decoupled from resource use, and our natural ecosystems are protected and enhanced as we carry out our activities.

Our key strategic sustainability objective is to operate a sustainable efficient utility delivering water services to the community in a manner that supports national policy and contributes to the protection of the environment. To stay ahead of challenges, UÉ will continue to drive change within and build a sustainable utility fit for the future.

WSSP Objective

A summary of strategic objectives and aims from the WSSP can be found in *Table 2.4*. The following strategic objective and strategic aims are relevant to this section.

- Strategic Objective: Protect and Enhance the Environment
- Strategic Aims:
 - Ensure that UÉ services are delivered in a sustainable manner which contributes to the protection of the environment.
 - Operate our water services infrastructure to support the achievement of water body objectives under the WFD and our obligations under the Birds and Habitats Directives.
 - Manage all our residual waste in a sustainable manner.

8.2.1 Sustainability Investment Case

Biodiversity

Protection of the ecosystems in which we live and work is fundamental to UÉ's business. UÉ manages infrastructure that is located within a range of habitats. We often interact directly with freshwater, estuarine, marine, and terrestrial habitats through the construction of our infrastructure, abstraction of drinking water, or the discharge of treated wastewater.

In recent years, it has become increasingly apparent that many species are being lost at an unprecedented rate. This is happening at national, European, and global levels. In 2019, with many countries failing to meet targets set to reduce biodiversity loss, the Irish Government declared a 'biodiversity emergency', prompting an increased focus across all sectors in developing actions to protect biodiversity.

UÉ recognises the need to urgently increase and accelerate efforts to halt the decline of biodiversity and remains committed to ensuring that our infrastructure is built and managed responsibly so that ecosystems are protected and, where possible, enhanced. A Biodiversity Action Plan (BAP) has been developed to conserve, enhance and work with the natural environment. This plan clearly outlines UÉ's high-level strategic aims and the actions that are required to achieve them. The plan will also ensure that biodiversity is valued and is an integral factor in decision-making processes across the business. The below highlights interventions made to date and planned for the future to ensure UÉ's activities continue to enhance our biodiversity.

- Implement biodiversity enhancement measures across all UÉ sites by 2030. Significant progress has already been made on achieving this target with new biodiversity enhancement measures implemented at 160 UÉ assets. A biodiversity baseline has been established across all operational assets, and a suite of biodiversity enhancement measures, including biodiversity training, has been made available to all site operatives to support delivery of this target;
- In 2023 UÉ planted over 41,000 native tree species and intends to plant 250,000 trees by 2030;

- Biodiversity net gain across all new projects by 2030. UÉ is committed to ensuring no net loss of biodiversity associated with the delivery of infrastructure projects and, where possible, to achieve a biodiversity gain;
- Restore fish habitat in 10 rivers by 2030;
- Help to protect and restore up to 60 water bodies in support of the RBMP by 2030;
- Champion nature-based solutions in the delivery of water services and adopt for in excess of 30 projects by 2030;
- Implement actions arising from the All-Ireland Pollinator Plan across all UÉ sites, to support and increase our pollinator population; and
- Collaborate and work with key internal and external stakeholders, and the wider community, to protect and enhance biodiversity.

Circular Economy

UÉ is embedding a cradle-to-cradle circular economy approach to design, build, and operate its assets. This involves a long-term focus on shifting the balance of resource management into sustainable cycles of maintenance, reuse, refurbishment, and recycling, whilst striving to manage waste through sustainable practices. This includes:

- Zero recoverable waste to landfill in RC4;
- Circular economy outlets for sludge in RC4;
- Reuse of decommissioned materials in upgrade projects; and
- Use of more sustainable materials (e.g. low carbon cement, high % recycled content in pipes, bio-plastics etc.), switching to a circular business model approach.

A circular economy model to the management of sludges is also being embedded to provide a sustainable source of alternatives to raw materials. As part of the development of the NWSMP, UÉ has looked at how wastewater sludge is currently managed and has set out sustainable proposals for the investment in future treatment, transport, and reuse of the sludge. This approach aligns with the EU Circular Economy Action Plan, and includes the following objectives:

- To establish long term, secure and sustainable reuse methods; and
- To maximise the benefits of wastewater sludge as a soil conditioner and source of nutrients.

As part of the implementation of the National Water Residuals Strategy, UÉ is committed to improving the circular economy opportunities for water residuals and reducing the existing high energy carbon footprint associated with Water Sludge dewatering. As part of this, UÉ is completing an innovation pilot project to use reed beds to dewater Water sludge containing Aluminium Sulphate. If this is successful it would enable the use of a nature-based solution to be used to dewater Aluminium Sulphate sludge.

Climate Resilience

UÉ needs to ensure that water and wastewater services, now and in the future, are resilient to climate change. Understanding the potential impacts and identifying adaptation measures are key to future proofing services to deliver a low carbon climate resilient water and wastewater service. Our approach aligns with the Climate Change Sectoral Adaptation Plan for Water Quality and Water Services

Infrastructure¹⁸. In water, climate change resilience is embedded across UÉ to ensure climate resilience is built in. For example, UÉ abstraction and catchment studies are essential to understanding climate resilience of our assets. In addition, stage 1 of the NWRP has inbuilt climate resilience and leakage reduction interventions which will focus on water supply zones affected by drought conditions. In wastewater, technical assessments and studies at early stage are essential for understanding the nature of any water body impacts and how best to deliver water quality improvements. Integrated drainage planning including wastewater network, storm network and water quality modelling, allows UÉ to consider variations of climate scenarios in order to design more resilient, sustainable drainage solutions.

The UÉ project development process also has built in consideration of energy use and emissions reduction as well as maximising use of renewable sources and opportunities for biodiversity gain. Nature based solutions for wastewater treatment are considered as standard alongside more traditional engineering approaches. UÉ is targeting up to 30 sites for nature-based solutions, with a number already completed and at least 20 more expected to be brought to completion over the RC4 period.

UÉ needs to achieve a primary target of 51% reduction in Carbon by 2030 in line with the Climate Act 2021 and subsequent Climate Action Plan targets for public sector bodies, expressed as a percentage of our 2009 baseline figure. Decarbonisation of the national grid and UÉ's renewables programme will deliver the necessary reductions to achieve this target.

A key subcomponent of the primary target requires a similar reduction in GHG emissions from thermal and transport energy sources. A 51% absolute reduction in GHG emissions from thermal and transport energy sources is required by 2030 against our 2016-2018 baseline. This will present significant challenges to the organisation as it requires the substitution of fossil energy sources with renewables. This work will centre on sludge management practices, in particular the displacement of the use of natural gas for drying with biogas, and on the electrification of UÉ's fleet.

Energy Efficiency

UÉ accounts for 21% of public sector energy consumption and is by far the largest consumer of electricity in the public sector. By 2020, water services had achieved a 34.5% improvement in energy efficiency performance, compared to the 2009 baseline. UÉ has developed, and is implementing, a sustainable energy strategy to achieve a 50% energy efficiency improvement and a 51% CO2 emissions reduction target by 2030.

Capital investment during the next investment period will be a key enabler of this energy efficiency target, through initiatives like the replacement of existing assets with more energy efficient assets. UÉ will assess all capital investments to identify the most energy efficient means of achieving a project's primary driver. Further investment in the RC4 period will allow for reduced reliance on power supply from third party providers, with the objective of enabling UÉ to generate energy via renewable sources.

The baseline for the energy efficiency metric is energy consumption per population served (PS). To achieve an energy efficiency saving of 50% we must reduce the energy used to provide water services measured

¹⁸ See the Government's Plan [here](#)

in kWh per person served, from 412 kWh/PS (the 2009 baseline as EnPI (TPER)), to 206 kWh/PS by 2030. This requires a saving of 25.4 GWh/yr in our annual energy consumption by Capital Investment projects through RC4.

Net Zero Carbon

UÉ's approach is consistent with the national Climate Action Plan to reduce carbon emissions, and UÉ is committed to reducing the carbon intensity of our investments and achieving Net Zero Carbon by 2040. Achieving Net Zero Carbon involves collaborating with consumers and communities, developing sustainable partnerships internally and externally and working with UÉ's supply chain.

There are a number of programmes specifically focused on sustainability and net zero carbon. These include the Renewable Generation Programme, an Energy Efficiency Programme and Sludge Programmes. In addition, as part of our I2O process, all other projects and programmes will assess sustainability as part of the design process to determine low carbon, sustainable solutions.

Achieving the Net Zero target by 2040 requires the limiting of carbon emissions from all UÉ's activities including:

- **Operational emissions** resulting primarily from the process and energy related emissions in the day-to-day running of the assets.
- **Embodied carbon emissions** arising from sourcing, production, construction and installation of materials and components associated with capital delivery projects and programmes.

To support the achievement of the Net Zero target, carbon emissions must be measured and managed across the organisation to identify and deliver effective carbon reduction solutions. UÉ is currently developing the processes and tools necessary to measure whole life cycle carbon emissions whilst simultaneously developing a unified carbon management approach applicable to all water and wastewater infrastructure projects and programmes of work and operations.

UÉ has established a Net Zero Community of Practice tasked with coordinating activities to achieve our 2040 Net Zero ambition. These activities include:

1. Development of Lifecycle Carbon Assessment Tools and Methods Aligned with the European Standard EN15978 (Sustainability of Construction Works)
2. Development of Carbon Management Guidance and Processes
3. Using the tools and processes to balance the water and wastewater portfolios to achieve greatest carbon reduction per unit cost.

UÉ has developed an Energy and Carbon Outcome Tool designed to determine key sustainability (carbon and energy) outcomes at the concept design and optioneering phase of each project and programme. The outcomes include energy demand (kWh/y), energy efficiency (EnPI), embodied carbon (tCO₂e) and electricity-related carbon emissions (tCO₂e/y). The Outcome Tool is designed to evaluate design options during early project phases while the design is still sufficiently flexible to identify improvement

opportunities, and can be applied to all water and wastewater above and below ground projects. The key carbon and energy-related outcomes evaluated by the tool are used to support the identification and prioritisation of low carbon solutions.

A comprehensive carbon impact assessment and scenario analysis tool is currently under development to determine Whole Life Cycle carbon for all capital projects. The tool aligns with the EN15978 standard by quantifying the carbon emissions associated with each project life cycle stage from cradle-to-grave e.g., pre-use stages, operational/use stages and end-of-life stages. Whole Life Cycle Assessments (WLCA) will be initiated once the shortlisted project options have been selected for advancement and greater details in relation to the project scope are available (compared to the optioneering phase).

The WLCA tool provides more accurate carbon impact assessment information for projects, supporting decision-making, and provides the necessary rigour for business case approval aligned to net zero goals.

To support the requirement to measure and report whole life cycle carbon emissions, UÉ is developing in parallel an organisation-wide carbon management process. The carbon management process will align with PAS2080 (2023¹⁹) and will provide guidance(s), processes and procedures designed to ensure cohesive action to prioritise carbon reduction opportunities that align with and support the transition to net zero carbon.

The application of both the Outcome and WLCA tools across all portfolios through the revenue control period can yield several significant benefits aligned with Net Zero ambitions:

- **Strategic** - The early-stage portfolio wide assessment will help ensure that the projects are aligned with national and organisational net-zero targets from the outset.
- **Environmental** - The systematic application of the Outcome Tool across all capital delivery projects/programmes of work will help to identify the most effective carbon reduction opportunities at both project and portfolio level. Understanding early on which schemes emit the highest quantity of carbon over the project life cycle (in comparison to other projects within the portfolio) will inform both decarbonisation and investment decisions to achieve the most effective reductions.
- **Alignment with Regulatory Requirements** - The carbon emissions data derived from the whole life cycle analysis (using the WLCA Tool) for each project/programme of work can be used to support ESG reporting requirements e.g., by forecasting the anticipated increase in operational emissions resulting from increasing asset capacity and the embodied emissions associated with capital projects in a given reporting year.
- **Operational** - Projects designed with a focus on Enhanced Energy Efficiency will likely have lower ongoing operational emissions. This contributes to more sustainable operations and potential to extend the lifecycle of assets by reducing wear and tear associated with higher energy use.

In relation to further developing the Outcome Tool, the next phase of work will consider the inclusion of (i) a renewable energy outcome and (ii) a carbon pricing profile.

¹⁹ PAS 2080: 2023 Carbon Management in Buildings and Infrastructure Standard

Outcomes and target

Please refer to *Table 9.2.1c* in Section 9.2 which lists the proposed Outcomes and associated targets for the RC4 period.

In addition to the Outcomes included in *Table 9.2.1*, other sustainability initiatives will be further defined as greater clarity becomes available as projects progress through design phases (for example, biodiversity potential, renewables potential, carbon potential and energy efficiency potential).

9. Delivering the Capital Investment Plan

UÉ remains focused on delivering a quality service to customers and communities while supporting economic and social development across a growing economy.

Significant investment will be required by UÉ, on a structured and phased basis over multiple investment plan periods, to meet these investment needs. This investment will be delivered in parallel with the continued transformation of water services to ensure:

- consistent application of maintenance standards;
- achievement of significant operational changes and operating cost savings; and
- embedding of water conservation and sustainable water resource management into water policy.

9.1 Our Capital Investment Portfolio

Our Capital Investment Portfolio consists of projects and programmes. A draft list of these projects and programmes is provided in Appendix 4.

Table 9.1a, Figure 9.1a and Figure 9.1b detail the proposed investment allocations across WSPS Themes and WSSP Strategic Objectives.

WSPS Themes	WSSP Strategic Objective	2025 to 2029	2025 to 2029 (m)
Availability and Reliability	Ensure a Safe and Reliable Water Supply (including WSP)	24.7%	€1,997
	Provide Effective Management of Wastewater (including GDD)	2.8%	€227
	Invest in our Future	19.1%	€1,542
	Support Social and Economic Growth	7.1%	€572
Availability and Reliability Total		53.7%	€4,336
Safety and Quality	Ensuring a Safe and Reliable Water Supply	11.7%	€948
	Provide Effective Management of Wastewater	15.7%	€1,267
Safety and Quality Total		27.4%	€2,216
Sustainability	Ensuring a Safe and Reliable Water Supply	16.9%	€1,368
	Protect and Enhance the Environment	1.9%	€150
Sustainability Total		18.8%	€1,518
Total		100%	€8,070*

Table 9.1a – Investment Portfolio by WSPS Policy Theme and WSSP Strategic Objective

* All figures are presented after Regulatory Adjustments

Investment Portfolio by WSPS Policy Theme

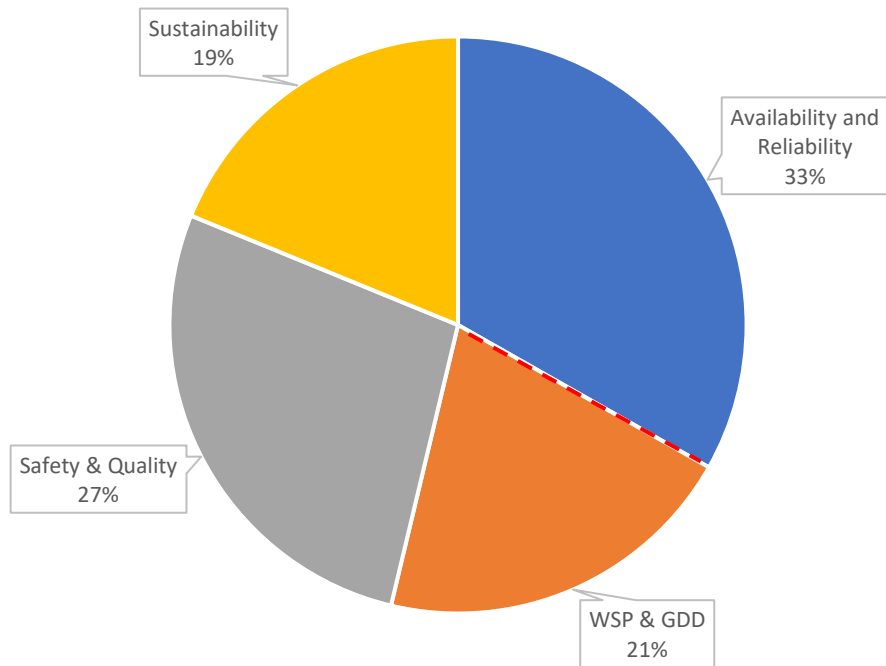


Figure 9.1a – Investment Portfolio by WSPS Policy Theme

Investment Portfolio by WSSP Strategic Objective

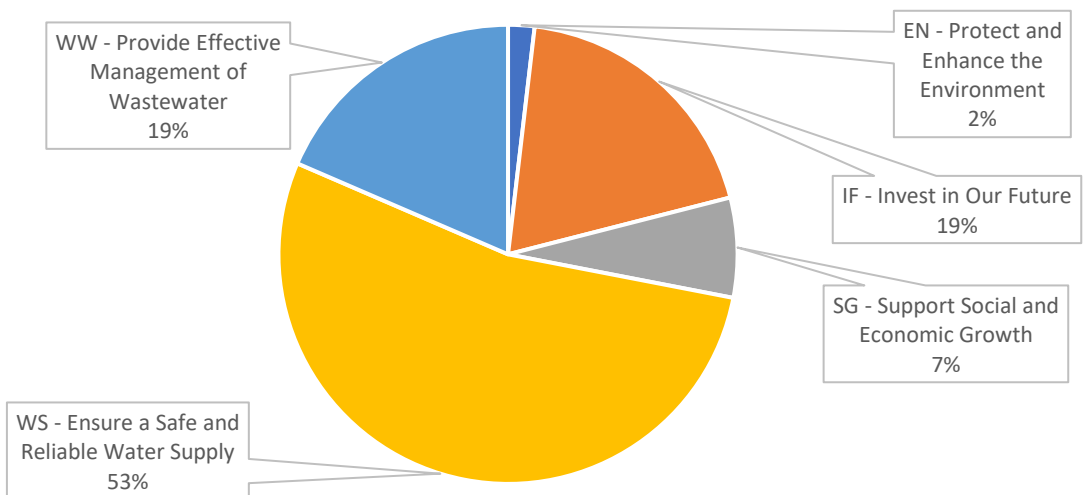


Figure 9.1b - Investment Portfolio by WSSP Strategic Objective

Tables 9.1b, c and d below outline in more detail UÉ's investment proposals to address the WSPS Themes through Investment Cases described in Sections 6 to 8.

WSPS Theme	WSSP Strategic Objective	Investment Case	2025 to 2029 (m)
Availability and Reliability	Ensure a Safe and Reliable Water Supply (including WSP)	Early-Stage Projects	€181
		Water Quantity	€1,815
	Provide Effective Management of Wastewater (including GDD)	Early-Stage Projects	€59
		Treated Wastewater	€168
	Invest in our Future	Early-Stage Projects	€38
		Service Resilience (Wastewater)	€789
		Service Resilience (Water)	€715
	Support Social and Economic Growth	Early-Stage Projects	€80
		Network Capacity (water and wastewater)	€167
		Treatment Capacity (Water and Wastewater)	€324
Availability and Reliability Total			€4,336*

Table 9.1b: Availability and Reliability Portfolio by Strategic Objective and Investment Case

* All figures are presented after Regulatory Adjustments

WSPS Theme	WSSP Strategic Objective	Investment Case	2025 to 2029 (m)
Safety and Quality	Ensuring a Safe and Reliable Water Supply	Early-Stage Projects	€177
		Water Quality	€771
	Provide Effective Management of Wastewater	Early-Stage Projects	€170
		Wastewater Network Environmental Compliance & Sewer Flooding	€363
		Water Body Impact	€734
Safety and Quality Total			€2,216*

Table 9.1c: Safety and Quality Portfolio by Strategic Objective and Investment Case

* All figures are presented after Regulatory Adjustments

WSPS Theme	WSSP Strategic Objective	Investment Case	2025 to 2029 (m)
Sustainability	Ensuring a Safe and Reliable Water Supply	Leakage Reduction	€1,368
	Protect and Enhance the Environment	Early-Stage Projects	€29
		Sustainability	€121
Sustainability Total			€1,518*

Table 9.1d: Sustainability Portfolio by Strategic Objective and Investment Case

* All figures are presented after Regulatory Adjustments

Early-stage projects haven't been allocated to a specific Investment Case. Please refer to Section 5.5 for more details around early-stage projects.

9.2 Our Investment Outcomes

9.2.1 Quantitative Outcomes

The proposed quantitative Outcomes to be delivered by this Capital Investment Plan are shown in *Tables 9.2.1 a, b and c* below.

	Asset Type	Description	Unit of Measure	Total 2025 – 2029
Drinking Water Services	WSAG	Water Treatment Plants (New & Upgraded)	No.	163
	WSAG	Provide additional water treatment capacity	MLD	43
	WSBG	Provide additional water network capacity	km	126
	WSBG	Length of water main laid (rehabilitated)	km	663
	WSAG	Water treatment Plants with orthophosphate treatment facilities installed	No.	32
	WSBG	Number of lead services replaced	No.	31,283
	WSAG	Provide treated water storage support Security of Supply	ML	10.7
	WSAG	Rationalise water treatment plants	No.	26
	WSAG	Number of safety upgrades water storage facilities (Impounding Reservoirs)	No.	24
	WSBG	Metering replacements and new meters installed	No.	280,994
	WSBG	District Meter Area (DMA) works completed	No.	654
Drinking Water Outcomes	WSAG / WSBG	Completed works at water treatment plants to facilitate the removal from Remedial Action List (RAL)	No.	33
	WSAG / WSBG	Completed works at water treatment plants to resolve specific high risk water quality issues	No.	163
	WSAG / WSBG	Improving the capacity of the GDA supply network	MLD	28
	WSBG	Net water savings	MLD	120

Table 9.2.1a – Committed Outcomes & Outputs for RC4 Investment Plan – Water

	Asset Type	Description	Unit of Measure	Total 2025 – 2029
Improve Wastewater Services	WWAG	Wastewater treatment plants new and upgraded	No.	61
	WWAG	Provide additional wastewater treatment capacity.	No.	57
	WWBG	Provide additional wastewater network capacity	Km	112.7
	WWBG	Sewer Network Rehabilitation	km	34.1
	WWBG	Wastewater New and Upgraded Pumping Stations	No.	118
	WWBG	Drainage Area Plan (DAP) Programme	No.	8
	WWBG	Storm Water Overflows Monitoring & Assessments	No.	590
	WWAG	Major Capital Maintenance Site Refurbishments	No.	3
	WWAG	National Wastewater Sludge Management sites installed	No.	4
	WWAG / WWBG	Works completed to comply with the UWWTD and address ECJ judgement	No.	4
Wastewater Outcomes	WWAG / WWBG	Works completed at agglomerations with no treatment or preliminary treatment only	No.	11
	WWAG / WWBG	Complete works at agglomerations to facilitate removal from EPA's Priority Urban Area Action List (PAL)	No.	23
	WWAG	Complete works to comply with WWDA	No.	48
	WWAG / WWBG	Complete works to address significant pressures in third cycle River Basin Management Plan (RBMP 2022-2027)	No.	25
	WWBG	Completed works to reduce the risk of Sewer flooding	No. of Projects	17

Table 9.2.1b – Committed Outcomes & Output for RC4 Investment Plan – Wastewater

	Asset Type	Description	Unit of Measure	Total 2025 – 2029
Sustainability - Green Transition	W/WW	Energy Efficiency Improvement	GWh	25.4
	W/WW	Renewable Energy - Generation (Installed Capacity)	GWh/yr	4.7
	W/WW	Greenhouse Gas Emissions	% of Baseline year carbon emissions	49
	W/WW	Greenhouse Gas Emissions - Thermal and Transport Energy Sources	tCO2e	See Note 1
	W/WW	Biodiversity – Net Gain Across new Projects by 2030	% Net Gain from the Baseline	>0
	W/WW	Circular Economy - Construction Waste (2030)	% Recoverable Waste to Landfill	0
	W/WW	Circular Economy - Sludge (New & Upgraded)	% Sludge to Circular Economy Outlets	100
	W/WW	Nature Based Solutions	No. of Nature based solutions adopted	22
	W/WW	Climate Change Resilience	% of Projects	100%

Table 9.2.1c – Committed Outcomes & Outputs for RC4 Investment Plan – Sustainability

Note 1: Ongoing projects are being evaluated to determine progress that can be made in RC4

9.2.2 Future Outcomes

In addition to the Outcomes and Outputs discussed above, there are Outcomes from projects and programmes that will be commenced and progressed in RC4 but not completed until future regulatory periods. These are not identified as Outcomes for delivery during the RC4 period.

UÉ’s commitment to meeting customers’ needs in an economic and efficient manner continues through the delivery of cost-effective solutions and optimisation of the existing asset base. Developing and continuously improving the requirements for our asset base in the UÉ Standards and Specifications²⁰ is key to delivering the best assets for our customers.

This Capital Investment Plan sets out the proposed investments and related Outcomes and Outputs for the RC4 investment period 2025 to 2029. These investments will be delivered by projects and programmes and managed through UÉ’s Invest to Outcome governance and management processes. UÉ will undertake

²⁰ See a link to UÉ’s Standards and Specifications portal [here](#)

a process for planning the delivery of the Capital Investment Plan that validates the timelines, spending profiles, and the projected delivery of the Outcomes and Outputs associated with the investments.

The Greater Dublin Drainage (GDD) and the Water Supply Project (WSP) are critical intergenerational projects that will deliver vital water/wastewater infrastructure for the country. These two projects will have a significant impact on our delivery strategy and are being actively considered in our overall planning, particularly regarding the spend profile and acknowledging the impact on the UÉ supply chain. They will both be clearly identified and considered independently in our strategy given the high number of consenting and funding dependencies and the high level of risk to the respective schedules of the projects arising from challenge/delay.

The WSP is one of the largest and most important infrastructure projects in the history of the State and has the capacity to ensure secure sustainable water supplies for up to 50% of the population. The project proposes to abstract a maximum of 2% of the average flow of the River Shannon at Parteen Basin downstream of Lough Derg. Treated water will then be piped 170km through counties Tipperary, Offaly and Kildare to a termination point reservoir at Peamount in County Dublin, connecting into the Greater Dublin network. This essential project will provide Dublin, Meath, Kildare and Wicklow with a resilient, safe, secure water supply. It will also create a treated water supply 'spine' across the country with the capacity to serve communities along the route in Newport, Moneygall and Borrisokane in North Tipperary, Dunkerrin and Tullamore in Offaly, and Mullingar in Westmeath. In addition, supplies currently serving Dublin can be redirected back to Louth, Meath, Kildare, Carlow and Wicklow, providing security of supply to homes and businesses, which will support growth and regional development.

Currently, 1.9 million people or 40% of Ireland's population live and work in the Greater Dublin Area (GDA). According to the National Planning Framework, by 2040 it is expected that a further 450,000 people will join them. Continued population growth and increased commercial activity means the volume of wastewater generated in greater Dublin is projected to increase by more than 50% over the next 30 years.

GDD involves the construction of a new 500,000 Population Equivalent ("PE") Wastewater Treatment Plant in Clonsaugh, a 14km orbital sewer between Blanchardstown and Baldoyle and an 11km marine and land outfall pipeline discharging into marine environment off north county Dublin, between Baldoyle Bay and Ireland's Eye.

The GDD project will serve the north-west quadrant of the existing Ringsend WWTP catchment. The diversion of the load as part of the GDD project will reduce the load to the Ringsend WWTP and release network capacity to Ringsend to cater for planned growth elsewhere in the Ringsend catchment, in particular to the western catchment where there is substantial scope for development and the City Centre catchment where growth through urban regeneration and densification is occurring. This diversion of load will also enable future growth in the GDD catchment (Leixlip, Blanchardstown, Clonee, Dunboyne, Ashbourne & Ratoath). These catchments are strategic growth areas, both in terms of housing and industry.

As the Capital Investment Plan is rolled out, there will inevitably be challenges and occurrences that may impact delivery of the proposed investment during the period. During RC4, UÉ will provide an annual

Capital Investment Plan Monitoring Change Control report detailing progress and changes that may impact the Capital Investment Plan.

9.2.3 Efficiencies

UÉ has developed and implemented its investment planning and delivery structure over the course of RC3. This process has been informed by the learnings from both internal assessments (such as Project Clarity) and independent reviews by Scottish Water International (SWI). The establishment of the “Invest To Outcome” platform (see Section 9.3 for more detail) ensures that investment planning is consistently developed using uniform criteria and methodologies across the organisation. This in turn has enabled UÉ to adopt a proactive approach to process improvement and the integration of industry best practice.

In meeting customers’ needs, UÉ uses the ‘Invest to Outcome’ structure to deliver cost-effective solutions and optimise the existing asset base. Key synergies integrated and embedded within the Invest To Outcome platform include:

- The use of new technologies to promote more efficient ways of working and optimise resourcing and delivery.
- Standardising processes (design, construction and project management) and reducing costs through economies of scale.
- An efficient contracting strategy and frameworks to improve procurement timelines and quality (across works such as upgrades to multiple treatment plants, creating time and cost savings).
- Continued focus on optimising all scope items whilst still achieving the required outcome, for example through incorporating existing assets or finding alternative solutions.
- Implementation of a change management governance process to make informed decisions in a timely and efficient manner.

While investment in new assets will continue to be a key requirement in RC4 and beyond, UÉ also recognises the importance of effective capital maintenance programmes and the collection of relevant asset data. The UÉ Transformation Programme that is currently underway must effectively integrate the Water Services functions of 31 LAs. Recognising the potential for different approaches across the LAs, consistent asset data capture will be a crucial requirement for UÉ in understanding the different needs across the country. Accurate asset data is critical to enabling UÉ to assess asset condition and the risk/impact of potential failures on customers and the environment. For planned capital maintenance, UÉ has put a system in place to enable this data collection which, in turn, will support an efficient approach to investment decision making on a national basis.

In preparing the Capital Investment Plan for RC4, UÉ has completed a number of review processes to take account of evolving funding constraints. The initial draft Strategic Funding Plan (SFP) prepared by UÉ incorporated overall capital investment of €10.1bn (2022 prices). This was later revised to €8.9bn (2022 prices) in the final SFP approved by the Minister. Taking into account this constraint on available funding, UÉ has sought to maximise outcomes and outputs for customers through embedding very ambitious efficiency goals within the targets that have been set. The RC4 outcomes and outputs targets therefore deliver the best possible return for customers, balancing risk and compliance, deliverability and

maximising value for money. The current capital investment plan submission for RC4 fully aligns to the approved SFP. For clarity, the approved SFP also reflects an investment need that is net of efficiencies.

9.2.4 Investment Needs outside of RC4 Funding

Legacy underinvestment in water and wastewater services means that a significant level of investment is required to bring our services up to international standards. Updated water quality standards set by the DWD and the UWWTD will require additional significant levels of investment to reach compliance and avoid infringements. Consequently, multi-year investment will be required in UÉ across future Revenue Controls.

Additional investment requirements, such as Developer Provided Infrastructure (DPI), will be assessed as they arise. UÉ is currently progressing studies and working with officials in the DHLGH on determining the next steps. The associated incremental funding needs will be identified as part of this process and the appropriate funding solutions agreed.

UÉ will monitor all the projects and programmes in terms of achievement of performance metrics against investment levels, flag any potential impacts arising in the delivery of the plan with relevant external stakeholders, and enact change management processes as required.

9.3 Governance and Capital Investment Processes

9.3.1 Memorandum of Funding Agreement

There is a Memorandum of Funding Agreement in relation to funding provided by DHLGH to UÉ for the costs of provision of domestic water services covering the period from 1 January 2021 through to 31 December 2024. It is set in the context of a Shareholders' Expectation letter issued to UÉ in compliance with the Code of Practice for the Governance of State Bodies (August 2016).

The Memorandum includes a number of requirements which are relevant to delivery of the UÉ Capital Investment Plan:

- UÉ should ensure that robust and effective systems and procedures are in place to ensure compliance as appropriate, with the relevant principles, requirements and guidelines of the Public Spending Code (PSC).²¹
 - The Infrastructure Guidelines²² (IG) were published 21 December 2023 and replaced the PSC with effect from 1 January 2024.
- UÉ should ensure that it has regard to appropriate models for investment appraisal in the water sector and seek to apply the best practice financial and economic appraisal principles contained in the PSC.
- The requirements on Ministerial Consent are set out in Sections 1.5 and 5 of the Memorandum. UÉ requires the consent of the Minister for Housing, Local Government and Heritage given with the approval of the Minister for Public Expenditure, NDP Delivery and Reform, under section 16 of

²¹ Public Spending Code - A Guide to Evaluating, Planning and Managing Public Investment, DPER December 2019

²² Infrastructure Guidelines, Department of Public Expenditure, NDP Delivery and Reform, December 2023

the Water Services Act 2013 (as amended by section 46 of the Gas Regulation Act 2013). This is in order to enter into an annual overall level of capital commitments and separately, in the case of any individual capital commitment in respect of a project where the capital commitment exceeds €20m. Both consent processes are supported by a financial review by NewERA.

9.3.2 Infrastructure Guidelines (IG)

The IG set out the value for money guidelines for the evaluation, planning and management of public investment projects in Ireland. The IG are rooted in the need to obtain maximum value for money through disciplined evaluation, preparation and implementation of investment proposals. The guide is designed to be sufficiently detailed to aid better decision making and improved value for money; but sufficiently broad to apply to the spectrum of investment areas that make up the public capital programme. It should be noted that the IG are a living set of documents and will be updated periodically in order to reflect best practice, in particular to ensure that climate considerations are adequately incorporated²³.

Public Spending Code and Sector Specific Guidelines

The DHLGH issued the “Water Services Sector Specific Guidelines on the Public Spending Code: Management of Public Investment in Irish Water” on 19 July 2022. The guidelines were prepared by the DHLGH for UÉ as a State body under its aegis and in receipt of Exchequer funding from DHLGH. These Water Services Sector Specific Guidelines (SSG) are aimed at ensuring that DHLGH and UÉ are in compliance with the principles and guidance set out in the PSC for the management and appraisal of capital projects and programmes as appropriate.

The SSG are underpinned by the principle of ensuring the best possible value for money in public expenditure by providing for better project appraisal mechanisms, continued commercial delivery of projects, and better estimation and management of costs.

The IG refer to the assessment of affordability of Exchequer-funded projects in light of the available medium-term Exchequer capital envelopes. In the case of UÉ, it is also important to assess affordability on the basis of the UÉ capital envelope, which takes account of the CRU allowance for the Capital Investment Plan, the SFP and UÉ’s Capital Investment Portfolio. At each of the Approval Gates, project approval should be on the basis that the Investment Portfolio, inclusive of annual expenditure on the project to the next Approval Gate, can be accommodated within the UÉ capital envelope. In the case of major projects over €200m, affordability will be considered as part of a Government decision on the project.

DHLGH are updating the SSG to align with the IG and it is expected that the revised SSG will be available in 2024.

9.3.3 Aligning to Guidelines and Principles

Project Clarity

UÉ has undertaken a significant body of work to update policies, standard operating procedures, reporting, guidance, training, and other matters to address the requirements of the PSC and the SSG.

²³ Infrastructure Guidelines 2023 – Section 1.1. Scope and Purpose of this Guide

Substantial progress has been made in refining UÉ's investment planning and management processes as well as the Project Lifecycle framework, consistent with PSC principles and the SWI Review recommendations, to ensure effective governance of the identified investments.

These changes were made as part of Project Clarity, a project commenced in late 2019, to improve UÉ's processes for the planning and delivery of capital projects on water and wastewater assets, including implementation of the SWI Review recommendations.

The initial suite of changes took effect in Q1 2021 and included:

- Changes to stages and gates in the project lifecycle, including addition of gate AG2 prior to procurement of projects;
- Changes to UÉ governance structure and process, including updates to the UÉ policy document PD/03 on expenditure and contract approval; and
- Updates to products to support approval of projects at the various gates to align with the PSC.

UÉ has, as part of Project Clarity, introduced a procedure for monitoring projects over the project lifecycle. The Capital Investment governance process includes the following metrics referred to as the 6 dials:

1. Outcomes
2. Outputs
3. Cost Estimate, estimated total cost of the project
4. Schedule, date for substantial completion
5. Priority
6. Delta Opex, the change in annual operational expenditure as a result of the project.

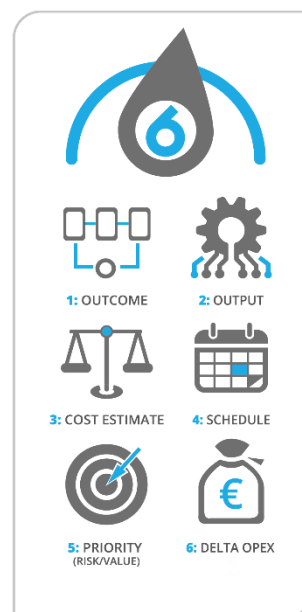


Figure 9.3.3a: The 6 Dials of Capital Investment Governance Process

The 6 dials provide the key performance indicators to measure implementation and performance of projects in respect of Outcomes and impacts. A material change in a 6 Dial performance metric results in an escalation through the Governance and Change Management process.

UÉ introduced a financial appraisal model and multi criteria analysis model for economic appraisal in 2023 as a further step in the implementation of the IG.

Invest to Outcome (I2O)

In December 2021, UÉ established an ‘Invest to Outcome Community of Practice’ to support and continuously improve these processes and deliverables from Project Clarity. UÉ uses the term Invest 2 Outcome (I2O) process to capture the combination of processes over the project lifecycle.

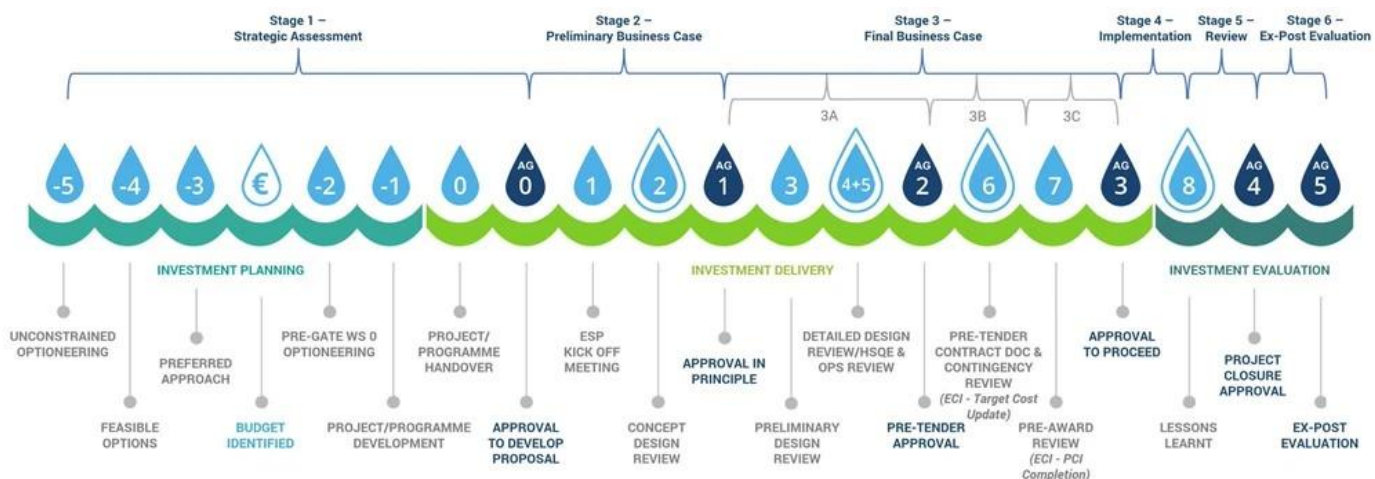


Figure 9.3.3b: Invest 2 Outcome Project Lifecycle

The I2O manual set’s out UÉ’s approach to the planning, appraisal, delivery, evaluation, and management of capital investment projects from inception to evaluation. UÉ has established Standard Operating Procedures (SOPs) and guidance documents. These include the following:

- Project/Programme Workshops Procedure;
- Project Risk Contingency Management SOP;
- Governance and change management guidance;
- Capital Investment Governance - six Dials, escalation and threshold criteria approvals guidance; and
- Cost estimating SOP.

Another area of improvement is in relation to data, focusing on the following:

- Completeness of projects and programmes information;
- Baseline position compared to actuals (allowance, expenditure etc.); and
- Tracking changes in the agreed portfolio.

Invest to Outcome Digital

Invest to Outcome Digital (I2OD) is another digital change initiative within UÉ that evolved from Project Clarity and the Invest to Outcome process. It is aimed at improving current ways of working and streamlining processes to ensure the business can all access the same, consistent, accurate data at every stage of a project lifecycle.

I2OD involves the procurement, implementation, training and support of four new software tools, covering risk, schedules, cost and contract management, governance and change management, portfolio management and financial reporting, and asset investment planning.

I2OD aims to realise:

- Clearer and more consistent processes, richer data and centralised reporting;
- Coordinated, business-wide risk management and mitigation;
- Lean processes and quality data;
- Scenario planning and portfolio optimisation of emerging needs;
- Increased accuracy of estimates and cost forecasting;
- Enhanced internal and external organisational collaboration; and
- Freeing up capability to achieve the increase in workload.

As part of I2OD, UÉ is in the process of implementing a new asset investment planning technology system. It will help UÉ to define value in a way that helps the business to make well informed decisions that deliver against strategic goals. Benefits of the system will include:

- Developing investment plans that reflect multiple strategic scenarios;
- Updating investment plans as and when priorities change;
- Using operational, financial and asset data to make informed decisions; and
- Building project estimates and calculating whole life costs using a consistent template.

The Investment Planning system will be delivered through a phased approach to allow time for growth and maturity of UE's investment planning capability and the supporting people, processes and data. Through its implementation, UÉ aims to streamline the investment planning process from development and approval to management of investments throughout the project lifecycle.

UÉ Contracting Strategy

The UÉ Contracting Strategy has been developed at various stages since 2014 (building on the contracting strategy of the Local Authorities previously responsible for water and wastewater services), reflecting the development of investment plans; increasing complexity; the market conditions prevailing and the unique asset base which UÉ is required to build, maintain and upgrade²⁴. UÉ has a wide diverse supplier base, which will support the ramp up in expenditure.

The strategies and processes used by UÉ for the procurement of projects are in compliance with national and European procurement legislation.

Third Party Review

As described in Section 2.3, in 2023 the CRU and its external consultants (HR Wallingford (HRW) and Chandler KBS) audited the implementation of all SWI Review recommendations related to UÉ's processes, systems, people, and capability involved in the identification of investment needs. In its audit report²⁵, the

²⁴ Water Services Sector Specific Guidelines

²⁵ See [here](#) for the CRU's full review of UÉ's implementation of SWI recommendations

CRU acknowledged the significant progress made by UÉ in implementing SWI's recommendations and directed UÉ to progress a 'Post HRW Review Implementation Plan'. This includes the implementation of a small number of remaining and additional SWI/HRW recommendations, mainly pertaining to UÉ's Risk Management Methodology, Asset Data Improvement Plan and Value Management. UÉ submitted a final roadmap, for implementing these further recommendations²⁶ in June 2024 and will issue a progress update report to the CRU by 31 December 2024.

UÉ has identified a number of actions based on this roadmap, the majority of which are being undertaken through the UÉ Invest to Outcome Community of Practice.

While there may be some refinement of UÉ policies, standard operating procedures, reporting, guidance, training, and other matters. to address the requirements of the IG and the revised SSG, there is a broad alignment between the current UÉ approach and the new IG.

9.4 Risks to Delivery

9.4.1 Management of Risk

Clear lines of responsibility for the management of risk are a key element of effective risk management. Within the UÉ enterprise risk management framework there is formal reporting and escalation of risks on a regular and defined basis. Project/programme risks are analysed both qualitatively and quantitatively and are recorded, reviewed and updated on a regular basis as new risks emerge, with risk registers updated and a refresh of risk controls and actions undertaken on an ongoing basis. UÉ Directorates report on a quarterly basis on key, emerging and trending and high impact/low probability risks, and escalate risks as required to the UÉ Assets & Services Risk Sub-Committee, the UÉ Risk Management Committee and the UÉ Board, as required.

For example, current key strategic risks for UÉ with the potential to impact delivery include global economic, political and social risks such as:

- the current macroeconomic and heightened geopolitical environment;
- inflation;
- resourcing challenges;
- operational and organisational transformation challenges; and
- disruption to supply chains, all of which are driving uncertainty.

These risks are being actively managed at both a project/programme level and at an enterprise level in line with the overall UÉ enterprise risk management framework. The key risks are described in further detail below.

9.4.2 Multi Annual funding

While the CRU sets a revenue allowance over a multi-year period, this may not align with UE's actual subvention income and equity, which are currently subject to the Government's annual budgetary process.

²⁶ Uisce Éireann Final Roadmap - Post-HRW Review Implementation Plan

Funding alignment to a five-year regulatory contract would allow UÉ to plan and deliver projects spanning multiple years, and to maximise capital efficiencies.

The annual allocation creates funding uncertainty from a capital delivery perspective as there is no guarantee the level of funding will be sustained year to year. It has distinct knock-on impacts on our project and planning delivery, our ability to manage statutory processes, as well as some of our key stakeholders, contractors and suppliers who have urged for greater clarity and stability in relation to funding.

Securing multi-annual certainty would:

- Allow UÉ to plan and deliver long-term critical infrastructure projects, maximise capital efficiencies, avoid delays and cost overruns;
- Facilitate statutory procurement/consultation/engagement processes by avoiding the risk of a stop/start cycle on infrastructure project delivery and supporting clear communication with communities around expected timelines;
- Provide a stable, predictable and transparent long-term income stream which would allow UÉ to secure efficiencies in areas such as multi-year contracts; and
- Give certainty to our supply chain, which has invested heavily in training and development, apprenticeships, manufacturing and machinery upgrades to support the growth of the water construction sector and avoid the redeployment of key skills and resources elsewhere.

9.4.3 Evolving Changes in Legislation

Revised Urban Wastewater Treatment Directive

The new Directive is one of the key deliverables under the EU's zero-pollution action plan. While the current Directive has proven highly effective in reducing water pollution and improving the treatment of wastewater discharges over the last three decades, this revision aims to update the Directive by extending its scope and aligning it with the European Green Deal's objectives. The new UWWTD changes include extra removal of nitrogen and phosphorus and the removal of micro-pollutants from wastewater.

The recast of the UWWTD will have an impact on investment in wastewater treatment and network infrastructure, with alterations required to the areas of investment, which will have consequential knock-on impacts on existing commitments.

The deadline for compliance with the obligation to set up collecting systems and to apply secondary treatment for those agglomerations is expected to be postponed from 2030 to 2035.

9.4.4 Resourcing Challenge

UÉ is competing in an environment where there is significant activity across all construction sectors. As a result of this, there is a high level of demand for professional staff and skilled and general operatives. In order to increase investment and associated Outputs and Outcomes to the levels required in RC4, both the external supply chain and UÉ will need to invest in their respective workforces, while managing the impact on the sector.

In a labour market where the competition is intense, attracting the necessary resources to deliver a marked increase in investment is a significant challenge.

9.4.5 Economic Conditions

The inflationary pressures experienced since the start of RC3, in particular since 2020, are well documented, with a rise in some key financial indices since 2017 as follows:

- Harmonised Index of Consumer Prices – 12% increase
- Society of Chartered Surveyors Tender Price Index – 48% increase
- CSO Wholesale Price Index for Building Materials – 37% increase

In addition to the above, construction wages have experienced a number of increases in line with Sectoral Employment Orders. In totality, UÉ considers that the impact on its cost base, based on a selection of relevant indices and measures weighted appropriately, has been 24% since 2017.

While Government has continued to provide capital funding as appropriate, achieving Outputs and Outcomes in a regulated model becomes increasingly challenging if allowances are not in line with real price effects. This often leads to significant delays where capital interventions are delayed in order to reassess options, or carry out multiple value for money assessments, following inflationary pressures. As referenced in Section 5.6, the Capital Investment Plan has been developed using the UÉ Hybrid Inflation index and therefore incorporates a projection of real price effects.

9.4.6 Planning, Legislative and Process Constraints

In delivering the projects and programmes in its Capital Investment Plan, UÉ must:

- Adhere to the requirements of the Infrastructure Guidelines;
- Comply with all Planning, Environmental and abstraction legislation;
- Put in place all necessary consents and licences before works commence; and
- Procure works, goods and services in accordance with national and European legislation.

While some of these elements can be run in parallel, many are required before key approvals can be sought or granted, thus a project's timelines can be significantly impacted. The challenges with regards to the planning legislation is significant and UÉ continues to support proposed changes in this area, with detailed submissions previously made to relevant bodies.

While planning permission is a critical step in project delivery, it is also just one of many consents required by UÉ to deliver infrastructure. The planning system overlaps with other consents including foreshore licences/Marine Area Consent (MACs), wastewater discharge authorisation and land acquisition (as set out below).

9.4.7 Statutory Consents

The complexity and uncertainty in relation to statutory approvals is a significant risk to the delivery of the Capital Investment Plan. Short, medium, and long-term plans are required to address consenting delays and uncertainty in relation to planning permission, and other overlapping consents that the planning regime interacts with including foreshore licences/ MACs, wastewater discharge authorisation, water abstraction licencing, and land acquisition. Decision making is increasingly becoming more complex as a result of environmental and overlapping legislation. Significant changes are proposed in the new Planning and Development legislation. Increased resourcing, including the provision of specialist disciplines within the consenting authorities, will be essential to the success of the planning system and the provision of critical UÉ infrastructure into the future.

The primary consenting risks are as follows:

Review of Planning Regime and UÉ Capital Investment Plan

As the national authority for water services, UÉ is responsible pursuant to the Water Services Acts 2007 to 2022 for the majority of water and wastewater services previously provided for by 31 Local Authorities.

UÉ's powers to complete its functions, particularly when it comes to Compulsory Purchase Orders, Taking in Charge (TIC), and exempted developments were not explicitly stated in the provisions of the Draft Planning and Development Bill, 2022. Through engagement in consultations with DHLGH, there have been amendments made to the Planning and Development legislation which provides UÉ with Taking in Charge powers. Exempted developments provisions will be covered in secondary legislation, however compulsory purchase order²⁷ (CPO) powers remain omitted from the Bill, although are expected to be covered in consequential amendments.

The current planning system brings significant uncertainty to project delivery programmes. Currently decision-making timelines do not prioritise strategically important state agency projects which has resulted in significant delays. Such delays and uncertainty are likely to impact the delivery of this Capital Investment Plan unless addressed as part of the ongoing planning reform.

Establishment of MARA

It is intended that the establishment of the Maritime Area Regulatory Authority (MARA) will streamline and reduce the timelines that currently exist under the foreshore licencing process. Currently foreshore licences are being prioritised for offshore renewable energy and it is yet unclear if UÉ applications will be delayed as a result under the new regime.

There is a level of uncertainty in this area, particularly in relation to transitional arrangements, interaction with the planning system, procedures, and ultimately decision-making for UÉ Marine Area Consent and licence applications. The impact on UÉ's risk landscape is still unclear.

Interaction with Other Consenting Codes

While planning permission is a critical step in project delivery, it is also just one of many consents required by UÉ to deliver infrastructure. The planning system overlaps with other consents including foreshore licences/MACs, wastewater discharge authorisation, forthcoming water abstraction licencing and land acquisition.

UÉ is required to engage with multiple legislative regimes and multiple consenting authorities when obtaining consent for upgrades and the provision of new infrastructure to accommodate growth. Currently statutory consents, whether they are environmental, development/planning, foreshore/maritime, compulsory purchase orders or abstraction related, are most often required to be applied for and considered by the applicable consenting authority sequentially as opposed to concurrently. This requires the consenting authority to enter into separate independent processes, each of which is subject to its own timelines, delays and the potential for judicial review of each decision. Notwithstanding current statutory powers enshrined in legislation, given the complexity of the planning regime and interactions with other consenting processes, it often takes statutory undertakers multiple years to obtain appropriate consents to undertake relatively routine upgrade or maintenance works.

²⁷ A CPO is a legal function in the UK and Ireland that allows certain bodies to obtain land or property without the consent of the owner.

Significant risk to delivery timelines exists until such amendments are made to streamline overlapping consents.

Impact on Opex Costs

Capital Investment in infrastructure will also drive growth in operational expenditure, to operate and maintain the assets. This is forecast as an incremental opex of circa 1.5% - 2.5% of the capital expenditure and is in addition to any opex increases driven by population growth or enhanced compliance standards.

Summary

As outlined above, UÉ faces a number of clear challenges in the delivery of this Capital Investment Plan. UÉ will closely monitor progress over the period and will keep stakeholders informed of any necessary adjustments through established governance and change control mechanisms.

10. Submission to the CRU

UÉ was established in 2014 to take on the challenge of reforming how Ireland’s water and wastewater services are delivered. Over the course of IRC1, IRC2 and RC3, much progress has been made. By the end of 2024 (end of RC3 period), we will have already delivered investment of circa €8.1bn (stated in 2022 prices) in water and wastewater services. UÉ is continuing to make savings in our cost base, bringing a national utility approach to effectively and efficiently deliver water and wastewater services.

The repair and upgrading of the country’s WTPs and WWTPs, and water and sewer networks, will require a multi-billion-euro investment programme that will extend beyond the lifetime of this plan. Initial estimates indicate that, in the period to 2050, a capital investment of circa €55-60 billion (2022 prices) will be required to address the currently known needs and risks to water and wastewater service delivery to the standards that are currently required. This is capital investment that will increase capacity, reduce leakage, improve resilience, facilitate economic growth, support the delivery of housing and achieve greater compliance with water and wastewater standards. In the absence of this level of sustained investment there will be risks to service delivery and associated pressures on operational expenditure to maintain service levels.

This Capital Investment Plan has been aligned to the Government’s three policy objectives of Availability and Reliability, Safety & Quality and Sustainability and as set out in the WSPS. The projected investment by Theme is shown below in *Figure 10*.

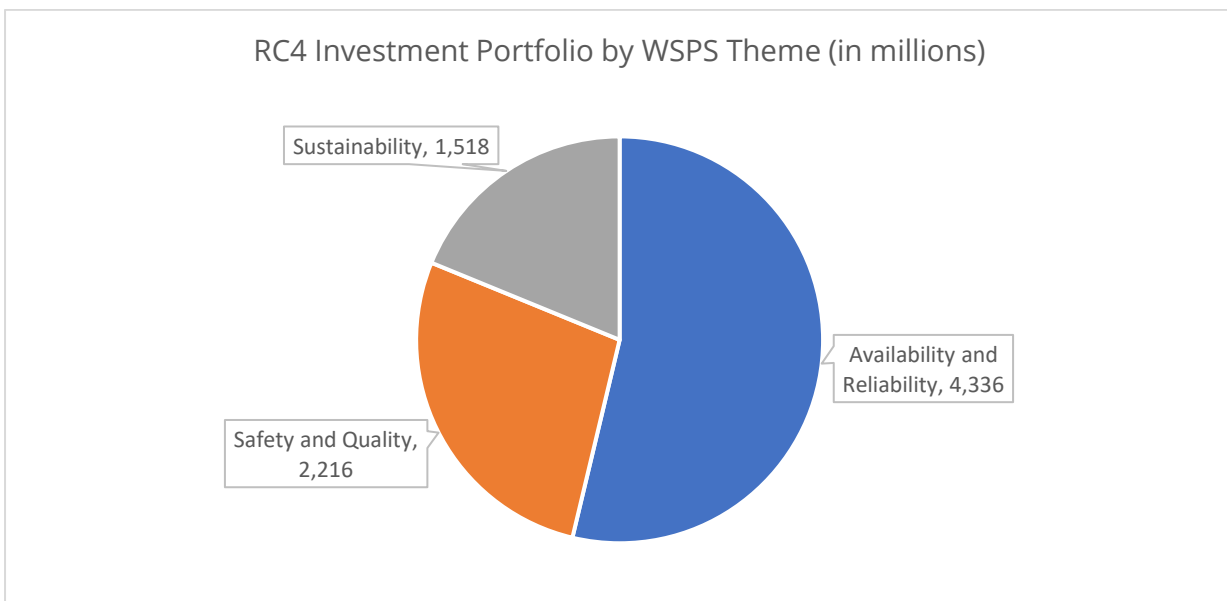


Figure 10 – Investment Portfolio by WSPS Themes (2022 prices)

The Investment Portfolio presented in this plan is deliverable, operable and reflects the priorities of our stakeholders and consumers to the greatest extent possible, within funding constraints.

By investing €8.1bn in the RC4 period, UÉ will greatly improve Ireland’s drinking water and wastewater services, helping to meet consumer needs in an effective and efficient manner, and progressing the Government’s policy objectives.

11. Appendix 1: Glossary of Terms and Abbreviations

Glossary of Terms

Term	Description
Abstraction	The removal of water from a river, lake, or groundwater usually with the use of a pump.
Asset	Infrastructure (e.g., treatment plants) and equipment (e.g., pumps, screens, treatment units, disinfection systems and control panels) controlled and operated by UÉ to deliver drinking water and wastewater services. We divide these into Below Ground Assets such as pipework and valves and Above Ground Assets such as treatment plants.
Capital Investment	Investment made into assets by an organisation in the pursuit of its objectives.
Capital Maintenance	Investment associated with replacing assets on a like for like basis to maintain existing service levels.
Catchment	The area of land where surface water from rainfall converges to a single point at a lower elevation, usually a point in a river, lake, or an estuary. The catchment includes all drainage channels, tributaries (smaller streams) and floodplains.
Discharge	Treated effluent from a wastewater treatment plant which is returned to the water environment. This is usually from a pipe and outflow structure into a river or the sea.
Drainage Area Plan	A detailed plan for a drainage catchment that prioritises a list of interventions based on risk using an approach established in the Sewerage Rehabilitation Manual.
Drinking Water Regulations	S.I. No. 99/2023 - European Union (Drinking Water) Regulations 2023. These regulations, published on 10 March give effect to the Drinking Water Directive (EU Directive 2020/2184).
European Directive	A legal act of the European Union which requires member states to achieve a particular result. Examples are the Drinking Water Regulations, Urban Wastewater Treatment Directive, and the Water Framework Directive.
Groundwater	Water located beneath the ground surface in soil and rock pore spaces and fractures within rock formations.
Headroom	Spare capacity in water and wastewater infrastructure (treatment plants and networks) to cope with adverse weather conditions or unplanned incidents such as a break in a trunk main or equipment failures at a treatment plant.
Intervention	Actions that will directly or indirectly reduce risk to service delivery and may include projects or programmes to build new assets, capital maintenance of existing assets, operational and process changes, or investigative works to

	provide the evidence or information on appropriate solutions to reduce risk to service.
Interim Revenue Control 2 (IRC2)	The second interim review of UÉ allowed revenues by CER (now CRU), initially covering the two-year period from 2017 to 2018. The CRU extended the Revenue Control (IRC2) period by one year to cover the three-year period from 2017 to 2019. [Reference CRU Information Paper CRU/17/332].
Investment Plan	An investment plan shall set out and particularise the investment in drinking water and wastewater services infrastructure that UÉ considers necessary for the effective performance by it of its functions.
Maintenance	The action or process of continuing to preserve the condition of an asset.
Network	The interconnection of pipes and pumping stations used for the distribution of treated water and the collection of wastewater.
Portfolio	A set of programmes or projects grouped under a common theme and used as a basis for building up of the Investment Plan, summarising costs and for reporting on the execution of the Investment Plan.
Resilience	The ability of a system (e.g., water supply zone or wastewater network) to cope with change or stress. In a drinking water and wastewater services context stress to the system or network could result from increased demand, partial failure of operating plant, climate change or local contamination of water sources.
Revenue Control 3 (RC3)	The third Revenue Control period for UÉ allowed revenues by CRU from January 2020 (for a five-year period).
Revenue Control 4 (RC4)	The fourth Revenue Control period for UÉ allowed revenues by CRU from January 2025 (for a five-year period).
Water Body	A defined section of river, lake or groundwater identified in the water body characterisation of the River Basin Management Plans developed under the Water Framework Directive.
Water Supply Zone	The area supplied by an individual water supply scheme. This typically includes one or more abstractions (from a river, lake, or groundwater), a treatment plant, storage in reservoirs and the distribution pipe network to deliver the water to each household or business.

Abbreviations

Abbreviation	Description
AA	Appropriate Assessment
BAP	Biodiversity Action Plan
BWN	Boiled Water Notice
CAPEX	Capital Expenditure
CAP24	Climate Action Plan 2024
CER	The Commission for Energy Regulation (changed its name to the Commission for Regulation of Utilities on 2 October 2017)
CFC	Coagulation, Flocculation and Clarification
CIP	Capital Investment Plan
CRU	The Commission for Regulation of Utilities
DAP	Drainage Area Plan
DBP	Disinfection by-product
DECLG	Department of Environment, Community and Local Government (renamed as Department of Housing, Planning, Community and Local Government with effect from 23 rd July 2016)
DHLGH	Department of Housing, Local Government and Heritage
DHPCLG	Department of Housing, Planning, Community and Local Government (renamed as Department of Housing, Planning and Local Government with effect from 1 st August 2017)
DHPLG	Department of Housing, Planning and Local Government (renamed as Department of Housing, Local Government and Heritage with effect from 30 th September 2020)
DMA	District Metering Area
DNC	Do Not Consume
DWD	Drinking Water Directive
DWSP	Drinking Water Safety Plan

ECJ	Court of Justice of the European Union
ELV	Emission Limit Value
EPA	Environmental Protection Agency
GDD	Greater Dublin Drainage
HWR	HR Wallingford
IRC1	Interim Revenue Control 1 (2014-2016)
IRC2	Interim Revenue Control 2 (2017-2019)
IWSS	Inlet Works, Storm and Sludge
LDWMP	Lead in Drinking Water Mitigation Plan
LIHAF	Local Infrastructure Housing Activation Fund
MLD	Million Litres per Day
MUHDS	Major Urban Housing Development Sites
NDP	National Development Plan
NPF	National Planning Framework
NWRP	National Water Resources Plan
NWSMP	National Wastewater Sludge Management Plan
OPEX	Operational Expenditure
PAL	Priority Action List
PE	Population Equivalent
RBMP	River Basin Management Plan
RC3	Revenue Control Period 3 (2020-2024)
RC4	Revenue Control Period 4 (2025-2029)
RSES	Regional Spatial and Economic Strategy
RWRP	Regional Water Resources Plan

SDZ	Strategic Development Zone
SEA	Strategic Environmental Assessment
SFP	Strategic Funding Plan
SWI	Scottish Water International
SWIR	Scottish Water International Review Recommendations
SWO	Stormwater Overflow
THM	Trihalomethane
UDZ	Urban Development Zone
UoM	Unit of Measure
UWWTD	Urban Wastewater Treatment Directive
UÉ	Uisce Éireann
UÉT	UÉ Transformation Programme
UV	Ultraviolet
WB	Water Body
WFD	Water Framework Directive
WHO	World Health Organisation
WSP	Water Supply Project
WSPS	Water Services Policy Statement
WSSP	Water Services Strategic Plan
WTP	Water Treatment Plant
WTW	Water Treatment Works
WW	Wastewater
WWBG	Wastewater Below Ground
WWDA	Wastewater Discharge Authorisations

WWDL	Wastewater Discharge Licence
WWPS	Wastewater Pump Station
WWTP	Wastewater Treatment Plant

12. Appendix 2: Supporting Growth and Economic Development

Introduction

Investment in water services is a key factor in enabling proper planning and sustainable development in physical and economic terms and in national, regional, and local contexts. UÉ is proposing to invest in a range of projects and programmes that will support growth and development at national, regional, and local levels.

UÉ will continue to play a key role in implementing Project Ireland 2040 (published 2018) which incorporates the NPF and the NDP.

UÉ supports on-going work in developing and supporting the implementation of subsidiary level strategies including the RSES, Metropolitan Area Spatial Plans and ongoing reviews of City / County Development Plans and Local Area Plans.

UÉ has an extremely proactive stakeholder engagement process providing detailed assessment and information which supports the development of the statutory plan making process at national, regional, and local levels.

Basis of Population Projections

Initial preparatory work for the Capital Investment Plan has been developed based on population projections as set out in the NPF and the NPF Implementation Roadmap up to 2040 as well as the Regional Spatial and Economic Strategies (North-West, South, East and Midland Regions) and associated Metropolitan Area Strategic Plans.

The core strategies published by Local Authorities in their City and County Development Plans and approved by the Office of the Planning Regulator, are used to inform UÉ growth estimates in the designated settlements. Population estimates are continuously reviewed to ensure consistency with the plans as they are drafted, amended, adopted, and varied.

The purpose of the Core Strategy is to articulate a medium to longer term quantitatively based strategy for the spatial development of the area of the planning authority. In doing so it will demonstrate that the development plan and its objectives are consistent with national and regional development objectives set out in the NPF and RSEs. This includes the hierarchy and role of Cities and metropolitan areas, Regional Growth Centres, Key Towns, other towns and villages and rural areas and the process of giving effect to this hierarchy by setting regional and national population targets and associated requirements for housing land.

The core strategy tables and projections for future growth, based upon these tables, will be validated during the RC4 period, and developed through the publication of the outputs of the 2022 Census Data by the CSO.

Growth capacity in cities, regional growth centres and key towns

UÉ supports the National Strategic Outcomes objectives and uses the settlement hierarchy as set out in the NPF as the first step to prioritising investment. These priorities are identified as UÉ will strive to ensure that the five cities and five regional centres will have the water supply and wastewater treatment capacity to allow them to grow. This will be done in line with the ambitions as set out in the NPF and RSES, as well as supporting the overall government objective of securing compact sustainable growth.

While each region is distinct, they do not operate in isolation from each other and there are many complementing and connecting assets shared between regions. Due to the strategic national and regional nature of some development proposals, a consistent policy approach to regional and economic planning will also be important. In addition, UÉ will also strive to ensure that the key towns identified in the RSEs will have available water supply and wastewater treatment capacity to allow them to grow.

One of the key initiatives by UÉ to support growth in accordance with the NPF, RSES and County Development Plans is the NWRP. The NWRP identifies how we will provide a safe, sustainable, secure, and reliable water supply to our customers for now and into the future whilst safeguarding the environment. The NWRP sets out how we will balance the supply and demand for drinking water over the short, medium, and long term. It is a 25-year strategy to ensure we have a safe, sustainable, secure, and reliable drinking water supply for everyone.

A three-pillar approach has been used in the NWRP:

1. Lose Less - leakage reduction and network efficiency
2. Use Less - water conservation measures
3. Supply smarter – sustainable supplies.

As this is the first NWRP, the preparation of the plan has been divided into two distinct phases. Phase 1 was carried out in 2021 and the NWRP Framework has been adopted. In Phase 2 of the NWRP, we summarised the needs across the 539 individual water supplies and identified the solutions to address these needs. Due to the large number of supplies in Ireland, we delivered Phase 2 as four Regional Water Resources Plans:

- [Regional Water Resources Plan: North West \(RWRP NW\)](#)
- [Regional Water Resources Plan: South West \(RWRP SW\)](#)
- [Regional Water Resources Plan: South East \(RWRP SE\)](#)
- [Regional Water Resources Plan: Eastern and Midlands \(RWRP EM\)](#)

Each of the four draft RWRPs and associated environmental reports had their own public consultation phases over the course of 2021, 2022 and 2023 and have since been adopted by UÉ.

Water and wastewater treatment upgrade projects included in the Capital Investment Plan will include provision for growth. This will typically involve providing for standard design horizons, together with target headroom to cater for growth and projected forward to the appropriate period associated with the design requirements of the project in question.

For the Greater Dublin Area to meet the ongoing demands to facilitate social, domestic, and economic growth, a significant additional supply of water to the region is required. Additional wastewater treatment capacity is also required to meet the wastewater social, domestic, and economic growth needs of the region in the medium term and the requirements of the UWWTD.

The draft 3rd Cycle of the RBMP highlights the need for a sustained high level of investment in wastewater infrastructure as a key action for delivering the increased level of ambition associated with the RBMP.

Supporting Government Initiatives

The NDP 2021 to 2030 sets out the government investment supports for long-term, sustainable economic growth that benefits every region, town, and city across Ireland. The NDP sets out the importance that this investment supports the realisation of Ireland's climate ambitions and growth targets. It also sets out that investment must be well-planned, well targeted, and well-managed to ensure that the development plan is fit for purpose, robust and responsive to current and future needs.

UÉ welcomes all government initiatives and particularly supports the delivery of housing through its Capital Investment Plan and proactive engagement and support of the Housing for All (2021) Government initiative. This is the principal Government initiative to progress housing delivery nationally. UÉ will continue to support the Local Infrastructure Housing Activation Fund (LIHAF) and Major Urban Housing Delivery (MUHDS) schemes. UÉ welcomes initiatives such as these which support social, domestic, and economic growth and complement wider public policy as set out in the NPF in relation to securing compact urban development.

Should any changes to our Capital Investment Plan be required to facilitate new or additional Government initiatives which may be introduced post publication of the Revenue Control, we will agree these changes with the DHLGH and the CRU through established governance and change control mechanisms.

Providing for growth through planning our water and wastewater networks

UÉ is supporting growth through the completion of Network Infrastructure Plans and DAPs. DAPs are also key in providing a more detailed assessment of our wastewater networks and UÉ will continue to progress these assessments in future.

These will identify where we have capacity constraints and how we can extend and reinforce our networks in the future, to service areas of greatest need. In this way we can ensure that areas zoned for economic, domestic, and social growth, including Strategic Development Zones, Urban Development Zones, and Large Residential Developments, can be serviced by water and wastewater through plan-led investment over a long-term horizon.

UÉ is progressing these plans and assessments currently for the five cities, five regional centres, key towns as identified in the NPF, as well as other settlements, as appropriate.

Supporting growth through Water Network Reinforcement

One of the key pillars of the NWRP is the Lose Less pillar. Planned leakage reduction targets proposed by UÉ, and supported through the Capital Investment Plan, will be prioritised to ensure, as far as possible, that growth capacity in water supply is available in the five cities and five regional centres identified in the NPF, together with the key towns identified in the Regional Economic and Spatial Strategies and Metropolitan Areas Spatial Plans. UÉ will also prioritise leakage reduction to support towns currently experiencing high growth.

Supporting growth through reduction in contributing surface water

UÉ encourages the promotion of objectives on the use of Sustainable Urban Drainage Systems and Green-Blue Infrastructure in new developments including the public realm and retrofitted in existing developed areas, in line with NPO 57 of the NPF. These measures can provide a cost effective and sustainable means of managing stormwater and water pollution at source, keeping surface water out of combined sewers

(thus increasing capacity for foul drainage from new developments), while providing multiple benefits e.g., improved air quality, amenity, noise reduction.

The recently published DHLGH guidance note on Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas - Best Practice Interim Guidance Document promotes the removal of stormwater from combined sewers using nature-based sustainable drainage solutions, which is strongly encouraged to free up capacity for future development.

Strategic Network Reinforcement and Extensions

Strategic Network Reinforcement and Extension projects needed in the RC4 period will provide for growth capacity, as well as addressing environmental compliance drivers (wastewater) and providing security of supply (water supply). These strategic reinforcements will be focused in areas where the greatest level of growth has been identified to occur, taking account of the NPF and RSES settlement hierarchies.

Developer Driven Infrastructure

Where a developer is funding infrastructure to connect their development to UÉ networks, which may include network extensions and local network reinforcement, UÉ may decide to up-size the assets where it is prudent to do so. All newly/modified connecting customers will be required to enter into a connection agreement in line with UÉ's [Connection Charging Policy](#).

Supporting growth through working together with Local Authorities

In situations where Local Authorities are engaged in infrastructure projects in areas like housing, regeneration, transport or other similar areas, a co-ordinated / synergised approach, subject to appropriate criteria, may be put in place in relevant cases between UÉ and the Local Authority. This will help achieve value for money for the taxpayer in the provision of infrastructure to provide for future growth capacity.

Small Towns and Villages Growth Programme

The Small Towns & Villages Growth Programme supports a number of the National Policy Objectives and National Strategic Outcomes under the NPF (e.g., development of a new rural settlement investment approach under National Strategic Outcome 9 of the NPF). The Small Towns & Villages Growth Programme is providing WWTP and WTW growth capacity in smaller settlements which would not otherwise be provided for in the Capital Investment Plan.

The Programme is limited to settlements already served by UÉ infrastructure. Initially launched under RC3, the programme will continue into future investment periods, primarily focusing on smaller settlements with WWTP capacity deficits. We are working in collaboration with Local Authorities across the country in ensuring that the investment is made appropriately in accordance with the relevant county development plan.

Using Data to inform our long-term investment planning

A key requirement of any modern utility is the ability to identify demand locations and determine the impact of that demand on its infrastructure through various differing future scenarios which may arise. UÉ is acutely aware of this need and has initiated a Demand Analysis Capability project as part of the Demand Management Strategy and the Demand Analysis Capability.

Demand Analysis assesses the current and future water and wastewater requirements within a specific area, region or community. Growth Analysis examines the operational asset base and needs, for enhancement, expansion and development of water and wastewater systems. The WSSP and Housing for All are drivers for improving the Demand Analysis Capability. Through a cycle of continuous improvement in the confidence grade of the data required for these analyses, we can permit growth by ensuring delivery of additional infrastructure capacity in the required locations.

The ultimate outcome of the Demand Analysis project is to become more strategic when planning infrastructure to accommodate anticipated growth and development.

The key considerations in these analyses are Population Growth; Urbanisation; Industrial and Commercial Growth; Environmental Factors; and Infrastructure Expansion.

UÉ will be collating available data to inform our capacity assessments and spatially represent the Outcomes on our Geographic Information System. This will need to consider the spatially represented zoned lands to inform infrastructure upgrades into the future and will be utilised to inform future Revenue Control proposals.

A number of outputs will result from an increase in the confidence grade of the data:

- Accurate Offer & Connection Status;
- Accurate Infrastructure Capacity Assessments;
- Timely and Accurate GDA WSZ Water Balance;
- Robust Capacity Register/ New Connection Reconciliation; and
- Accounting for Population Growth Across Planning Horizons.

13. Appendix 3A: Stakeholder Engagement- Phase 1

This appendix shows the feedback received from stakeholder engagement and the UÉ response to that feedback.

Stakeholder Engagement Feedback from Phase 1

This section summarises the key themes raised by statutory stakeholders during the Phase 1 Consultation in advance of preparing the Draft Capital Investment Plan 2025 to 2029, as well as UÉ's response.

UÉ consulted with the EPA, the three Regional Assemblies and 31 Local Authorities over four weeks from 11th April to 5th May 2023 and received 17 submissions.

Overall, respondents welcomed the opportunity to engage in the consultation process and make a submission on the preparation of the Draft Capital Investment Plan 2025 to 2029. UÉ would like to thank all of those who engaged with us during this statutory consultation.

While stakeholders were able to submit feedback on any aspect of the report during the Phase 1 Consultation, two specific feedback questions were asked in order to help guide and focus submissions. These questions were:

- Section 5 sets out the investment cases we want to address in this Investment Plan, do you have any comments or suggestions on these?
- Do you have any comments on the strategy for future engagement on the Investment Plan (Section 3.3)?

All feedback from respondents was considered in the development of the Draft Capital Investment Plan 2025 to 2029, including feedback that was not related to the questions above. Summaries of the responses to these two questions are set out below as well as a response from UÉ.

Question 1: Section 5 sets out the investment cases we want to address in this Investment Plan, do you have any comments or suggestions on these?

In general, the investment cases were well received, and stakeholders appreciated the links to the WSSP and WSPS. There was some concern about the investment cases being viewed in isolation instead of as a group and that synergies between investment cases may be overlooked. Furthermore, many statutory consultees were keen to see how the investment cases incorporated and aligned with their county or local development plans.

UÉ welcomes the engagement from consultees and appreciates feedback on the investment cases. Where recommendations for investment in specific locations or assets are mentioned in a consultee's submission, UÉ considered these in line with the investment planning methodology and informed decision-making activity outlined in Section 4 of this document.

In terms of the individual investment cases:

Drinking Water Quality Investment Case

Consultee Feedback

Consultees welcomed investment in drinking water quality and recognised the importance for public health and safety. There were particular concerns around pollutants and contaminants, including emerging contaminants, that stakeholders were looking to be addressed in the investment plan.

Furthermore, there were concerns around lack of clarity of the approach that UÉ will take to abstraction, specifically the impact on ecology, the environment and catchments.

Consultees were content with the risk-based solution but were looking for a more proactive approach to drinking water quality.

It was felt that the methodology did not provide enough information on how data will be used to develop the investment plan, in particular, how investments will be selected.

UÉ Response

UÉ has incorporated appropriate feedback into the Drinking Water Quality Investment Case. Where emerging policy, such as the that relating to abstraction, is referenced in submissions, this is addressed in Section 2.5 of this Capital Investment Plan 2025 to 2029.

The elements of this Capital Investment Plan which will focus on Drinking Water Quality will use a risk-based approach to determine the water supplies which face the highest risk of microbiological and chemical contamination including the risk posed by pollutants and contaminants. This proactive approach will use data to determine the level of risk associated with a water supply and prioritise investment in accordance with that level of risk.

The risk posed from pesticides is covered within UÉ's Pesticides Strategy. This strategy seeks a catchment management approach to the risk posed from pesticides.

The risk posed by emerging contaminants is covered within the requirements of the new European Union (Drinking Water) Regulations; Statutory Instrument No. 99 of 2023. Introduced in January 2023, these regulations will take some time to be fully understood. It is not possible at this stage to determine what impact the RC4 Capital Investment Plan will have in relation to emerging contaminants until this risk is fully understood.

Overall, the determination of risk across all the Water Supply Above Ground assets is the foundation for determining the level of investment required across these assets. The risk rating is applied to the operation and condition of these assets. This is combined with any relevant historic data and a risk score applied. The Capital Investment Plan prioritises drinking water risk and resilience as the highest priority.

Section 3.7 of the previously published UÉ "National Water Resources Plan – Framework Plan 2021", sets out UÉ's commitment to water abstraction and to ecological, environmental and catchments issues. New legislation in the form of the "Water Environment (Abstraction and Associated Impoundments) Act 2022 was introduced in 2023. This will provide for the regulation of water abstractions and their associated impoundments, and for the licensing of abstractions going forward.

Treated Wastewater Investment Case

Consultee Feedback

Consultees welcomed investment in treated wastewater and recognised the legacies of underinvestment in this area. Concerns centred around compliance and growth. Consultees shared a view that a focus on compliance is insufficient to protect and enhance the environment and to meet growth needs.

There were concerns around existing non-compliance and where this may be exacerbated as standards develop. Concerns around wastewater quality checks, raw sewerage discharge and WWTP non-compliance were also raised.

For growth, consultees commented that growth plans were limited typically by the UÉ existing overstretched wastewater infrastructure. A lack of clarity around developer/ UÉ responsibilities in new developments was also noted.

Communication and collaboration with other public bodies was encouraged to aid resolution of complex interdependent issues in treated wastewater.

UÉ Response

UÉ has incorporated appropriate feedback into the Treated Wastewater Investment Case and other relevant investment cases, such as the Water Body Impact Investment Case and the Treatment Capacity for Growth Investment Case. As referenced in the Draft Capital Investment Plan, several investment cycles are required to resolve some issues raised by consultee submissions.

Water Body Impact Investment Case

Consultee Feedback

Consultees welcome investment in the protection and enhancement of water bodies in Ireland. Predominant concerns regarded discharge locations and their consequential impacts. The interaction with the River Basin Management Plan, Water Framework Directive and Drainage Area Plans was acknowledged by several consultees.

UÉ Response

UÉ has incorporated appropriate feedback into the Water Body Impact Investment Case and has recognised the interaction between relevant plans in the development of this investment case.

Leakage Investment Case

Consultee Feedback

Consultees welcomed investment in leakage and considered this to be a significant issue in the security of water supply. There were concerns from both rural and urban areas that the rate of mains replacement does not match the future needs and, therefore, main replacement should be conducted alongside other activities in order to save time and cost.

UÉ Response

UÉ has incorporated appropriate feedback into the Leakage Investment Case. UÉ has identified the need to rehabilitate its water network and has prioritised this programme of works accordingly. Prioritisation will be based on burst frequency, interruptions to supply for customers and water quality issues.

Sustainability Investment Case

Consultee Feedback

Consultees welcomed investment in sustainability and noted the alignment with their own priorities in many cases. A particular concern was ensuring that environmental risk is considered in all investment decisions. Some consultees also recognised the challenges involved and outlined their own approaches to different elements of sustainability.

UÉ Response

UÉ's sustainability strategy is based on meeting targets, for net zero carbon resilient water services, zero recoverable waste to landfill, energy efficiency and self-generation. Sustainability must ensure that UÉ contributes to the development of the full range of environmental protection and enhancement policy and regulatory requirements. Plans and projects should minimise environmental impacts, including having sustainable abstraction. This will support the objectives of the RBMP and achievement of UÉ's biodiversity obligations and support the need for long term environmental resilience in water resource planning. In UÉ the three sustainability pillars embedded into the approach are social, economic, and environmental. Therefore, environmental risk will continue to be considered in all planning activities. For example, renewable installations require several environmental risk assessments for statutory planning requirements. UÉ also welcomes alternative approaches that may have a positive result.

Water Quantity Investment Case

Consultee Feedback

Consultees welcomed investment in water quantity. Consultees recognised the importance of water quantity and highlighted interconnectivity of water supplies for greater resilience.

UÉ Response

UÉ has incorporated appropriate feedback into the Water Quantity Investment Case and has covered the rationalisation of water networks in this investment case.

Sewer Flooding Investment Case

Consultee Feedback

Consultees welcomed investment in sewer flooding and considered this an increasingly significant issue as the pressures of climate change impact the wastewater network. The significant health and environmental impacts of sewer flooding were noted alongside existing non-compliance issues in storm water overflows and issues with infiltration.

UÉ Response

UÉ has incorporated appropriate feedback into the Sewer Flooding Investment Case. The management of sewer flooding focuses on managing flood risk to acceptable service levels to protect the public, property, infrastructure and the environment. The Infiltration and Inflow Reduction Programme is a programme under Asset and Service Resilience that will continue and expand in the RC4 period. The objective of the programme is to reduce groundwater leaking into sewers and manholes (infiltration to deliver Outcomes such as reducing impact on waterbodies from storm water overflows (SWOs) (located at WWTPs and on wastewater networks), thereby reducing energy and operational costs and providing capacity for growth.

Treatment Capacity for Growth Investment Case

Consultee Feedback

Consultees welcomed investment in treatment capacity for growth. In particular, consultees noted that a lack of treatment capacities and infrastructure deficiencies in rural areas had been limiting or preventing growth and this may have significant knock-on social and economic impacts. The wastewater treatment capacity register was noted as a useful tool.

UÉ Response

UÉ has incorporated appropriate feedback into the Treatment Capacity for Growth Investment Case. A number of investment cycles will be required to resolve some issues raised by consultees' submissions. UÉ investment plans remain aligned with the remit of the organisation in terms of infrastructure for growth.

Network Capacity for Growth Investment Case

Consultee Feedback

Consultees welcomed investment in network capacity for growth, noting that a lack of network capacity and infrastructure deficiencies in rural areas had been limiting or preventing growth, with potential significant knock-on social and economic impacts.

Future population and economic growth capability was a key theme in responses, with development thresholds for national infrastructure and impacts on development planning processes being mentioned.

Furthermore, the capacity of existing infrastructure to accommodate the pressure of climate change, as well as growth, was questioned, highlighting the need for considerable investment in, and expansion of, existing network infrastructure.

UÉ Response

UÉ has incorporated appropriate feedback into the Network Capacity for Growth Investment Case. UÉ's Capital Investment Plan identifies the requirement to support the Housing for All programme in its Growth & Development programme of works. Additional new watermains which will be delivered during RC4 will support the delivery of new housing units.

Service Resilience (Water) Investment Case

Consultee Feedback

Consultees welcomed investment in service resilience for water. There were particular concerns around treated water storage for extreme events and the water network in terms of pipe materials and condition. Good asset management of the network was generally considered to be the required approach alongside managing continuous risk of supplier availability and capability.

UÉ Response

UÉ has incorporated appropriate feedback into the Service Resilience (Water) Investment Case. UÉ has incorporated a service risk approach to the development of its Capital Investment Plan. Asset & Service needs were considered in parallel with an understanding of constraints (deliverability, funding, statutory approval). UÉ follows best Institute of Asset Management methodology for asset management.

Service Resilience (Wastewater) Investment Case

Consultee Feedback

Investment in wastewater service resilience was welcomed but there were concerns that investment would not keep pace with growth in certain areas.

UÉ Response

UÉ has incorporated appropriate feedback into the Service Resilience (Wastewater) Investment Case. Information on the informed decision-making element of the Capital Investment Plan can be found in Section 4 of this document. The growth-related elements of consultee submissions were reviewed as part of the Treatment Capacity for Growth and Network Capacity for Growth Investment Cases.

Question 2: Do you have any comments on the strategy for future engagement on the Investment Plan?

In summary, most statutory consultees who responded to the Phase 1 consultation expressed a keen interest in continuing to be involved in the development of the Capital Investment Plan 2025 to 2029 through the Phase 2 consultation. A small number of submissions requested that the Phase 2 consultation period be longer than the 4 weeks allocated for the Phase 1 consultation noting that there were other concurrent UÉ public consultations planned.

UÉ Response

UÉ welcomed the engagement from consultees and appreciates interest in further engagement on the development of the Capital Investment Plan 2025 to 2029. UÉ endeavours to allow consultees sufficient time to respond, balanced with time constraints on finalisation of the plan. UÉ provided 6 weeks for the Phase 2 consultation period.

14. Appendix 3B: Stakeholder Engagement Phase 2

Stakeholder Engagement Feedback from Phase 2

In this second phase of consultation, UÉ consulted with a broader range of 66 stakeholders, including statutory, regulatory and interested stakeholders. Consultees were asked for suggestions on the following four questions.

- Investment cases related to the Quality theme can be found in Section 5 (current Section 6). Do you have any comments or suggestions on these?
- Investment cases related to the Conservation theme can be found in Section 6 (current Section 7). Do you have any comments or suggestions on these?
- Investment cases related to the Future Proofing theme can be found in Section 7 (current Section 8). Do you have any comments or suggestions on these?
- A Draft Investment Portfolio is provided in Section 8. Do you have any comments or suggestions as to the make-up and balance of the funding allocation for each WSPS Theme and WSSP strategic objective?

Additionally, UÉ held a series of workshops and briefing sessions with the statutory consultees.

Overall, respondents once again welcomed the opportunity to engage in the consultation process and make a submission on the preparation of the Capital Investment Plan. UÉ would like to thank all of those who engaged during this consultation phase.

The range of comments back was extensive, with many naturally focusing on the particular area, location or project of direct interest. The engagement provided valuable feedback on the proposed Capital Investment Plan and areas where more explicit information could be included were noted and acted upon. UÉ reviewed and considered all the feedback provided by consultees and, for the purposes of summarising this feedback, it was grouped under investment cases.

A summary overview of the feedback is set out below, along with UÉ's responses. Additionally, two general themes of collaboration and the level of detail to be shown in Appendix 4 emerged, and these are referenced later in this appendix.

Drinking Water Quality Investment Case

Key Thematic Feedback

A number of consultees noted that there appeared to be little discussion on emerging pollutants such as PFAS²⁸ and micro-plastics and expressed a desire for greater communication in line with the requirements of the EU Recast Drinking Water Directive and sought greater use of open-source information on available water supply services to build greater trust with UÉ.

Consultees also suggested greater effort to protect water supply and in particular highlighted continued lead and iron issues.

²⁸ Means perfluoroalkyl and polyfluoroalkyl substances. A large and complex group of synthetic chemicals used in consumer products.

UÉ Response

The UÉ Drinking Water Safety Plan – Source Risk Assessments consider pollutants in our raw water and the catchment activities that give rise to these pollutants. Emerging contaminants will be assessed using this approach. Monitoring programmes are being established to begin to build out our understanding of the potential risk in our sources.

UÉ has noted the suggestions made and is aware of the ongoing discussions within the EU in respect of the Drinking Water Directive. In order to protect our drinking water supplies and to meet our drinking water directive obligations, a series of catchment-based initiatives are to be piloted. These initiatives will look at using catchment based and nature-based solutions to protect and restore water quality and quantity. A strong focus will be on the development of partnerships with other stakeholders to collectively deliver meaningful results. The pilots will focus on areas where there are issues relating to nutrients and pesticides from agricultural activity, carbon from forestry and peatlands to limit THMs and increase water conservation measures to ensure security of supply. Furthermore, there is an opportunity to investigate the potential of utilising Nature Based Solutions.

Our existing water conservation programmes, such as Water Stewardship, First Fix Free and Green Schools, demonstrate our enduring commitment to the responsible use of treated drinking water. These initiatives are supported by our integrated multi-channel approach, including stakeholder and media engagement, to support information provision to customers. However, our research shows that half of the general public admit to wasting water and a decreasing portion classify themselves as ‘active or diligent’ with regards to conserving water. We recognise that we need to further encourage a change in attitude and behaviour to water conservation.

UÉ also proposes to invest in the rollout of Orthophosphate dosing nationally to address the high-risk lead areas. Orthophosphate and lead reduction programmes are included as part of the RC4 plan.

We will engage with other stakeholders active in the area of water conservation and seek to collaborate to achieve shared objectives. In this regard, we welcome the National Water Conservation Working Group, which is to be established under Objective 3 of the Water Services Policy Statement 2024 to 2030, and we will play our part to support the work of this group. We will also continue to explore other opportunities with industry and communities to promote the connection of water efficient homes and businesses to our distribution network.

Treated Wastewater Investment Case

Key Thematic Feedback

Consultees once again welcomed the focused investment in treated wastewater and recognised the legacies of underinvestment in this area. Concerns centred around compliance, particularly around environmentally sensitive areas such as fisheries, and how to recover from past under-investment.

Particular concerns were expressed on the potential impact of the new UWWD and the fact that shellfish waters lay outside of the EPA's Priority List Areas.

UÉ Response

UÉ will continue to utilise a risk-based approach and will address environmental issues and norovirus through the Wastewater Disinfection Programme.

With regard to the UWWD, the revised Directive is still under intensive negotiation, with adoption, entry into force and transposition yet to be completed. The assessment of the potential implications of the revised Directive on the Capital Investment Plan is an ongoing work item and will continue until the Directive is adopted and transposed. This work will inform the timing and scale of future decisions concerning capital investment in order to meet the requirements of the revised Directive.

It should be noted that the Priority Area List is determined by the EPA and not directly by UÉ.

Water Body Impact Investment Case

Key Thematic Feedback

Consultees continued to welcome further investments in the protection and enhancements of water bodies and there was particular support for the utilisation of nature-based solutions.

There was a request for UÉ, along with the Local Authorities, to take a more hands on role in rural areas to ensure that 'ghost estates', which are polluting water courses due to having no sewer connection, are being addressed.

It was suggested that UÉ prioritise those WWTPs where extreme weather conditions can result in substantial stormwater overflows.

From a data perspective there was a request to clearly show how projects at the design stage would be taken forward and a request to include the commitment for completion of remaining assessments to address the 208 waterbodies currently impacted by urban wastewater.

UÉ Response

Throughout RC4 the use of Sustainable Drainage will be an important decision factor to ensure less stress on treatment plants where alternative solutions are considered viable.

With regards to the 'Ghost Estates', UÉ confirms that these are primarily the responsibility of Local Authority Planning Sections. However, UÉ continues to engage with DHLGH on this matter.

UÉ can confirm that WWTPs having a significant pressure on waterbodies will receive prioritisation and work will be undertaken in conjunction with catchment stakeholders.

Wastewater Network Environmental Compliance and Sewer Flooding Investment Case

Key Thematic Feedback

Consultees opined that wastewater network environmental compliance and sewer flooding were targeted at frequent flooding area and thus failed to address the issue of e-coli and norovirus contamination associated with storm water overflow events, and that targeting wastewater misconnections to storm sewers needed to be addressed.

Further the commitment to provide event duration monitors of the stormwater overflows to understand the frequency of activation (spills) in Shellfish and Bathing Waters was viewed as a missed opportunity, as

understanding the frequency of activation alone does not provide enough data to assess risk to shellfish waters.

UÉ Response

It should be noted that the installation, operation and maintenance of flowmeters on wastewater networks is both technically very challenging and extremely expensive. For this reason, Event Duration Measurements (EDMs) are preferred. Coupled with a verified hydraulic model, an estimation of discharge volumes can be made. This data can then be used in a water quality model to assess the impact of SWO discharges on the waterbody. UÉ intends to continue its roll out of EDMs across the stormwater overflows nationally on a prioritised basis.

UÉ supports the Strategic Objective of ‘Support Social and Economic growth’ through the Wastewater Disinfection Programme, Wastewater Network Programme and the DAPs, all of which consider future risks relating to growth, climate change and urban creep.

It was noted that separation of Surface Water in combined sewers was an issue, particularly in areas prone to sewer flooding. Removal of surface water by application of options such as Nature Based Solutions / Sustainable Drainage or stormwater separation will be considered to manage both sewer flooding and address environmental non-compliance.

Leakage Investment Case

Key Thematic Feedback

UÉ’s Leakage Strategy, with investment in the water conservation initiatives as presented in the NWRP, was welcomed.

The only issue raised by consultees concerned a desire to have the expected reductions in leakage expressed as a percentage of treated water produced.

UÉ Response

UÉ welcomes the positive reaction to the Leakage Strategy and confirms that there is a 9% leakage reduction planned for RC4.

Sustainability Investment Case

Sustainability issues attracted considerable and varied comment which focused on the following particular areas:

Climate trends

Key Thematic Feedback

Management approaches that seek to naturalise components of the flow and temperature regime in regulated rivers would be welcomed. Both flow and temperature regimes in the regulated rivers showed significant deviations compared to nearby, free flowing rivers. With accelerating climate change, heat stress events and hydrological alterations are likely to become more pronounced in regulated rivers relative to free-flowing systems, leading to potential fish kills and loss of suitable habitat in the longer term.

UÉ Response

To assist in dealing with seasonal fluctuations in population, UÉ has committed to improving our Supply Demand Balance model and refining some of the assumptions that have been made with regard to population forecasts and climate trends. This is captured in our Environmental Action Plan. The NWRP is an iterative process and will be updated every 5 years to take account for improvements in available data, information and knowledge.

With regards to rivers and fisheries, a strategic objective of UÉ as set out in the WSSP and detailed in Section 4.2 of the Phase 2 Draft Capital Investment Plan 2025 – 2029, is to Protect and Enhance the Environment. UÉ's strategic aim is to invest in water services infrastructure to support the achievement of the water bodies objectives under the WFD. Additionally, UÉ is currently engaging with Inland Fisheries Ireland on a programme of works and investigations where impounding structures required to support our abstractions are potentially impacting on the achievement of WFD objectives. The aim of this programme is to put in place the correct management measures to ensure that our abstractions are sustainable and aligned with the WFD objectives.

Biodiversity

Key Thematic Feedback

It was noted that the 1997 Habitats Regulations and SAC Directive do not extend to the inclusion of all aquatic habitats of fish bearing importance / biodiversity significance or of amenity value and, therefore, a comprehensive approach to impact assessment looking beyond any one particular suite of designated sites would be welcomed.

UÉ Response

Although concern was expressed that the SAC Directive does not extend to the inclusion of all aquatic habitats of fish bearing importance / biodiversity significance or of amenity value, it should be noted that the WFD applies to all rivers, lakes, coastal, transitional and groundwater bodies, not just those designated as SACs under the Habitats Directive. Furthermore, protection of ecosystems is fundamental to UÉ. We manage infrastructure that is located within a range of habitats and our infrastructure often interacts directly with freshwater, estuarine, marine and terrestrial habitats through the abstraction of drinking water or the discharge of treated wastewater.

In response to the current Biodiversity Emergency, UÉ developed its BAP, which was launched in 2021. The BAP details the specific objectives and actions been taken by UÉ to address this biodiversity emergency, including the objective of ensuring No Net Loss of biodiversity in carrying out our activities, plans and projects. The BAP also ensures that biodiversity is valued and is an integral factor in decision-making processes across the business, including our Capital Investment Plan 2025 – 2029.

Nature based solutions

Key Thematic Feedback

A question was raised over UÉ's responsibility for the management of surface water in the context of nature-based solutions.

UÉ Response

With regard to nature-based solutions, Local Authorities are responsible for management of surface water. Where removal or management of surface water connected to wastewater networks using nature-

based solutions or other measures can be demonstrated to deliver high priority Outcomes in an efficient manner, then UÉ can consider capital investment in this area. This would involve working closely with the Local Authorities to achieve these Outcomes. Integrated Drainage Plans should aid in identifying the scale of risks, measures and the responsible authority associated with these measures.

Demand reduction

Key Thematic Feedback

There was feedback that the Capital Investment Plan should include a strategy or programme to address demand reduction to support the water conservation theme of WSPS.

UÉ Response

In support of the water conservation theme of WSPS, UÉ is currently producing a Demand Management Strategy which will form an integrated element of the strategic plans identified in this document. This will combine existing water conservation activities with new initiatives and deliver the overall coordination of an integrated set of measures to achieve sustainable demand management objectives in support of the water conservation theme of the WSPS.

Use of latest technologies to upgrade infrastructure

Key Thematic Feedback

It has been suggested that to assist in achieving environmental sustainability, the latest practices and technologies should be adopted for infrastructure programmes concept.

UÉ Response

UÉ confirms that Sustainability Objectives are considered through concept, design and delivery through internal sustainability standards, for example energy efficiency design standard, biodiversity action plan and innovation standards.

Allocation of funding

Key Thematic Feedback

A question was raised over the seemingly low allocation of 2% of the Investment Programme to the objective of 'protect and enhance the environment'.

UÉ Response

By way of clarification, the 2% figure quoted relates only to the Sustainable Energy Programme. Funding for water and wastewater is allocated separately.

Regional Policy Objectives

Key Thematic Feedback

UÉ was directed to the Regional Policy Objectives set out in the RSES which support the sustainable management of water resources to ensure a healthy society, economic development requirements and a cleaner environment for the Eastern and Midland Region.

UÉ Response

UÉ has considered WFD requirements in the development of the NWRP and specifically in the Options Assessment Methodology. The Regional Water Resources Plans are subject to Strategic Environment Assessment (SEA) and Appropriate Assessment (AA). The SEA process concluded at plan level that the implementation of the NWRP can have both positive and negative potential effects on the water environment, biodiversity, and landscape and visual amenity and potential significant combined negative effects for carbon emissions. To address the potential negative effects, mitigation measures and a monitoring framework will be implemented alongside recommended developments. The SEA identified that in the long-term, the plan will bring benefits in terms of greater security of water supply to the population, tourism industry and recreational amenities, human health and the local economy. Additionally, the newer, or upgraded, more reliable assets within the system will result in greater adaptability to the impacts of climate change; with benefits to the water environment from the replacement of abstractions identified as potentially unsustainable for meeting WFD or protected area obligations and will give greater flexibility to respond to future sustainability reductions.

Shellfish waters

Key Thematic Feedback

Shellfish and fisheries related stakeholders voiced concern at the apparent omission of shellfish waters from specific mention in investment cases. Their concerns centred on E-Coli pollution, the use of telemetry, UV treatment at main outfalls as well as nature-based solutions.

UÉ Response

With regards to the various comments received, UÉ can confirm that Shellfish Waters are considered along with other protected areas under the Waterbody Impact Investment Case which is aligned with WSPS Theme Quality and Strategic Objectives Providing Effective Wastewater Treatment and Protecting and Enhancing the Environment. As per the methodology that was developed in consultation with the Environmental Regulator (EPA) and the bodies specified in the Wastewater Discharge Authorisation, there are works being progressed under the Wastewater Disinfection Programme. Where an urban wastewater source has been identified as the issue, and an appropriate solution identified, these are progressed through the capital investment projects and programme. There are projects progressing which will improve water quality in Shellfish Waters captured under the PAL or priority water bodies (RBMP significant pressures) categories.

Water Quantity Investment Case

Key Thematic Feedback

There was continued support for the plans for the development of additional groundwater sources or connection to larger adjacent supplies through the Rationalisation Programme, but with an identified need to bring some of these to resolution. Attention was drawn to the EPA's RAL.

Confirmation was sought that the Capital Investment Plan 2025 to 2029 would reflect the WFD and RBMP for Ireland 2022 to 2027. Additionally, RWRP SE was completed on 2 October 2023 and it was recommended that UÉ's Capital Investment Plan should facilitate any significant RWRP SE amendments.

A comment was made on the potential negative impacts of this investment case on aquatic habitats.

A request was made to take over more Group Water Schemes (GWS) and another comment was made regarding the capital works associated with rationalising Drinking Water Supplies serving less than 50 persons.

UÉ Response

It is confirmed that UÉ's NWRP sets out the long-term approach to the provision of water supplies in Ireland and references the various relevant legislation relevant to the provision of this infrastructure. The Capital Investment Plan 2025 to 2029 is aligned with the objectives of the RBMP.

It is confirmed that the RWRP SE was reviewed, but there was nothing in the feedback from the plan that was considered to have an impact on the RC4 Capital Investment Plan.

It is also confirmed that this Capital Investment Plan has identified remedial action plans for supplies on the EPA's RAL.

With regards to aquatic habitats, a Strategic Objective of UÉ as set out in the WSSP and detailed in Section 4.2 of the Phase 2 Draft Capital Investment Plan 2025 to 2029, is to Protect and Enhance the Environment. Our strategic aim is to invest in our water services infrastructure to support the achievement of the water bodies objectives under the WFD. Supporting the achievement of water body objectives under the WFD will ensure that aquatic habitats are protected.

It should be noted that all applications for GWSs to be taken in charge are assessed by UÉ based on available capacity and the upgrade needed to bring the scheme up to an acceptable standard.

The rationalisation of water supplies for supplies serving less than 50 persons is considered where this a high risk to the water supply (quantity or quality) and where it can be shown that the rationalisation of the scheme is the preferred solution.

Treatment Capacity for Growth Investment Case

Key Thematic Feedback

There was a request for clarification that there would be equality of funding between larger agglomerations not included in the Small Towns and Villages Growth Programme and those prioritised agglomerations under the Small Towns and Villages Growth Programme.

UÉ Response

Agglomerations larger than 2,000 PE are not considered within the Small Towns and Villages Growth Programme. These settlements form part of UÉ's investment planning process where compliance with the UWWTD (for agglomerations above the 2,000 PE threshold) is one of the primary priorities for investment in wastewater. All agglomerations greater than 2,000 PE that are currently capacity constrained have work progressing at the various stages (i.e., strategic assessment through to implementation). UÉ continues to focus on investment in line with National and Regional Planning policy and is commencing planning for future growth beyond the current 48 settlements identified in the RSES.

Network Capacity for Growth Investment Case

Key Thematic Feedback

Consultees sought clarity as to whether non-completed RC3 schemes would be continued in RC4 and would the Large Towns and Cities Growth Programme be introduced in RC4.

There were also a number of comments on the clarity of definition and details in the Capital Investment Plan relating to the individual programmes and projects, especially in Appendix 4.

UÉ Response

It is typical for projects that have advanced past Preliminary Business Case in RC3 to continue in RC4 period. There is less certainty regarding projects currently at Strategic Assessment Stage.

UÉ confirms that the Large Towns and Cities Growth Programme will commence in RC4.

Comments on Appendix 4 are addressed under UÉ's response to other feedback below.

UÉ has identified 48 priority growth settlements and there is currently sufficient water and wastewater capacity available to cater for the growth ambitions of 44 of these 48 settlements (equivalent to 97% of County Development Plan population targets for the priority growth settlements). Projects are already underway to address deficiencies in the other 4 growth areas. UÉ will continue to support growth through the completion of Network Infrastructure Plans and DAPs.

Service Resilience (Water) Investment Case

Key Thematic Feedback

Consultees expressed a desire for greater clarity on the link between the deficits identified in RWRP and the Cork Development Plan. Additionally, there was encouragement for suitable data sharing on surface water investigative and monitoring programmes.

The issue of addressing the needs of small water supplies was also raised.

UÉ Response

In presenting data within the Draft Capital Investment Plan 2025 to 2029 it should be noted that the NWRP is a long-term plan to address many water deficiencies nationally and will take a number of investment cycles to complete. The deficits identified in RWRPs are also being taken into consideration while developing the Capital Investment Plan.

The provision of additional treated water storage is prioritised where the risk of interruption to supply is greatest. The need for the provision of additional storage nationally is much greater than can be funded and will take a number of investment cycles to bring to a minimum standard. During RC4 UÉ plans to provide 20ML of additional treated water storage nationally.

UÉ confirm that the impacts of surface water on the wastewater network are considered under the DAP Programme.

In respect of small drinking water supplies, UÉ confirms its only remit is for those supplies that are under its control.

Service Resilience (Wastewater) Investment Case

Key Thematic Feedback

Continued investment in wastewater service resilience was welcomed but there were concerns that investment would not keep pace with growth in certain areas.

Consultees requested confirmation that further telemetry would be provided for surface water overflows.

UÉ Response

It should be noted that infrastructure requirements are also being assessed under the DAP Programme. UÉ confirms that telemetry systems at Wastewater Pumping Stations and Monitors at SWOs are being delivered under National Programmes on a prioritised basis.

Other Feedback

Key Thematic Feedback

There were a number of requests for greater collaboration with both stakeholders and supply chain.

UÉ Response

UÉ has ongoing engagement with stakeholders and has established a list of known asset and service needs that require investment through collaboration with our stakeholders. These needs have been categorised against the strategic framework which is outlined in *Table 4.2*. This has enabled UÉ to understand the policy and strategic objectives alignment and highlighted existing issues and high-risk needs that need to be addressed. The RC4 process has had some challenges and uncertainty that has resulted in a longer than expected process. As and when UÉ reaches a particular milestone within the RC4 process, we engage with stakeholders.

Key Thematic Feedback

Several comments have been received in relation to the level of detail provided in Appendix 4 which contains the list of projects and programmes that will be delivered/ progressed in RC4.

UÉ Response

UÉ is a publicly owned, regulated, commercial State body operating within its Exchequer funding parameters and ensures best practice in terms of accountability, governance and delivering value for money for taxpayers.

The building, repair and upgrading of UÉ's asset base (including WTPs, WWTPs, water and sewer network) requires a multi-billion euro investment programme over many years. UÉ's Capital Investment Plan prioritises key Outcomes such as reducing leakage, ensuring at-risk water supplies are removed from the EPA's Remedial Action List, dealing with areas where raw sewage is discharged to rivers, lakes and the sea (untreated agglomerations), and addressing areas identified by the ECJ that do not comply with the UWWTD.

In preparing our Capital Investment Plan, UÉ has optimised investment decisions by prioritising the best possible service improvements, while maximising value-for-money.

This will be a dynamic portfolio of investments, which will be monitored and reviewed by UÉ and other stakeholders over the course of the five-year period. It will be targeted at addressing the most critical investment needs and responding to any emerging policy requirements, which will be reflected in updated investment allocations, if required.

Some of the investment allocated in this RC4 period is for projects and programmes that have completion dates beyond 2029. These are not identified as committed Outcomes for the RC4 period. There will also be Outcomes that cannot be fully forecasted or quantified in advance, however, these will be captured and reported on retrospectively over the course of this Capital Investment Plan.

We have provided a list of the capital projects and programmes included in Appendix 4. The projects and programmes listed are expected to be either commenced, progressed or completed during the 2025 to 2029 period. The list reflects the projects and programmes for which capital investment has been allocated. This list is continuously being refined and is subject to budget, legislative changes, technical, supply chain and environmental constraints, as well as statutory approvals, details of which are available at project level.

15. Appendix 4: Projects and Programmes

In preparing this Capital Investment Plan, UÉ has optimised investment decisions by prioritising the best possible service improvements, within funding constraints.

This section sets out a list of projects and programmes based on the methodology outlined in the Capital Investment Plan and taking on board stakeholder requirements and feedback, as appropriate, received to date. The Projects and Programmes listed are expected to be either commenced, progressed or completed during the 2025 to 2029 period. This draft is continuously being refined and is subject to budget, legislative changes, technical, supply chain and environmental constraints, as well as statutory approvals.

Project Listing

The below table provides a summary of capital projects to be progressed or completed during RC4.

WSPS Theme	Investment Case	Asset Type	County	Project Title
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Cork	Dunmanway WW Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Cork	Midleton WW Network
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Cork	Midleton WW Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Dun Laoghaire-Rathdown	Sandyford/Stillorgan WW Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Kildare	Castletown WWPS and Rising Main Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Louth	Drogheda WW Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Louth	Dundalk East WW Network Upgrade

Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Meath	Farganstown WW Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Multiple	Local Network Reinforcement Hotspots - Studies/Concept Design (Wastewater)
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Offaly	Tullamore WW Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	South Dublin	Rathmichael/Ballybride WW Network
Availability and Reliability	Network Capacity (water and wastewater)	Water	Cork	Carrigtohill-Midleton Water Network New
Availability and Reliability	Network Capacity (water and wastewater)	Water	Galway City	Galway City West Water Network Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Water	Meath	Windmill Hill Reservoir and Trunkmain to Ratoath Upgrade
Availability and Reliability	Network Capacity (water and wastewater)	Water	Wicklow	Kilcoole-Newtownmountkennedy Water Network New
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Cork	Midleton Wastewater Network Upgrade
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Dublin City	Ringsend WWTP Capital Maintenance

Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Dublin City	Liffey Siphon Upgrade
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Dublin City	Ringsend WWTP Main Lift Pump Station Upgrade
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Louth	Drogheda WWTP - Capital Maintenance
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Louth	Dundalk WWTP Capital Maintenance
Availability and Reliability	Treated Wastewater	Wastewater	Offaly	Edenderry WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Cavan	Mullagh WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Cork	Ballineen/Enniskean WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Cork	Ballinspittle WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Cork	Belgooley WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Cork	Castlemagnier WWTP Upgrade

Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Cork	Killumney WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Dublin City	Regional Biosolids Storage Facility
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Galway	Ballygar WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Galway	Mountbellew WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Kerry	Castlegregory WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Kerry	Fenit WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Kilkenny	Bennettsbridge WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Leitrim	Carrigallen WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Limerick	Askeaton WWTP Upgrade
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Limerick	Hospital WWTP Upgrade

Availability and Reliability	Treatment Capacity (Water and Wastewater)	Water	Meath	Staleen WTP Upgrade
Availability and Reliability	Water Quantity	Water	Donegal	Illies WTP Upgrade
Availability and Reliability	Water Quantity	Water	Donegal	Letterkenny-Inishowen - Network & Storage Upgrade
Availability and Reliability	Water Quantity	Water	Dublin City	North City Arterial Main Upgrade - Phases 2 & 3
Availability and Reliability	Water Quantity	Water	Meath	Duleek to Navan Water Network Upgrade
Availability and Reliability	Water Quantity	Water	Meath	Liscarton WTP to Proudstown Reservoir Water Network
Availability and Reliability	Water Quantity	Water	Meath	Navan South Water Network Upgrade
Availability and Reliability	Water Quantity	Water	Meath	Staleen to Donore Water Network Upgrade
Availability and Reliability	Water Quantity	Water	Meath	Staleen to Duleek Water Network Upgrade
Availability and Reliability	Water Quantity	Water	Sligo	Lough Talt WTP New

Availability and Reliability	Water Quantity	Water	Westmeath	Athlone WTP Upgrade
Availability and Reliability	Early Stage Projects	Wastewater	Multiple	Early Stage Projects - Wastewater (Availability and Reliability)
Availability and Reliability	Early Stage Projects	Water	Multiple	Early Stage Projects - Water (Availability and Reliability)
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Carlow	Tullow WW Network New
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Cork	Fermoy WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Cork	Kinsale WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Cork City	Cork City WW Network Upgrade - Silversprings SWO
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Donegal	Ballybofey/Stranorlar WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Donegal	Buncrana WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Donegal	St. Johnston WW Network Upgrade

Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Dublin City	Grand Canal Tunnel Sewer Outfall Extension
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Fingal	Doldrum Bay WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Fingal	Malahide South Wastewater Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Galway	Athenry WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Galway	Ballinasloe WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Kerry	Kilcummin WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Kildare	Maynooth WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Meath	Andy Brennan Park WWPS Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Sligo	Rosses Point WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Tipperary	Roscrea WW Network Upgrade

Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Tipperary	Thurles WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Waterford	Baile na nGall WWPS and Rising Main Upgrades
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Waterford	Lismore WW Network Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Westmeath	Athlone Main Drainage - I&I Reduction
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Westmeath	Athlone Main Drainage - Wastewater Treatment Plant Upgrade
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Wexford	Enniscorthy Main Drainage
Safety and Quality	Water Body Impact	Wastewater	Carlow	Carlow WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Carlow	Muinebheag and Leighlinbridge WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cavan	Bailieborough WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cavan	Ballyjamesduff WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cavan	Cootehill WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cavan	Kingscourt WWTP Upgrade

Safety and Quality	Water Body Impact	Wastewater	Cavan	Virginia WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Clare	Ballyvaughan WWTP New
Safety and Quality	Water Body Impact	Wastewater	Clare	Kilfenora WWTP New
Safety and Quality	Water Body Impact	Wastewater	Clare	Kilkee WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Clare	Kilrush WWTP New
Safety and Quality	Water Body Impact	Wastewater	Clare	Lahinch WWTP New
Safety and Quality	Water Body Impact	Wastewater	Clare	Newmarket-on-Fergus WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cork	Ballycotton WWTP New
Safety and Quality	Water Body Impact	Wastewater	Cork	Boherbue WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cork	Castlemartyr WWTP New
Safety and Quality	Water Body Impact	Wastewater	Cork	Castletownsend WWTP New
Safety and Quality	Water Body Impact	Wastewater	Cork	Cloyne WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Cork	Macroon WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Donegal	Buncrana WWTP Upgrade

Safety and Quality	Water Body Impact	Wastewater	Donegal	Burtonport WWTP New
Safety and Quality	Water Body Impact	Wastewater	Donegal	Carrigart WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Donegal	Coolatee WWTP New
Safety and Quality	Water Body Impact	Wastewater	Donegal	Dunfanaghy-Portnablagh WWTP
Safety and Quality	Water Body Impact	Wastewater	Donegal	Fahan WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Donegal	Falcarragh WWTP New
Safety and Quality	Water Body Impact	Wastewater	Donegal	Kilmacrennan WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Donegal	Milford, Ramelton and Rathmullan WWTP New
Safety and Quality	Water Body Impact	Wastewater	Donegal	Moville WWTP New
Safety and Quality	Water Body Impact	Wastewater	Galway	Ahascragh WWTP New
Safety and Quality	Water Body Impact	Wastewater	Galway	Carraroe WWTP New
Safety and Quality	Water Body Impact	Wastewater	Galway	Roundstone WWTP New
Safety and Quality	Water Body Impact	Wastewater	Galway	Spiddal WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Kerry	Kenmare WWTP Upgrade

Safety and Quality	Water Body Impact	Wastewater	Laois	Portlaoise WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Limerick	Castletroy WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Limerick	Dromcollagher WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Limerick	Foynes WWTP New
Safety and Quality	Water Body Impact	Wastewater	Limerick	Glin WWTP New
Safety and Quality	Water Body Impact	Wastewater	Limerick	Newcastle West WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Longford	Ballymahon WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Louth	Drogheda WWTP Odour Upgrade
Safety and Quality	Water Body Impact	Wastewater	Mayo	Claremorris WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Mayo	Newport WWTP New
Safety and Quality	Water Body Impact	Wastewater	Meath	Enfield WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Meath	Navan WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Meath	Stamullen WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Monaghan	Carrickmacross WWTP Upgrade

Safety and Quality	Water Body Impact	Wastewater	Monaghan	Carrickmacross WWTP Upgrade - Phase 2
Safety and Quality	Water Body Impact	Wastewater	Roscommon	Ballaghaderreen WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Tipperary	Ballina WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Tipperary	Cahir WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Tipperary	Fethard WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Tipperary	Nenagh WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Tipperary	Newport (Tipperary) WWTP Upgrade
Safety and Quality	Water Body Impact	Wastewater	Wicklow	Arklow WWTP New
Safety and Quality	Water Body Impact	Wastewater	Wicklow	Avoca WWTP New
Safety and Quality	Water Body Impact	Wastewater	Wicklow	Blessington WWTP Upgrade
Safety and Quality	Water Quality	Water	Cork	Glashaboy WTP Upgrade
Safety and Quality	Water Quality	Water	Cork	Jones Bridge WTP Upgrade
Safety and Quality	Water Quality	Water	Cork	Whitegate WTP New
Safety and Quality	Water Quality	Water	Donegal	Glenties/Ardara WTP Upgrade

Safety and Quality	Water Quality	Water	Donegal	Killybegs Regional Water Supply Scheme
Safety and Quality	Water Quality	Water	Dublin City	Ballyboden WTP Upgrade
Safety and Quality	Water Quality	Water	Dublin City	Ballymore Eustace WTP Upgrade
Safety and Quality	Water Quality	Water	Dublin City	Leixlip WTP Upgrade (Phase 3)
Safety and Quality	Water Quality	Water	Galway	Luimnagh (Tuam) WTP Upgrade
Safety and Quality	Water Quality	Water	Kerry	Kilgarvan WTP Upgrade
Safety and Quality	Water Quality	Water	Kilkenny	Gowran-Goresbridge-Paulstown WTP New
Safety and Quality	Water Quality	Water	Limerick	Package WTPs (Phase 2)
Safety and Quality	Water Quality	Water	Louth	Greenmount WTP Upgrade
Safety and Quality	Water Quality	Water	Mayo	Lough Mask WTP Upgrade
Safety and Quality	Water Quality	Water	Meath	Drumconrath Ground Water Production Project
Safety and Quality	Water Quality	Water	Meath	Trim WTP Upgrade
Safety and Quality	Water Quality	Water	Monaghan	Newbliss WTP Upgrade
Safety and Quality	Water Quality	Water	Offaly	Clara/Ferbane WTP Upgrade

Safety and Quality	Water Quality	Water	Tipperary	Clonmel WRZ - RAL and BWN Upgrades
Safety and Quality	Water Quality	Water	Tipperary	Goatenbridge WTP Upgrade Upgrade
Safety and Quality	Water Quality	Water	Waterford	Adamstown WTP Upgrade
Safety and Quality	Water Quality	Water	Waterford	Ballinamuck WTP Upgrade
Safety and Quality	Water Quality	Water	Wexford	Enniscorthy WTP Upgrade
Safety and Quality	Water Quality	Water	Wexford	Newtown WWTP Upgrade
Safety and Quality	Water Quality	Water	Wicklow	Aughrim and Ballymorris WTP Upgrades
Safety and Quality	Water Quality	Water	Wicklow	Dunlavin Rationalisation Project
Safety and Quality	Water Quality	Water	Wicklow	Glenealy and Rathdrum Rationalisation
Safety and Quality	Early Stage Projects	Wastewater	Multiple	Early Stage Projects - Wastewater (Safety and Quality)
Safety and Quality	Early Stage Projects	Water	Multiple	Early Stage Projects - Water (Safety and Quality)
Sustainability	Sustainability	Wastewater	Louth	Drogheda WWTP and Dundalk WWTP Capital Maintenance
Sustainability	Sustainability	Wastewater	Tipperary	Thurles WWTP Satellite Dewatering Centre

Sustainability	Sustainability	Water	Dublin City	Ballymore Eustace WTP Sludge Upgrade
Sustainability	Early Stage Projects	Wastewater	Multiple	Early Stage Projects - Wastewater (Sustainability)
Sustainability	Early Stage Projects	Water	Multiple	Early Stage Projects - Water (Sustainability)

National Programme Listing

UÉ as the national water utility resolves risk on a national basis through the delivery of National Capital Programmes. These programmes delivery capital interventions across our asset base.

The Table below provides a summary of the programmes identified for the RC4 investment period.

WSPS Theme	Investment Case	Asset Type	Programme Title
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Drainage Area Plan Programme
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Growth and Development Programme - Wastewater Assets
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	New Connections Programme - Wastewater Assets

Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	Upsizing/Synergies Programme
Availability and Reliability	Network Capacity (water and wastewater)	Wastewater	WWPS Programme (Growth)
Availability and Reliability	Network Capacity (water and wastewater)	Water	Growth and Development Programme - Water Assets
Availability and Reliability	Network Capacity (water and wastewater)	Water	New Connections Programme - Water Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	ATEX Programme
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Building Fabric Upgrade Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Capital Maintenance Programme - Wastewater Above Ground Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Capital Maintenance Programme - Wastewater Below Ground Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Chemical Management Improvements Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Critical Sewer Survey and Rehabilitation Programme

Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Fire Systems Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	GDA Critical Assets Programme
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Health and Safety Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Invest to Save Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Minor Works Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Site Upgrades Programme - Wastewater Assets
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Telemetry Programme - Wastewater
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Wastewater Pumping Station Programme (Capital Maintenance)
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Wastewater Pumping Station Programme (Telemetry)
Availability and Reliability	Service Resilience (Wastewater)	Wastewater	Capital Maintenance Programme - Wastewater Above Ground Assets

Availability and Reliability	Service Resilience (Water)	Water	Asset Data Capture Programme
Availability and Reliability	Service Resilience (Water)	Water	Building Fabric Upgrade Programme - Water Assets
Availability and Reliability	Service Resilience (Water)	Water	Business Information Insights Programme
Availability and Reliability	Service Resilience (Water)	Water	Capital Maintenance Programme - Water Above Ground Assets
Availability and Reliability	Service Resilience (Water)	Water	Chemical Management Improvements Programme - Water Assets
Availability and Reliability	Service Resilience (Water)	Water	Data Improvement Programme
Availability and Reliability	Service Resilience (Water)	Water	Digitising Centre of Excellence Programme
Availability and Reliability	Service Resilience (Water)	Water	Enterprise Data Strategy for Digital Transformation
Availability and Reliability	Service Resilience (Water)	Water	Fire Systems Programme - Water Assets
Availability and Reliability	Service Resilience (Water)	Water	Health and Safety Programme - Water Assets

Availability and Reliability	Service Resilience (Water)	Water	Invest to Save Programme - Water Assets
Availability and Reliability	Service Resilience (Water)	Water	Minor Works Programme - Water Assets
Availability and Reliability	Service Resilience (Water)	Water	Project Visibility
Availability and Reliability	Service Resilience (Water)	Water	Site Upgrades Programme - Water Assets
Availability and Reliability	Service Resilience (Water)	Water	Telemetry Historian Integration & Setup Project
Availability and Reliability	Service Resilience (Water)	Water	Telemetry Programme - Water
Availability and Reliability	Treated Wastewater	Wastewater	Greater Dublin Drainage
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Drainage Area Plan Programme
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Large Towns and Cities Growth Programme
Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	RBC and Trickling Filter Programme

Availability and Reliability	Treatment Capacity (Water and Wastewater)	Wastewater	Small Towns and Villages Growth Programme
Availability and Reliability	Water Quantity	Water	Abstraction Metering Programme
Availability and Reliability	Water Quantity	Water	GDA Resilience Programme
Availability and Reliability	Water Quantity	Water	Modelling and Studies
Availability and Reliability	Water Quantity	Water	Supply Demand Balance Programme
Availability and Reliability	Water Quantity	Water	Treated Water Storage Programme
Availability and Reliability	Water Quantity	Water	Water Supply Project - East and Midlands Region
Availability and Reliability	Water Quantity	Water	Water Treatment Programme - Availability and Reliability
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Cork City Wastewater Network Feasibility Studies Programme
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Infiltration Reduction Programme

Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Local Internal Property Flooding Protection Programme
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Network Survey and Monitoring Programme
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	RBMP WWBG Programme
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Ringsend Feasibility Studies Programme
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Specialist Surveys & Assessments - Marine based Pipelines
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Stormwater Overflow Programme
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Wastewater Pumping Station Programme (Assessments)
Safety and Quality	Wastewater Network Environmental Compliance & Sewer Flooding	Wastewater	Wastewater Pumping Station Programme (National Upgrade)
Safety and Quality	Water Body Impact	Wastewater	IWSS Programme
Safety and Quality	Water Body Impact	Wastewater	National Certificate Authorisation Programme
Safety and Quality	Water Body Impact	Wastewater	National Recovery and Resilience Programme

Safety and Quality	Water Body Impact	Wastewater	National Water Quality Modelling and Monitoring Programme
Safety and Quality	Water Body Impact	Wastewater	Phosphorus Removal Programme
Safety and Quality	Water Body Impact	Wastewater	Ringsend Wastewater Treatment Plant Upgrade
Safety and Quality	Water Body Impact	Wastewater	River Basin Management Plan Assessments Programme
Safety and Quality	Water Body Impact	Wastewater	Wastewater Automation Programme
Safety and Quality	Water Body Impact	Wastewater	Wastewater Disinfection Programme
Safety and Quality	Water Body Impact	Wastewater	Wastewater Settlement Tank Programme
Safety and Quality	Water Body Impact	Wastewater	Wastewater Treatment Process Control Programme
Safety and Quality	Water Body Impact	Wastewater	WWTP Odour and Noise Control Programme
Safety and Quality	Water Quality	Water	CFC, Filtration and Sludge Programme
Safety and Quality	Water Quality	Water	Disinfection Programme
Safety and Quality	Water Quality	Water	Impounding Reservoirs Programme
Safety and Quality	Water Quality	Water	National Lead Programme
Safety and Quality	Water Quality	Water	Orthophosphate Treatment Programme

Safety and Quality	Water Quality	Water	pH Correction Programme
Safety and Quality	Water Quality	Water	Rationalisation Programme
Safety and Quality	Water Quality	Water	Reservoir Inspection, Cleaning & Leakage Repair Programme
Safety and Quality	Water Quality	Water	Source Protection Programme
Safety and Quality	Water Quality	Water	Water Treatment Programme
Safety and Quality	Early Stage Projects	Wastewater	WWPS Programme (National Upgrade)
Sustainability	Leakage Reduction	Water	DMA Works Programme
Sustainability	Leakage Reduction	Water	Find & Fix Programme
Sustainability	Leakage Reduction	Water	First Fix Programme
Sustainability	Leakage Reduction	Water	GDA Network Control Valves Programme
Sustainability	Leakage Reduction	Water	Mains Rehabilitation Programme
Sustainability	Leakage Reduction	Water	Metering Programme
Sustainability	Leakage Reduction	Water	Pressure Management Programme

Sustainability	Sustainability	Wastewater	Biogas Optimisation Programme
Sustainability	Sustainability	Wastewater	Energy Efficiency Programme - Wastewater Assets
Sustainability	Sustainability	Wastewater	Nature Based Solutions Programme
Sustainability	Sustainability	Wastewater	Sludge Treatment Programme
Sustainability	Sustainability	Wastewater	Sustainable Energy Programme - Wastewater Assets
Sustainability	Sustainability	Water	Energy Efficiency Programme - Water Assets
Sustainability	Sustainability	Water	Fish Pass Programme
Sustainability	Sustainability	Water	Sustainable Energy Programme - Water Assets

Indicative List of early-stage projects to be commenced during RC4 by WSPS Theme

In addition to the projects and programmes to be progressed or completed during RC4, UÉ intends to commence a range of projects during RC4. The below table indicates the number projects, by WSPS Theme, that may commence during RC4.

WSPS Theme	Total
Availability and Reliability	100
Safety and Quality	96
Sustainability	12
Grand Total	208