

# Irish Water Regulatory Support

Review of Capex (Lookback)

July 2024

# Version Control

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# Disclaimer

This report is not intended to be a complete review of Uisce Éireann capital investment and output performance during the regulatory period in 2020-2024. It is intended to highlight certain material issues identified by Arcadis within the limitations of time and information which were made available to us.

This is a technical assessment report dealing with only specific relevant aspects of Uisce Éireann's capital investment and performance assessment. Whilst comments are made throughout the report, these are by their nature selective and should not be taken as identifying the only areas with risk.

Our report and opinions presented herewith are subject to the following conditions and limitations:

- In our review and analysis, and in arriving at our conclusions, we have assumed and relied upon the accuracy and completeness of all the information provided to us (both written and oral) by the business and its advisors and on information which is publicly available. We have neither attempted independently to verify, nor assumed responsibility for verifying, such information.
- All estimates and projections in our report are based on our experience and judgment and upon a review of information provided to us and other publicly available reports and information. Our estimates and projections are not necessarily indicative of actual values or predictive of future results, which may ultimately be more or less favourable than those suggested by our report and are therefore subject to variations depending on the approach and implementation.
- This report is necessarily based upon information made available to us as of the date of our report. It should be understood that subsequent developments may affect the estimates or projections expressed in the report and cannot be predicted with certainty. We specifically do not guarantee or warrant any estimate or projections contained in our report.
- Certain statements made in the report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though we believe that such forward-looking statements are reasonable and are based on reasonable assumptions as of the date in the report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted.
- Where appropriate, we have used our best endeavours to assess the material impact of condition, gaps and deficiencies in the information provided, and incomplete responses to issues raised.
- We disclaim any undertaking or obligation to advise any person of any change in any matter affecting this report, which may come or be brought to our attention after the date of this report.

# Glossary

Acronym	Description
AA	Appropriate Assessment
ABP	An Bord Pleanála
ACP	An Coimisiún Pleanála
AG1	Approval Gate 1
	British Electrotechnical and Allied
BEAMA	Manufacturers' Association
BFP	Business and Finance Plan
CFC	Coagulation/ Flocculation / Clarification
CIP	Capital Investment Programme
CM	Capital Maintenance
CPI	Construction Price Inflation
CPO	Compulsory Purchase Order
CRU	Commission for Regulation of Utilities
CSO	Central Statistics Office
DAP	Drainage Area Plans
ECI	Early Contractor Involvement
ECJ	European Union Court of Justice
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ELV	Emission Limit Values
EPA	Environment Protection Agency
EU	European Union
GDA	Greater Dublin Area
GDD	Greater Dublin Drainage (Project)
GWh	Gigawatt hour

Acronym	Description
HICP	Harmonised Index of Consumer Prices
HR	Human Resources
HRW	HR Wallingford
I&O	Input and Output
I2O	Investment to Outcome
IRC2	Interim Revenue Control 2
IT	Information Technology
IW	Irish Water
KPI	Key Performance Indicator
LA	Local Authority
LIHAF	Local Infrastructure Housing Activation Fund
M&E	Mechanical and Electrical
MLD	Million Litres per Day
MUHD	Major Urban Housing Delivery
NERA	National Economic Research Associates
NIS	Natura Impact Statement
NIS-D	Network and Information Systems Directive
NTS	National Telemetry System
NWRP	National Water Resources Plan
OGP	Office of Government Procurement
PAL	Priority Urban Area Action List
PCT	UÉ's internal cost estimating tool
PE	Population Equivalent
PRV	Pressure Reducing Valves
RAL	Remedial Action List

# Glossary

Acronym	Description
RC3	Revenue Control 3
RPE	Real Price Effects
SCSI	Society of Chartered Surveyors Ireland
SFP	Strategic Funding Plan
SID	Strategic Infrastructure Development
SMF	Service Management Framework
SOP	Standard Operating Procedures
SPU	Single Public Utility
SWI	Scottish Water International
THM	Trihalomethane
TOM	Target Operating Model
TPI	Tender Price Index
UÉ	Uisce Éireann
UÉT	UÉ Transformation Programme
UWWTD	Urban Wastewater Treatment Directive
WFD	(EU) Water Framework Directive
WPI	Wholesale Price Index
WSAG	Water Services Above Ground
WSP	Water Supply Project
WSPS	Water Services Policy Statement
WSSP	Water Services Strategic Plan
WTP	Water Treatment Plant
WW	Wastewater
WWTP	Wastewater Treatment Plant

# Executive Summary

**Overall delivery:** UÉ has, in general, delivered on the agreed Capital Programme, with the majority of projects planned for RC3 being substantially progressed and delivered. There have been substantial changes to both the water and wastewater programmes as a result of the Covid pandemic, planning challenges, and other external factors however the response to these events has been a reasonable set of re-prioritisations and re-allocations of resources to allow progress to be made on important outcomes.

UÉ has had a reasonable approach to Capital Programme delivery.

**Outcomes and Outputs:** Overall, progress towards reaching RC3 Outputs/Outcomes has been good. It is worth noting that, whilst four Outcomes will not reach their target performance, many others have significantly over-performed due to a reallocation of funds during the RC3 period as priorities evolved and the impacts of inflation were considered. Based on the delivery constraints in some areas such as wastewater, it is Arcadis view that the underperformance on the outcomes is justified.

A high-level audit of the I&O data shows that while the project mix contributing to Outcomes and Outputs has changed in some areas from the ex-ante position, there is a sufficient trail to show the new and adjusted projects and programmes contributed to the required outcomes and outputs. Further details are included in [Section 2, pages 14-25](#).

**Funding:** It is noted that the current funding mechanism causes uncertainty and challenges for UÉ in managing its capital programme. Arcadis aligns with the SWI recommendations and supports the need for further discussions between the UÉ, CRU and the wider government on seeking alternatives to funding arrangements that may minimise the short-term changes to the UÉ's capital programme delivery. [See page 27](#) for further details.

**Budget balance and inflation impact:** UÉ in general delivered the Capital Programme works in line with the allowed budget, with some fluctuations across a number of portfolios. This corresponds to the shifts in funding undertaken by UÉ during RC3. High-level audit of the I&O sheet shows general alignment with the values stated in the Capex Lookback report produced by UÉ.

RC3 was a period of extraordinary global events including COVID-19, Brexit and the war in Ukraine, all of which created clear inflationary impacts and were difficult to predict. The initial fixed nominal budget assumed inflation at 2% which did not account for the impact of the extraordinary events. UÉ developed a hybrid inflation index and the method which UÉ employed to calculate the RPE appears reasonable, using indices which reflect the actual cost structure. Furthermore, the ringfenced funds from major programmes, which were slower to progress, were released to ease the inflationary pressure on other parts of the Capital programme. Further details are included in [Section 2](#) and [Section 5](#). It should be noted that those ringfenced projects remain important strategically and that the RC4 plan will have to account for the fact that the projects must eventually be delivered.

**Non-network Capex** has been delivered in line with the original budget. Several shifts of funding between the programmes occurred, but Arcadis opines that a reasonable re-prioritisation process was used. Further details are included in [Section 2, pages 50-55](#).

**Change Governance:** Overall, the Change Control Reporting process evidences good progress towards increasing transparency in UÉ's reporting. Arcadis notes an opportunity to provide further detail and justification on the specific changes implemented in UÉ's reporting. Greater granularity, quantification and justification of the specific changes made to funding allocation, and how this relates to specific projects and outcomes would further increase transparency of the decision-making process. Arcadis notes the change control process is reporting process only between UÉ and CRU and does not affect the funding agreed. Further details are included in [Section 2, pages 47-49](#).

# Executive Summary

**SWI Recommendations:** UÉ is progressing well with implementation of the remaining recommendations. Actions indicated by the HRW review are in Arcadis' view generally straightforward to implement given UÉ's operational experience. Engaging external third parties could further expedite preparation and review, integrating best practices from similar utilities. It is worth noting that embedding of new practices and processes may take several years to fully materialise, showing the importance of UÉ to advance these continuously as part of its transformation journey. Further details are included in [Section 4](#).

**Delivery Framework:** The discussions with the UÉ team support the Arcadis understanding of a maturing utility company that has been improving its asset knowledge and project delivery processes throughout RC3. UÉ has significantly refined its investment planning and delivery structure throughout RC3, in part by addressing identified gaps from internal assessments like Project Clarity and independent reviews by Scottish Water International (SWI). It was noted by Arcadis that UÉ has a proactive approach to improving the existing processes and integrating lessons learnt, indicating readiness for continuous development. Further details are included in [Section 2, pages 38-46](#).

**Major Programmes:** Arcadis understands the delays have been a result of legal challenges and issues in obtaining planning permission which is a common challenge for national-scale projects across the industry. Future funding availability and mechanisms will be key to enable the delivery, however, Arcadis understands these are currently not in UÉ's full control. Further details are included in [Section 3, pages 59-61](#).

**Wastewater Portfolio:** Arcadis notes that wastewater programmes are typically more challenging to deliver due to environmental regulations and likely stakeholder challenges. The UÉ wastewater programme of works has faced significant delays, and this will likely be the ongoing challenge in RC4+. The UÉ team has used its learnings from current project delivery which will support more realistic planning in RC4+. Further details are included in [Section 3, pages 62-68](#).

**Water Portfolio:** Overall, UÉ has delivered on its water quality outcomes, over-performing on several of targets. This was supported by the funds being shifted from other parts of the portfolio or wastewater programmes which progressed slower than expected; as well as from the release of ringfenced funds. Further details are included in [Section 3, pages 69-78](#).

With new and ongoing risks being identified, the UÉ team will likely face a new learning curve in RC4 on aspects such as understanding the condition of assets, identifying adequate and most efficient solutions as well as developing supply chain capabilities and more. This might result in further challenges to early cost estimates in RC4, however, Arcadis notes positively the UÉ team's proactive approach to improving the existing processes. Such steep learning curve is expected from a maturing utilities organization.

# Emerging recommendations

Based on the RC3 Lookback review, Arcadis identified several areas of potential continuous improvement to build on the progress of RC3 into the RC4 and longer term. These emerging recommendations vary from potential strategic initiatives to more detailed reporting methods and may be used for future discussions with UÉ to help build on their ongoing progress across the Capex Capital Programme.

## Wastewater and drainage planning

UÉ team has recently implemented National and Regional Water Resourcing Plans across its operations which help to set out strategic direction and provide joined-up solutions to water quality and quantity across water catchments. This is a positive step and UÉ can benefit from a similarly strategic approach to managing its wastewater and drainage networks across wider catchments, to seek optimised and collaborative solutions that deliver wider benefits to the catchment and bring Capex and Opex efficiencies. A similar approach has been recently implemented across England with Drainage and Wastewater Management Plans to allow planning holistically at scale. However, Arcadis notes that this is likely a long-term opportunity for UÉ, as the team gains understanding of its assets and builds on that further developing short-, medium- and long- term wastewater and drainage plans.

## Cross-portfolio learning and collaboration

Arcadis notes a positive culture of reflecting on lessons learnt and seeking improvements to the delivery of portfolios both within the water and wastewater UÉ teams. Arcadis believes that UÉ may further benefit from increased exchange of lessons learnt and improvements between both teams - water and wastewater. Based on the workshops with UÉ, some projects gain valuable insights which will be beneficial for the whole organisation to build on and embed improved practices in line with the SWI Recommendations. This refers to areas such as shifting from project-based to programme-based delivery where possible, early contractor involvement, early community engagement, off-site modular construction, improved procurement processes etc.

## Asset health

Asset health refers to the condition of assets and the risk and impact of potential failure. Asset health can also deteriorate in the future with climate change and other risks. This topic has been in development in the wider water and wastewater industry for past several years.

Whilst building new assets will continue to be a focus for UÉ in RC4+, an important aspect will be its capital maintenance programme and relevant asset data collection on asset condition and risk/impact of potential failures on customers and the environment. UÉ has started its journey towards planned capital maintenance and has put a system in place to enable data collection for data-supported decision making in planning its investments. Arcadis recognizes this to be an important area of focus in RC4+ for managing its assets with a long-term view, with a potential opportunity for future discussions between CRU and UÉ to develop consistent requirements for reporting and capturing asset health.

## Community engagement

Arcadis notes positively increased engagement with local communities, particularly in projects where new wastewater treatment works are required as well as in customer-side lead pipe replacements. UÉ noted the benefits of engaging local stakeholders in achieving consensus on project design and delivery with reduced impact on legal and reputational consequences. Arcadis notes that as UÉ develops its capital programme of works in RC4 and forward, a more structured and embedded approach to engaging relevant stakeholders early on can further benefit the delivery of infrastructure mitigating potential delays due to public disagreement.

## Data improvements recommendations

Arcadis notes several areas of potential improvement in future data reporting, particularly in the I&O data sheet, for ease of comparison in future reviews. These are discussed on [page 35](#), and some of the key ones focus on completeness of project information, updated expenditure allowances to each project, clearer change control trail of projects that have been added or removed from the originally approved portfolios and aligning reporting with the Environment Protection Agency.

# Contents

- 1 Introduction
- 2 Capital Investment Programme
- 3 Projects Review & Assessment of Material Variations
- 4 Review of Performance Against SWIs Recommendations
- 5 Inflation Impact on Capex Costs

# 1 Introduction

- 1 Introduction
- 2 Capital Investment Programme
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Recommendations
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# Context

## Scope & Background

- Arcadis is working with NERA to assist the Commission for Regulation of Utilities (CRU) to assess Uisce Éireann's (UÉ) performance over the regulatory period and UÉ's planned investment programme over the next regulatory period. This includes a look back review and a look forward review of capex submissions.
- This report encompasses findings from Arcadis' look-back review where Arcadis has assessed UÉ's capital investment and output performance against, outputs and outcomes within the regulatory period, Revenue Control 3 (RC3). It includes;
  1. An overall assessment of UÉ's capital investment and output performance over RC3 and the reporting framework's suitability.
  2. A detailed review of sample projects with an evaluation of the costs, outputs, benefits and the planning and design process.
  3. A detailed assessment of material cost or output variations.
  4. A review of UÉ's performance against Scottish Water International's recommendations and implementation.
  5. A review of the impact of capital input price inflation on RC3 capex costs.

## Key Regulatory Bodies and Plans

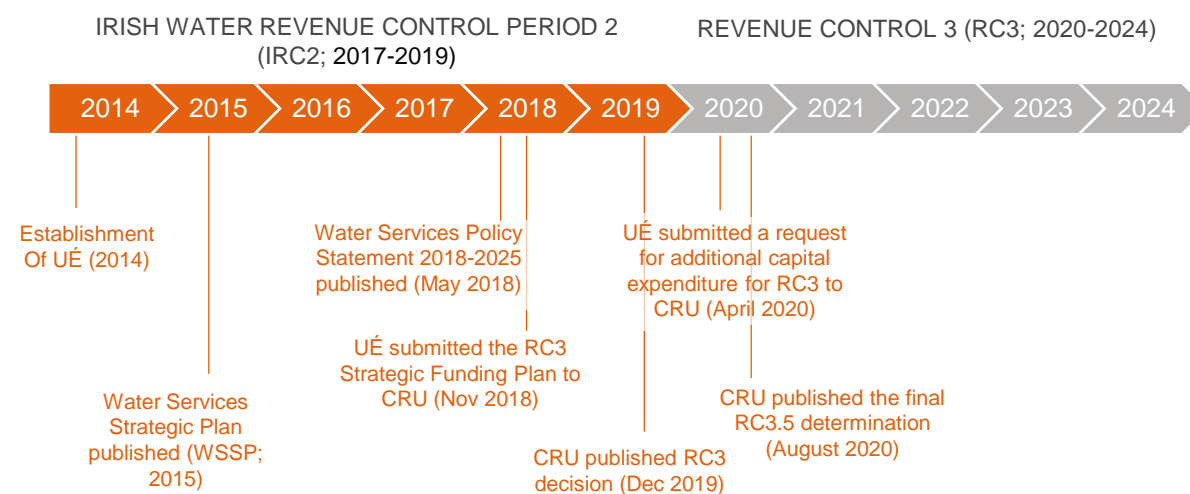
- Uisce Éireann (UÉ) is a commercial semi-state company delivering water and wastewater services for Ireland.
- The Commission for Regulation of Utilities (CRU) is the independent economic regulator of UÉ. The Water Services Act sets out the functions and powers of the CRU.
- The Water Services Act states that the CRU is responsible for setting the total level of revenue that UÉ can receive to cover its efficiently incurred costs. It does this by performing revenue controls. The revenue control process involves reviewing UÉ's submissions, engaging with the utility, benchmarking its proposed costs against comparator companies, completing a public consultation process, and thereafter setting appropriate revenue allowances for operating costs, capital costs and other items.

# Regulatory Overview

## Key Regulatory Bodies and Plans

- The funding model for UÉ is set in the context of the EU Water Framework Directive (WFD), and under the Water Services Act 2017, UÉ is required to submit a Strategic Funding Plan (SFP) to the Minister for Housing, Local Government and Heritage within three months of the publication of the Water Services Policy Statement (WSPS).
- The WSPS identifies policy objectives set across the three thematic areas of quality, conservation and future proofing covering the period 2018-2025. The intention of the WSPS is to give clear direction to strategic planning and decision making. Each WSPS theme is further categorised by strategic objectives that were set out in the Water Services Strategic Plan (WSSP) in 2015.
- UÉ submitted their SFP following the publication of the WSPS, setting out the arrangements that UÉ plan to implement to achieve the objectives of the WSPS. The SFP sets out the capital and operating costs expected to be incurred by UÉ in RC3 and how these costs are expected to be recovered.
- Following a review of UÉ's capital investment estimation processes in April 2020, UÉ submitted a request for additional capital expenditure for RC3. Subsequently, the CRU conducted a full review of UÉ's capital expenditure request and in August 2020, published the final RC3.5 determination for the allowed revenue for the period 2020 to 2024.

## Key Regulatory Bodies and Plans



# 2 Capital Investment Programme

- 1 Introduction
- 2 Capital Investment Programme
- 3 Projects Review & Assessment of Material Variations
- 4 Review of Performance Against SWIs recommendations
- 5 Inflation impact on Capex costs

# Outcomes and Outputs

# Introduction

## Water Services Strategic Plan

- The Water Services Strategic Plan which was published in 2015 sets out key objectives for UÉ in relation to the provision of water services for the next 25 years and the means by which UÉ will achieve them. It provides a longer-term strategic direction to the preparation of capital investment plans.
- The WSPS has identified policy objectives set across three thematic areas of quality, conservation and future proofing. Each WSPS theme is further categorised by strategic objectives that were set out in the Water Services Strategic Plan (WSSP) in 2015.
- UÉ submitted their Strategic Funding Plan (SFP) following the publication of the WSPS which detailed, amongst other things, the capital and operating costs expected to be incurred by UÉ in RC3. In August 2020, the CRU RC3 decision determined that UÉ should be allowed €4,523m to deliver its RC3 Capital Investment Plan (CIP), see table on the right.
- UÉ's CIP was defined against a set of 24 outputs and outcomes covering the period 2020-2024 and includes the capital projects and programmes that UÉ planned to progress during RC3, including the associated costs and timelines, outputs and outcomes.
- UÉ is forecasting that it will achieve 20 of the 24 RC3 outputs and outcomes targets set by the CRU for RC3. Of the remaining four targets, three relate to wastewater and while UÉ does not expect that these will be fully met by end of 2024, it does expect that significant further progress will be made during 2025.
- The following slides outline performance of the CIP outcomes and outputs against the WSPS themes and WSSP objectives.

## Water Services Policy Statement Themes and Strategy Objectives

WSPS Theme	WSSP Objective	RC3 Allowance (€m)	RC3 Outturn/ Forecast (€m)	Difference (€m)
Quality	Ensuring a safe and reliable water supply	650	836	-186
	Providing effective management of wastewater	1,548	1,273	275
Conservation	Ensuring a safe and reliable water supply	420	814	-394
	Protect and enhance the environment	47	48	-1
Future Proofing	Support social and economic growth	592	621	-29
	Provide effective management of wastewater (Greater Dublin Draining Project)	410	35	375
	Ensuring a safe and reliable water supply	176	136	40
	Water Supply Project – Eastern and Midlands Region	294	48	246
	Invest in our future	386	782	-396
<b>Total</b>		<b>4,523</b>	<b>4,593</b>	<b>-70</b>
	<b>Total after adjustments</b> (incl. revenue from new connections and grants)	<b>4,195</b>	<b>3,943</b>	<b>252</b>

# Quality

## Ensuring a Safe and Reliable Water Supply

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Reduction in the number of properties with risk of microbiological non-compliance	No.	563,093	909,867	1,164,003	207%
Reduction in the number of properties with risk of THM non-compliance	No.	133,465	165,256	171,487	128%
Number of lead services replaced	No.	13,231	28,789	36,872	279%
Number of Water Treatment Plants with Orthophosphate Dosing	No.	27	22	27	100%
Number of Water Supplies removed from the EPA's Remedial Action List (RAL)	No.	48	48	57	119%

- UÉ is forecasting an outturn variance of €186m above the CRU allowance of €650m. The RC3 investment has been higher than expected in this area due to additional investment in the Water Services Above Ground (WSAG) programmes.
- As a result of this additional investment, UÉ is forecasting that it will exceed targets in four of the relevant Outcomes and Outputs (and meet the fifth target), as detailed in the table on the left and below:
  - Reduction in the number of properties with risk of microbiological non-compliance: UÉ has exceeded the target through an increase in the number of new and upgraded water treatment plants.
  - Reduction in the number of properties with risk of THM non-compliance: similarly, this target has been exceeded through investment in water treatment plants.
  - Number of lead services replaced: this target has been exceeded through a focus on the replacement of public side lead services. UÉ has faced difficulties obtaining signed consents from homeowners to allow contractor staff to carry out lead replacement works on private properties and therefore replacement on the private customer supply side is lower than anticipated.
  - Number of Water Supplies removed from the Environmental Protection Agency (EPA) Remedial Action List (RAL): UÉ has exceeded this target as a result of urgent interventions that were required during RC3 due to poor existing asset condition. Therefore, whilst this target has been exceeded for RC3, concerns over current asset conditions remain – further water supplies have been added to the RAL during this period meaning continued investment is required in RC4.
- As well as the Outcome and Output targets, UÉ progressed Source Protection Plans during RC3 as part of the Drinking Water Safety Plan approach. This has prioritised catchment management and pesticide control activities.

# Quality

## Providing effective management of wastewater

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Number of agglomerations removed from EPA's Priority Urban Area Action List	No.	75	57	75	100%
Number of agglomerations in the ECJ Urban Wastewater Treatment Directive (UWWTD)	No.	13	6	8	62%

- UÉ is forecasting an outturn variance of €275m below the CRU allowance of €1,548m. Investment has been lower than expected in this area as wastewater projects saw delays due to issues such as planning permission, statutory consents, land and wayleaves and changing scope.
- However, UÉ is on target to remove 75 schemes on the Priority Urban Area Action List (PAL) in RC3.
- The PAL is updated as agglomerations are added or removed. A legacy of underinvestment in public sewers and wastewater treatment plants means that, whilst progress in RC3 is on target, there remains agglomerations that will require investment into RC4 and beyond.
- In 2019, the Court of Justice of the European Union (ECJ) found that Ireland was not compliant with the Urban Wastewater Treatment Directive (UWWTD) in 28 agglomerations. Of these, compliance was demonstrated before 2018 in seven cases.
- UÉ projects significant progress on a further eight of these ECJ cases in RC3, with six of these expected to reach full compliance by the end of 2024. Due to planning issues and impacts of Covid-19 early in RC3, seven cases of the target 13 will not be in full compliance.
- A further 6 cases are expected to be complete and achieve compliance over the coming years, with Midleton and Cork City currently entering design phase, meaning works to reach compliance will extend into RC4 and beyond. This is because the scale and size of interventions required are beyond what was initially expected.

# Quality

## IRC2 Legacy Metrics

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Wastewater treatment works compliant with Urban Waste Water Treatment Directives	PE	314,656	314,556	314,656	100%
No of Wastewater Treatment Plants overload serving > 2000 population	No.	1	1	1	100%
No of Wastewater Treatment Plants overload serving < 2000 population	No.	1	1	1	100%
Number of Wastewater Treatment Plants compliant - EPA discharge increase ELVs	No.	8	8	8	100%

- There are four Interim Revenue Control 2 (IRC2) legacy metrics, listed in the table on the right, that were set by the EPA that UÉ proposes can be closed to streamline reporting with the PAL.
- These can be considered 100% met at the close of RC3. Broadly, these measure specific IRC2 interventions are now complete and therefore no longer need to be reported on.
- Minor outstanding work in three of the four Outcomes relate to the Fermoy WW network and Courtmacsherry / Timoleague Sewerage Scheme. These both remain on the PAL, with work ongoing at Fermoy that is expected to be complete in 2024 and process optimisation activities continuing at Courtmacsherry / Timoleague Sewerage Scheme.
- Arcadis opines this is a reasonable approach to streamline the Outcomes and Outputs metrics if these are captured by PAL and other current metrics.

### Other wastewater quality activities:

- UÉ has also progressed other areas to improve wastewater quality which did not have a specific RC3 target. These include:
  - Works completed on 19 wastewater agglomerations that previously had no treatment or preliminary treatment only by the end of 2023, with additional four targeted in 2024.
  - Progress on the priorities set out in the River Basin Management Plan
  - Continued activities to address non-compliance with Wastewater Discharge Authorisations, wastewater collection systems and Drainage Area Plans (DAP).
  - Development of the Strategic Network Projects in cities and large urban areas.

# Conservation

## Ensuring a Safe and Reliable Water Supply

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Leakage reduction	ML / day	177.5		<i>Under review</i>	

- Investment in this area focuses on below ground water services to achieve water conservation, including water mains rehabilitation, meter replacement and leakage detection and repair.
- UÉ have identified leakage reduction as the key Outcome related to this WSSP objective. In the RC3 decision, UÉ were given a net leakage reduction target of 176MLD. This was split into 161MLD on the public side and 15MLD on the customer supply pipe. As part of the RC3.5 decision (CRU 2022977) the target was increased by 1.5MLD.
- Whilst UÉ were on target at the last known data point (2022), it is unlikely the RC3 target will be met by the end of the period. UÉ expects to finalise the leakage reduction figures by the end of Q3 2024. For more information, see the 'Find and Fix – Leakage' project summary.
- In terms of RC3 expenditure, UÉ is forecasting an outturn variance of €394m above the CRU allowance of €420m in water conservation projects.
- Beyond this identified Outcome, UÉ is also progressing this WSSP Objective through its National Water Resources Plan (NWRP), which outlines how UÉ plans to provide a safe, sustainable, secure and reliable water supply for customers whilst safeguarding the environment.

## Protect and enhance the environment

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
N/A					

- Investment in this area is focused on the National Water Resources Plan, Sludge Hubs, Sustainable Energy Programme and the Energy Efficiency Programme.
- Other investment activity in relation to sustainability and climate change include: creation of a programme for protection of property from local flood risks and increased monitoring of storm water overflows.
- There are no Outcomes / Outputs that specifically target this WSSP Objective. However, relevant climate adaptation measures are accounted for in the primary work programmes – for instance, Drainage Area Plans are accounted for under Future Proofing as they primarily contribute to resilience of wastewater networks.
- UÉ is forecasting an outturn variance of €1m above the CRU allowance of €47m. This is due to slightly higher than anticipated spend in the related programmes, such as the National Water Resources Plan and the Sustainable Energy Programme.
- As part of the NWRP, UÉ has developed a standard approach to the management of drinking water treatment sludge to improve management of residuals from the water treatment process.
- UÉ is also targeting energy efficiency improvements as part of this Objective, aiming to reduce energy consumption by 22 GWh over the RC3 period through its Sustainable Energy Programme.

# Future-Proofing

## Outcome and Output Metrics (Ungrouped) – Water & Wastewater Treatment Plants

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Number of new Treatment Plants (water and wastewater)	No.	29	25	29	100%
Number of Existing Treatment Plants Upgraded	No.	89	74	95	107%
Wastewater Treatment Plant Capacity (Total Population Equivalent)	PE	3,070,158	2,829,572	3,059,090	100%
Water Treatment Plant Capacity (Total ML/day)	ML/Day	625	1,226	1,403	224%
Additional Wastewater Treatment Capacity (Population Equivalent)	PE	770,751	632,803	654,725	85%
Additional Water Supply Capacity (ML/day)	ML/Day	46	38	53	115%

- The majority of the Outputs/Outcomes attributable to the WSPS theme of Future-Proofing are not grouped into WSSP Objectives, as each one relates to multiple different Objectives.
- UÉ is forecasting to meet the target of 29 new water and wastewater treatment plants in RC3 (seven water and 22 wastewater treatment plants). Whilst this target is likely to be met, UÉ note that the delivery of new and upgraded wastewater plants (WWTP) has experienced delays relating to planning permission and additional scope. These delays have been offset by delivery of additional water treatment plants (WTP) to meet the combined goal; it is worth noting the underperformance in the wastewater sector.
- UÉ is also forecasting to exceed the target for water and wastewater treatment plant upgrades – over RC3, UÉ is forecasting 33 upgraded WTPs and 62 WWTPs. Similar to the construction of new plants, issues were encountered when upgrading WWTPs due to information deficits at the initial project scoping phase and/or changing requirements. The wastewater sector has proved more complex than water treatment throughout RC3.
- Despite this, UÉ is forecasting to almost meet its wastewater treatment plant capacity target. This will be achieved through upgrades at smaller WWTPs, demonstrating the benefits of a programme approach to deliver quick results, as work at larger plants have faced delays. The ongoing delays have however resulted in the volume of additional wastewater treatment plant capacity population equivalent being below the target by 15%.
- Therefore, water treatment plant capacity is forecast to exceed its RC3 target; the major contributor to this was water quality upgrades at existing plants. Water supply capacity is also forecast to exceed the target as a result of completion of the Cork City WTP, which delivered an additional 4ML/Day of supply capacity.

# Future-Proofing

## Outcome and Output Metrics (Ungrouped) – Supporting Infrastructure

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Number of Reservoirs Upgraded	No.	132	278	333	252%
New Water mains (km)	km	496	419	500	101%
Rehabilitated or lined mains (km)	km	731	826	948	185%
New Sewers (km)	km	241	202	245	101%
Rehabilitated Sewer (km)	km	342	192	234	69%

- UÉ is expecting to significantly exceed the target number of reservoir upgrades over the RC3 period. This has been achieved through improved identification of leaking reservoirs under UÉ’s Reservoir Inspection, Cleaning & Leakage Repair Programme and an increase in the availability of contractors to deliver the works required.
- Whilst UÉ is projecting that the RC3 new water mains target will be exceeded, some of the potential schemes have not progressed as originally planned. Instead, UÉ has increased the number of WTPs being rationalised – this requires the laying of new mains to connect weaker supplies to more secure treatment locations.
- UÉ also forecasts that it will significantly exceed the rehabilitated or lined mains goal as it invested heavily in rehabilitation of the poorest performing sections of the network based on criteria such as burst data, water quality issues and outages.

- It should be noted that this increased investment was facilitated by the reallocation of ringfenced funding across the investment portfolio in June 2022 to address the unexpected inflationary impacts experienced during RC3.
- By the end of RC3, UÉ is forecasting to exceed its target for the installation of new sewers. This will be achieved through a focus on growth and development programmes such as the Network Extension Programme and Local Infrastructure Housing Activation Fund.
- UÉ’s target of 342km of rehabilitated sewer in RC3 can be split into 256km of rehabilitated wastewater sewer across the network and 86km for ‘Taking in Charge – in Residential Estates’ (in which private residential developments or estates are transferred to, or put in the charge of, a local authority).
  - Of the 256km target, the rate of work increased over the RC3 period, however, UÉ is forecasting to not meet the target due to complex rehabilitation in man-entry type sewers and a shortage in contractor availability.
  - Prior to the taking in charge of residential estates, UÉ agrees resolution plans with the planning authorities to progress significant sewer rehabilitation. As part of these plans, the planning authorities are also required to rectify other public infrastructure. Resource availability for these requirements has limited progress, meaning the planned work on the 86km target has not progressed due to wider delays in the taking in charge process. This delay is beyond UÉ’s control.
- It is also worth noting that the 342km target includes 102.4km of sewer delivered prior to 2020. When adjusted to remove pre-2020 metrics (see table below), progress towards the RC3 target is reduced. Therefore, performance against this output has been significantly below target in the RC3 period.

UÉ Outcomes and Outputs	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Rehabilitated Sewer (km), <b>adjusted for RC3 period only</b>	240	89	132	55%

# Future-Proofing

## Invest in our future

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Meters installed	No.	50,815	58,085	76,173	150%

- UÉ has made good progress in replacing older, less reliable and underperforming meters in RC3, forecasting to exceed the target by over 25,000 meters.
- Overall, UÉ is forecasting an outturn variance of €396m above the CRU allowance of €386m. Investment in the RC3 period has been higher than expected, primarily due to additional investment required in Capital Maintenance Programmes across the asset base.
  - Capital Maintenance activities replace/refurbish existing assets with the objective of ensuring long-term service provision and therefore form a key part of UÉ's capital programmes.
  - Whilst Capital Maintenance does not have specific Outcomes/Outputs, Rehabilitated Sewer and Rehabilitated or Lined Mains are two Capital Maintenance activities with specific Outputs recording progress in the area. As discussed on the previous page, sewer rehabilitation is below target, however rehabilitated or lined water mains is forecast to be well above the RC3 target, evidencing an area where the higher spend has delivered results over the period.

- Over the RC3 period, UÉ has also created a roadmap towards ISO55000 compliance by building an Asset Management System. This provides the processes, documentation, systems, data and culture required to coordinate asset management activities across assets' full lifecycle. Once fully implemented, this will facilitate long-term strategic asset management.
- UÉ has also invested in health and safety programmes to achieve compliance with relevant health and safety legislation and protect the well-being of employees.
- The National Telemetry System commenced in RC3, changing existing telemetry systems to a standardised system that will provide the capability to automatically collect, transmit and measure data from remote sites. Investment in this area is expected to increase in the future to further achieve resilience and performance in the monitoring of assets.

# Future-Proofing

## Support social and economic growth

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
N/A					

- There are no Outcomes / Outputs that specifically target this WSSP Objective. UÉ’s approach to providing water services for growth is to align with national data/policies, including a provision for a 10-year growth horizon when designing upgrade projects.
- UÉ is forecasting an outturn variance of €29m above the CRU allowance of €592m. This is largely due to additional investment in new connections for water and wastewater. As a result of this investment in new connections, associated revenue and grants for RC3 was 98% above target (at €650m), thus justifying the additional investment.
- During RC3, UÉ supported Government initiatives in areas such:
  - The Local Infrastructure Housing Activation Fund (LIHAF) / Major Urban Housing Delivery (MUHD) / Network Extensions Programme – these target delivery of water and wastewater networks in areas with high housing demand.
  - Housing for All and the Wastewater Network Growth Programme – these deliver strategic network interventions nationally to support future growth.
  - Small Towns and Villages Growth Programme – aiming to address capacity and compliance deficits at small wastewater treatment plants in rural areas.
- Additional investment was also made in prioritised projects in RC3, including Cork City Eastern Strategic Link and Barna Pump Station Upgrade in Galway.

## Ensuring a safe and reliable water supply

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
N/A					

- There are no Outcomes / Outputs that specifically target this WSSP Objective.
- UÉ is forecasting an outturn variance of €40m below the CRU requested allowance of €176m. Arcadis understands that this is due to lower than predicted investment in the Greater Dublin Area (GDA) Groundwater Augmentation Programme. Feasibility Study Reports into this scheme found that there is insufficient water quantities for further investment, suggesting that this programme will not see further investment in RC4.
- There was however increased investment in pressure management to reduce leakage. As discussed previously, RC3 leakage reduction performance is still under review and therefore comment cannot yet be made on overall success in this area.
- The Water Supply Project, as detailed on the next page, also contributes to the ‘Ensuring a safe and reliable water supply’ objective.

# Future-Proofing

## Provide effective management of wastewater (Greater Dublin Draining Project) – Capacity and Resilience

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
N/A					

- The Greater Dublin Drainage (GDD) Project involves the upgrade of the country’s largest wastewater facility (Ringsend) to maximum capacity, as well as providing additional network capacity to prevent overloading and breaches of the Urban Wastewater Treatment Directive in the Greater Dublin Area. It will also see the development of a new regional wastewater treatment facility to serve the population of north Dublin.
- The delivery of the GDD Project is a key strategic investment priority under the National Planning Framework (Project Ireland 2040) and the National Development Plan 2021-2030.
- The RC3 investment in the Greater Dublin Drainage Project is much lower than expected due to delays related to the planning process. UÉ are engaging with An Bord Pleanála on the remaining steps in the planning process and expected timeframe for the consultation. As a result, UÉ is forecasting an outturn variance of €375m below the CRU allowance of €410m.

## Water Supply Project (WSP) – Eastern and Midlands Region - Capacity and Resilience

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
N/A					

- The Water Supply Project Eastern and Midlands Region is a generational project to upgrade to a ‘new source’ of water supply in the area.
- Completed works on the project include four rounds of public consultations, concept design for the proposed project, site investigations and modelling of the impact of the proposed abstraction on water levels and quality in Lough Derg and Parteen Basin.
- The Preliminary Business Case for the project was submitted in 2023, with a government decision on Approval in Principle to Proceed currently under consideration.
- However, progress on the project has been slower than anticipated, therefore RC3 investment for the Water Supply Project - Eastern and Midlands Region is much lower than expected. Taking account of key project dependencies, the project team is now working towards a planning and CPO submission in Q4 2024. As a result, UÉ is forecasting an outturn variance of €246m below the CRU allowance of €294m.

# Outcomes and Outputs – Summary

- Of the 24 Outputs and Outcomes defined in the RC3 Capital Investment Plan, UÉ expects to meet 20 by the end of RC3 (2024).
- The remaining four Outputs/Outcomes that will not be met by the end of the period are listed in the table on the right and further explained below:
  - Whilst UÉ were on target at the last known data point (2022), it is unlikely the RC3 target will be met by the end of the period. UÉ expects to finalise the leakage reduction figures by the end of Q3 2024.
  - Throughout RC3, UÉ has experienced delays in the delivery of new and upgraded wastewater plants, generally due to issues with planning permission, statutory consents and additional scope. As a result, the additional wastewater treatment capacity is forecast to under-deliver against the RC3 target. However, some good progress has still been made towards the RC3 targets, largely as a result of upgrades at smaller WWTPs.
  - Work to rehabilitate sewers has also been below target, due to complex rehabilitation in man-entry type sewers and a shortage in contractor availability. Further delays have resulted from a lack of progress in the ‘Taking in Charge’ scheme, which is beyond UÉ’s control.
  - Progress towards compliance with the UWWTD is progressing well, however some agglomerations faced delays due to planning issues and the impact of COVID-19, therefore this Outcome will not be met in RC3. Good progress is expected to be made in the coming years however, with a final two areas (Midleton and Cork City) not expected to reach compliance until beyond RC4.

## Arcadis View

Overall, progress towards reaching all RC3 Outputs/Outcomes has been good. It is worth noting that, whilst four Outcomes will not reach their target performance, many others have significantly over-performed due to a reallocation of funds during the RC3 period as priorities evolved and the impacts of inflation were considered.

UÉ Outcomes and Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Leakage reduction	ML / day	177.5	<i>Under review</i>		
Additional Wastewater Treatment Capacity (Population Equivalent)	PE	770,751	632,803	654,725	85%
Rehabilitated Sewer (km)	km	342	192	234	69%
Number of agglomerations in the ECJ Urban Wastewater Treatment Directive (UWWTD)	No.	13	6	8	62%

This outcome is therefore reasonable and will allow for an informed approach to setting the RC4 targets.

- It is worth noting that not all Outcomes and Outputs directly align to a WSSP Objective / Theme, and some of those that have been directly aligned by UÉ in the Capex Lookback Report could be considered to contribute to multiple Objectives / Themes. Therefore, conclusions cannot directly be drawn between Outcomes and Outputs and financial performance against the CRU allowance for all WSSP Objectives. This section was created in alignment with the groupings provided in the Capex Lookback Report.
- For further detail on UÉ reporting and performance, please see Section 3: Projects Review & Assessment of Material Variations.

# Capex performance assessment – Overview

# Funding Mechanism

## Overview

- UÉ applies for funding from the CRU by submitting a costed list of projects with timelines that are planned to be undertaken in the regulatory period.
- The CRU will use this capital investment plan to decide an allowance. As part of this decision, the total period funding will be split up into real annual budgets.
- Accounting for inflation: Using the Harmonised Index of Consumer Prices (HICP) predictions, the real annual budgets will be inflated to each year within the period and the final decision on allowance is presented as a nominal budget for each year of the period. Therefore, inflation above HICP predictions cause a reduction to the real funding UÉ receive.
- Reliance on government funds fluctuation: The Exchequer decisions have a material impact on annual funding received by UÉ. The funds may be reduced in any year or new funds can be found towards the end of a year. UÉ is also required to remain cash neutral, not allowing to move remaining funds to other years.
- This uncertainty over funding means that UÉ needs to promptly adapt its portfolio and make relevant changes on a yearly basis, postponing projects start dates or accelerating shovel ready projects to use up any remaining funds. This, as discussed by the UÉ has a material impact on long term project delivery.
- Ringfencing funds: Two major programmes of works were to be delivered via ringfenced funding, recognising their national importance. However, as the projects progressed slower than expected due to legal and planning challenges, CRU allowed UÉ to release the funds to compensate for inflation impact and to deliver additional outputs and outcomes.

- As part of Scottish Water International (SWI) Recommendations, changes to the funding model were suggested. To reduce the impact of macroeconomic factors on the amount of funding available, SWI recommended the CRU consider ringfencing the funding at the beginning of the period. This would allow for greater certainty and availability of money through the year as opposed to the pulses of funding currently experienced.

## Arcadis View

Arcadis notes the current funding mechanism causes uncertainty and challenges for UÉ in managing its capital programme portfolio. This has a material impact on UÉ's capability to deliver on the previously committed deliverables. Short-notice changes to the budget mean that last minute reviews of projects need to be undertaken and quick solutions found, not necessarily aligning with the most efficient way of planning and delivery of such large programmes. These short-term decisions have an impact on long term programme delivery, as it was experienced with wastewater programme of works being pushed early in RC3 to later years.

Arcadis recognises the limitations of the current funding model and the impact this has on UÉ, with the need to adapt and change portfolio to align with the yearly budgets. Arcadis supports the need for further discussions between the UÉ, CRU and the wider government on seeking alternatives to funding arrangements that may minimise the short-term changes to the UÉ's capital programme delivery.

# Overall Budget Balance

## Total Capital Programme Expenditure

Based on the Table 2.1 from the Capex Lookback Report, the gross total expenditure for RC3 was €4,593m, €70m (1.5%) above the CRU allowance.

Over the RC3 period, there was a significant increase in new water and wastewater connections resulting a revenue of €650m, €322m (98%) more than predicted. Including this additional revenue, the net total outturn for RC3 is €3,943m, €252 (6.0%) below allowance.

	RC3 Allowance (€m)	RC3 Outturn/ Forecast (€m)	Difference (€m)
<b>Total for RC3 (gross)</b>	<b>4523</b>	<b>4593</b>	<b>-70</b>
New Connections & Grants	-328	-650	322
<b>Total of RC3 (net)</b>	<b>4195</b>	<b>3943</b>	<b>252</b>

Data based on the information from Table 2.1 Capex Lookback Report.

As part of the RC3.5 decision, the CRU set UÉ a capital efficiency target of €285m. To meet this target, UÉ must make a saving on their investments of €285m as a result of their interventions. UÉ reported being on track to meet its target and further comments can be found in the Capital Efficiency section of this report. A top-down approach to efficiency challenge was applied across all projects by UÉ.

## Comparison between the Input and Output Sheet and Lookback Capex Report

- The Input & Output (I&O) sheet from the BPQ Lookback 2020-2024 spreadsheet contains project, budget and timeline information for the RC3 regulatory period. It shows the initial RC3 submission information along with the current state of projects delivery.
- The I&O sheet was interrogated to find the total planned expenditure in RC3. A difference was found in the initial submission total proposed budget of 308.4m (see table below). UÉ explained that the I&O spreadsheet contains an earlier UÉ submission to CRU with a total of €4,832m which was later reduced by CRU to €4,523m. UÉ applied the allowance reduction on a pro-rata basis across the portfolio with the exception of ringfenced projects. The actual spend aligns closely between the Lookback report and the I&O sheet.

RC3 Allowance (Capex Lookback report) (€m)	RC3 Allowance (I&O Sheet) (€m)	Difference (€m)	RC3 Outturn (Capex Lookback Report) (€m)	RC3 Outturn (I&O Sheet) (€m)	Difference (€m)
4523	4831.4	-308.4	4593	4592.8	0.2

Comparison of total budgets – allowance and actual between Lookback Capex Report and I&O sheet.

# Overall Budget Balance | Overview

## WSPS Themes

The Water Services Policy Statement (WSPS) is broken down into three themes:

- Quality
- Conservation
- Future Proofing.

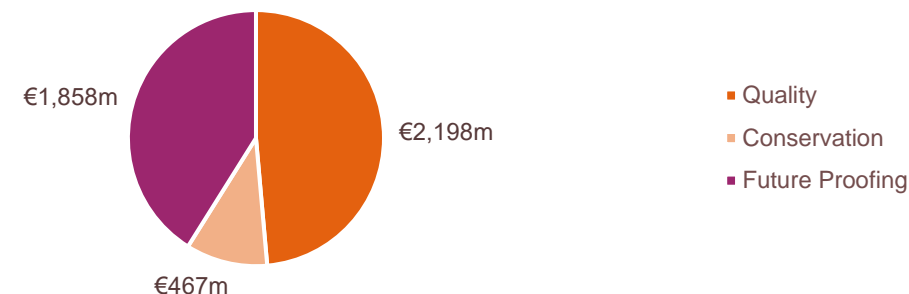
These are further divided into objectives by the Water Services Strategic Plan (WSSP). UÉ have broken down the allowance and outturn/forecast by objective over the whole RC3 period in the Network Capex Lookback report. This has been represented in the pie charts (see left).

Despite variances between the themes, the total predicted, and total actual/forecast expenditures were within €0.2m (0.04%) of each other, showing a very close alignment.

## Expenditure profiles

The budget data from the I&O sheet has been split by WSPS Theme to show the profiles of allowed vs actual expenditure per each theme. Since the allowed expenditure values from the I&O sheet are from early submission and not the final CRU allowance (see page above for explanation), the values have been reduced pro-rata to match the total final allowance.

Predicted Expenditure across the WSPS Themes



Actual/Forecast Expenditure across the WSPS Themes



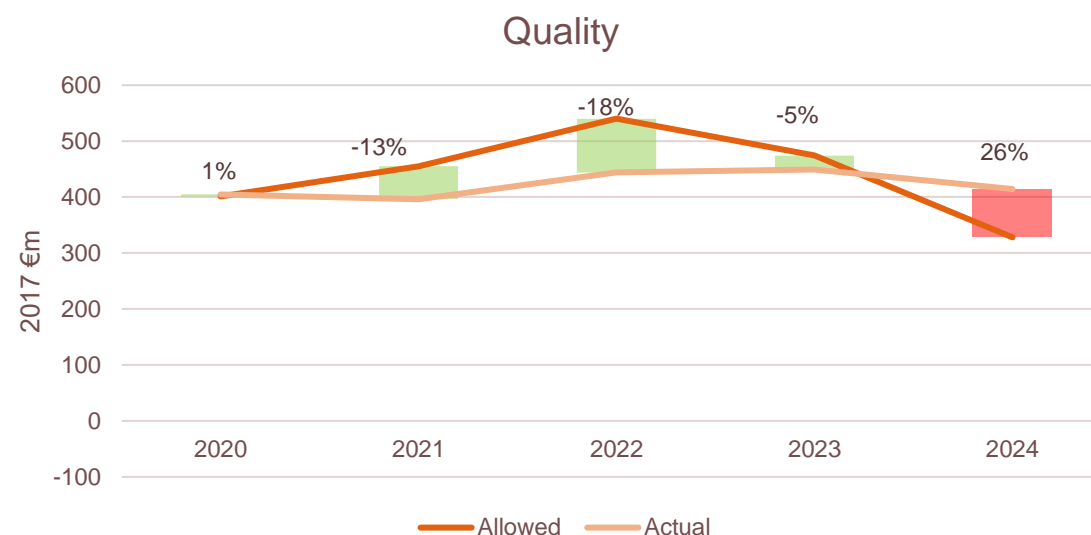
# Overall Budget Balance | Quality

The graph shows UÉ were below allowed expenditure in the Quality theme by €89.6m (4.1%) over the whole of RC3 period. Only one year of the period, 2024, was overbudget but the spend profile in general remained more stable over the course of 5 years than the allowed profile indicated.

The Quality theme included two objectives:

- Ensure a safe and reliable water supply
- Provide Effective Management of Wastewater

In the workshops, UÉ discussed the difficulties in delivering wastewater projects with significant delays across the portfolio which could contribute to lesser overall expenditure.



Quality	RC3 Total (€m)	% of Expenditure
Predicted Expenditure	2198.0	49%
Actual/Forecast Expenditure	2108.4	46%
Overspend	89.6	

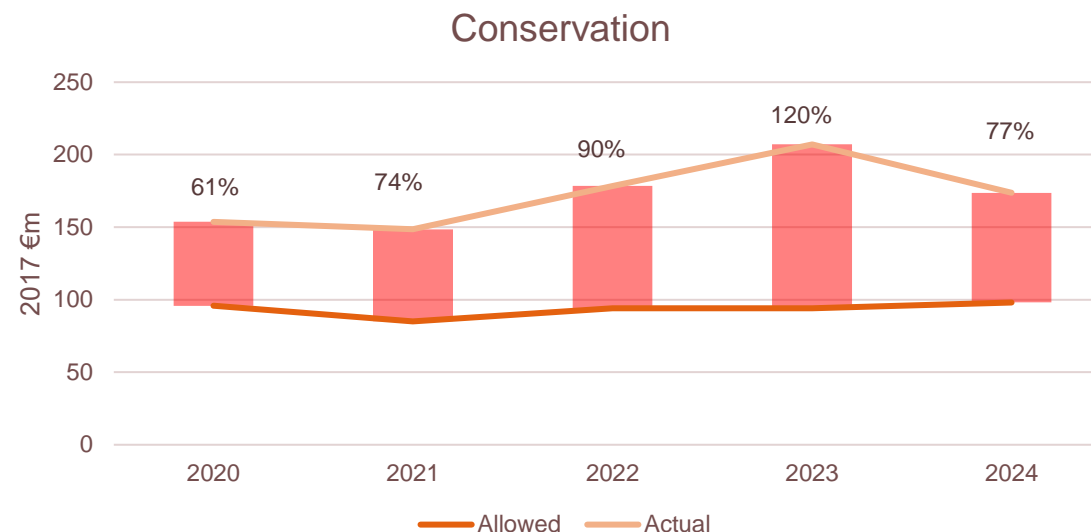
# Overall Budget Balance | Conservation

The graph shows UÉ were above forecast in the Conservation theme by €394.4m (84.5%) over the whole of RC3 period. Every year showed significant variations from the allowed expenditure.

The conservation theme included two objectives:

- Ensure a Safe and Reliable Water Supply
- Protect and Enhance the Environment

The first objective includes programmes of work such as water services below ground, water mains rehabilitation, meter replacements and leakage reduction. In the first two categories, UÉ have exceeded the target by over 50%. Leakage reduction resulted in higher spend which could also contribute to the overall higher expenditure. It is noted that the Conservation theme represented a smaller part of the total RC3 expenditure.



Conservation	RC3 Total (€m)	% of Expenditure
Predicted Expenditure	467.0	10%
Actual/Forecast Expenditure	861.4	19%
Overspend	-394.4	

# Overall Budget Balance | Future Proofing

The graph shows UÉ were below allowed profile in the Future Proofing theme by €235.0m (12.6%) over the whole of RC3 period, apart from year 2020 when it was slightly overbudget. Overall, the actual and allowed expenditures follow a similar spend profile.

The Future Proofing theme included three objectives as well as the major projects:

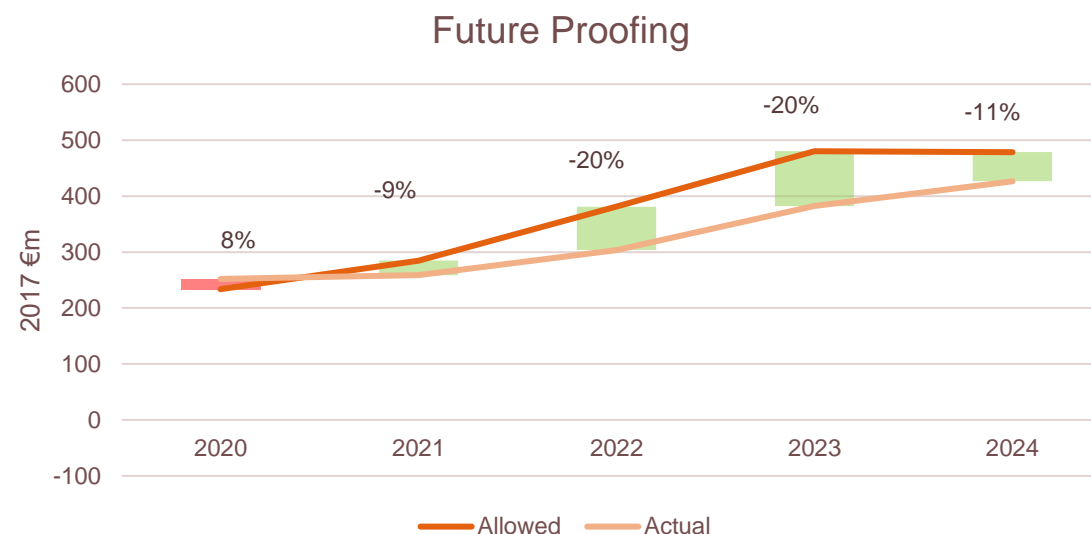
- Support Social and Economic Growth
- Ensure a Safe and Reliable Water Supply
- Invest in Our Future
- Greater Dublin Drainage Project (GDD)
- Water Supply Project for the Eastern and Midlands Region (WSP)

Delays to both major projects led to their ringfenced funding being released and therefore not necessarily spent on projects within the Future Proofing theme. This could contribute to the underspend in this theme.

## Arcadis View

Although Arcadis understands there were several shifts of funds between various portfolios during the RC3 period, the comparison of allowed vs actual spend shows general alignment of both profiles across all themes. The Conservation theme has the largest overbudget, however, it is proportionally smaller than other parts of the budget.

The most material variations in budgets have been assessed in more detail and can be found in Section 3 of this report.



Future Proofing	RC3 Total	% of Expenditure
Predicted Expenditure	1858.0	41%
Actual/Forecast Expenditure	1623.0	35%
Overspend	235.0	

# Capital Programme Content | Projects List

## Overview

- This section looks at project components of the overall Capex portfolio.
- It seeks to provide further insights as to whether UÉ has delivered projects committed to as part of the RC3 submission.
- It is important to note, that it is common for projects make-up to change over the duration of a delivery period, in response to changes from internal or external factors.
- However, the objective of this exercise is to understand the scale of the shifts in the overall portfolio during the RC3 and whether the customer value committed to at the beginning of the RC3 period by the UÉ was still largely delivered.

## Methodology

The exercise relied on the information in I&O sheet to compare a list of projects committed to at the start of the RC3 against the projects actually being progressed and delivered within the RC3.

The available I&O sheet has some information gaps, thus Arcadis used it for identifying indicative trends only at this stage. Arcadis notes potential areas of improvement for future reviews, and these are discussed later in this section.

To allow for the high-level comparison, Arcadis made a set of assumptions which are discussed in this section.

The I&O Sheet contains the allowed and actual expenditures for all the projects planned and/or completed. The sheet also includes expenditure from IRC 1&2 and planned expenditure for projects continuing into RC4+.

To identify how successful UÉ were in delivering the projects for which they have been given an allowance, three filters were used:

- Timing – projects were grouped based on a period (RC1&2/RC3/RC4+) where 50% of total expenditure was allocated. Seven projects had expenditure evenly spread across all periods and these refer to large programmes of work in water treatment and some in drainage which roll over several regulatory periods. For these projects only, the period of maximum actual expenditure was used to group them accordingly.
- Materiality – a €0.5m threshold of total actual expenditure (in RC3) was applied to account for the most material projects in the analysis. Projects below this threshold did not contribute significantly towards meeting the outputs and outcomes and accounted for less than 1% of the actual expenditure over the RC3 period.
- Planning – projects with no expenditure allowed in the initial RC3 submission but with actual expenditure above the materiality threshold. Additionally, projects with an allowed expenditure (above €0.5m) and 50% of it assigned to RC3, but with no actual expenditure in RC3 were also counted. This is to give a high-level view on the level of change across the portfolios by analysing number of new or delayed projects.

Arcadis notes that the above categories are approximate and based on the data available and assumptions made. However, the scale and proportions should be sufficiently meaningful to indicate trends.

# Overall Project Delivery

It is important to note, as explained in previous pages, that the allowed expenditure in the I&O sheet is not the same as the allowed expenditure granted by the CRU in the RC3 decision. However, the I&O data was used for this analysis as it is the best project-level data available.

Some of the data within the I&O sheet was non-standardised, therefore, Arcadis made several assumptions to interpret the information. This means that the analysis shown should only be used indicatively for understanding the general trends, as some data points may have been missed or mis-attributed. The values quoted in the table (see right) serve only as a guide and should not be interpreted as an accurate measure of expenditure, actual or allowed.

## Key findings

- In general, the majority of planned RC3 projects were started and substantially progressed/delivered over the RC3 period, which shows effective capital programme planning.
- There was a series of projects added to the portfolio throughout the RC3 and these contributed fairly evenly to all portfolios and many of the outcomes and outputs. However, the I&O spreadsheet had meaningful gaps in the outputs and outcomes data.
- A majority of value was in planned and progressed/delivered projects. This indicates effective programme delivery, aligned with progressing and achieving the agreed outcomes.
- It is worth noting that some of the projects in the initial submission were categorised as programmes of work in the Lookback submission. The programmes are rolling and spread across various regulatory period and thus have no completion date. It is difficult to capture shifts in funds within the programmes as data is not available.

	Number of Projects	Allowed Value (€m)	Actual Value (€m)
All Projects	835	4831.4	4592.8
Projects with 50% of total actual expenditure in IRC1&2	272	384.6	317.9
Projects with 50% of total actual expenditure in RC4+	146	1243.8	484.3
Projects with 50% of total actual expenditure in RC3	417	3203.0	3790.6
Projects with more than €0.5m actual expenditure in RC3	202	2981.7	3773.0
Projects with €0 predicted expenditure but >€0.5m actual expenditure in RC3	42	-	162.8
Projects that had predicted and actual expenditure in RC3	160	2981.7	3610.2

- Only 20 projects with allowed expenditure did not account for any spend in RC3 indicating that these may not have been progressed. These projects did not contribute any values to Outcomes & Outputs which is as expected.
- Additionally, approximately 54 projects were predicted to be completed in RC3 but have now an updated timeline reaching into RC4+. This number corresponds to the projects which changed Gate 3.7 (near completion stage) timeline between initial submission and the lookback updates.

# Assessment | Summary

## Arcadis View

UÉ has in general delivered on the agreed Capital Programme Expenditure, with the majority of planned projects being substantially progressed and delivered, indicating effective capital programme planning. Throughout RC3, the UÉ team adjusted the portfolios in some areas to respond to changes, many of which were externally driven and with little control from the UÉ team. Arcadis notes positively the UÉ's continuous focus on delivering the agreed value to customers via meeting or significantly progressing on its outputs and outcomes.

The high-level assessment looked at compliance with agreed Outcomes and Outputs and alignment with the initial projects' portfolio as well as the alignment with the allowed expenditure across the key WSPS Themes.

- **Outcomes & Outputs** – UÉ did not deliver on 4 out of 24 outcomes and outputs, however, significant works are being undertaken across all targets to progress the projects. Some of the key challenges relate to planning and consent –related delays, legal challenges and scope changes. UÉ also over-delivered in several areas, shifting the available funds to optimise the portfolios and responding to changes during RC3.
- **Total Expenditure** – UÉ in general delivered the works in line with allowed budget, with some fluctuations across a number of portfolios. This corresponds to the shifts in funding undertaken by the UÉ during the RC3. The additional revenue from new household connections helped in the final net budget balance, with UÉ underspending by €252m. High-level audit of the I&O sheet shows general alignment with the values stated in the Capex Lookback report.
- **Portfolios** – In general, the majority of planned RC3 projects were progressed/delivered over the RC3 period indicating a reasonably balanced portfolio and effective capital programme planning. Whilst the analysis is only indicative, it shows that UÉ adapted to changes throughout the RC3, whilst maintaining a reasonable level of projects which contribute to the final agreed outcomes.

## Recommendations for future reporting data

Arcadis notes several areas of potential improvement in future data reporting, particularly in the I&O sheet, for ease of comparison in future reviews. These are discussed below:

- Completeness of project information, especially where lack of consistent data made comparison difficult:
  - Current state of progress for each project.
  - Updated timeline of project completion.
  - Each project to link with a specific outcome or output that it contributes to.
- Providing updated expenditure allowance for each project to enable comparison of baseline (allowed) and actual (lookback) spend for each project. Currently, the baseline data does not correspond to the allowed funds given by CRU at the start of RC3.
- Initial list of projects that were part of the agreed RC3 submission and corresponding allowance.
- Marking projects that have been added or removed from the original portfolio. Optionally providing a high-level reasoning behind the decision to add/remove a project from the final portfolio although Arcadis appreciated this might be difficult to record in practice.
- Further discussions on aligning EPA's reporting at an agglomeration level with the UÉ's reporting at a project level to enable tracking of the progress, funds and timelines within the same I&O sheet or other preferred method.

# Capital efficiencies

# Capital Efficiencies

Capital efficiency is the difference between the predicted and actual costs of a project arising as a result of an intervention by UÉ. Over RC3, the CRU set a target for UE to reach a capital efficiency of €285m across its portfolios. UÉ identified four key focus areas through which it achieved its savings and efficiencies:

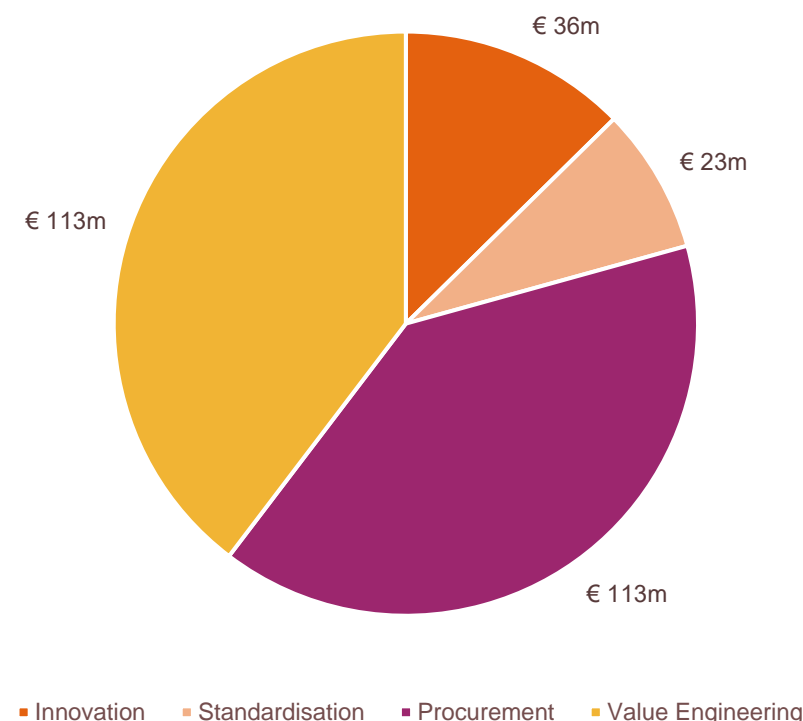
- Innovation – The use of new technologies to promote more efficient ways of working and optimise resourcing and delivery.
- Standardisation – Standard processes have been applied to design, construction and project management methods. This has reduced costs through economies of scale.
- Procurement – UÉ’s contracting strategy, frameworks and bundling of works has improved procurement timelines and quality. Contractors have also been included at the design stage to increase efficiency.
- Value engineering – Increased focus on optimising all scope items whilst still achieving the required outcome. This could be incorporating existing assets or finding alternative solutions.

UÉ is currently on track to meet the target, projecting to deliver a capital efficiency of €285m by the end of 2024.

## Arcadis View

The largest savings were obtained by adjusting the procurement methods and through value engineering. This aligns with the discussions held at workshops, where UÉ gave examples of how alternative solutions were found in several cases, shifting towards programme-based approaches which offer lower costs of delivery, and many rationalisation projects which eventually reduced the required works whilst delivering on its objectives. Several procurement processes improvements were also shown such as shifts to early contractor involvement and applying frameworks, helped in increasing competitiveness, reducing timelines and project costs.

RC3 Forecasted Capital Efficiencies Categories



# Planning and Delivery Frameworks

# Planning and Delivery Frameworks | Overview

## Overview

- This section covers investment planning and delivery frameworks for capital programmes which UÉ has put in place and used throughout the RC3. It also looks at how UÉ funds its projects and related challenges.
- The processes have been updated and shaped during RC3 as UÉ was gaining more understanding of its business and assets, applying lessons learnt across its portfolios.
- Large improvements in governance were also made throughout RC3 based on the recommendations from an independent review completed by Scottish Water International. The review looked at existing processes and provided a number of recommendations which UÉ implemented in the early stages of RC3. A follow-up review done by HR Wallingford identified a few remaining areas of improvement and UÉ has been continuously adapting its processes as expected of a maturing utility company. Details of the review are included in the SWI Review section of this report.

## Arcadis View

UÉ has significantly refined its investment delivery structure through the implementation of "Invest To Outcome", addressing identified gaps from internal assessments like Project Clarity and independent reviews by Scottish Water International (SWI).

UÉ's proactive development and refinement of Standard Operating Procedures (SPOs) and guidance documents on risk, change, and cost management enhance its investment planning and management. The establishment of escalation criteria further ensures a structured decision-making process.

The enhancement of UÉ's Project Lifecycle framework with additional workshops and gates aligns with recommendations from Project Clarity and SWI's review, showcasing foresight and commitment to industry best practices in investment governance.

Overall, UÉ's efforts in refining its investment planning and management processes exhibit positive progress, with integration of lessons from post-investment reviews indicating readiness for continuous improvement.

Nevertheless, HR Wallingford's assessment indicates that UÉ still needs to implement additional improvements to fully meet SWI's recommendations. These focus on improving internal processes, SOPs and documentation, tools, training, and resourcing. These enhancements are required by CRU to be completed by the end of 2024, with their implementation status reported to the CRU. Arcadis considers these recommendations generally straightforward to implement given UÉ's operational experience. Engaging external third parties could further expedite preparation and review, integrating best practices from similar utilities.

Additionally, the success of these advancements relies heavily on meticulous execution, interdisciplinary collaboration, effective resourcing, and asset management maturity, building on the ongoing UÉ's team commitment to improvement. These elements may take several years to fully materialise, underscoring the imperative for UÉ to advance them alongside existing improvements as part of its transformation journey.

# Investment Planning Approach

## Approach to developing the investment plan

UÉ employs a ten-step methodology, utilising the Service Management Framework (SMF), to align investment prioritization with strategic objectives. Rooted in the UK Water Industry Research Common Framework for Expenditure Decision Making, this approach considers legislative, business, operational, and financial constraints, widely recognised as exemplary in investment planning. Nonetheless, the efficacy of this approach relies heavily on the meticulous execution of processes, robust interdisciplinary collaboration, the maturity of asset management practices, and strict adherence to principles such as data-driven decision-making and comprehensive risk assessment. These factors have been identified as areas needing improvement in recent evaluations, and UÉ is actively implementing corrective measures to enhance performance.



UÉ's ten-step investment planning process is outlined below:

1. **Define objectives.** Aligns the Investment Plan with WSPS policy initiatives and WSSP targets, mapping objectives to performance.
2. **Understand asset base.** Assesses asset performance to understand the current situation and determine how to meet objectives.
3. **Risk assessment.** Identifies assets at risk of failure for advancement in the process.
4. **Needs identification.** Analyses the reasons for asset risk or failure in performance, pinpointing individual asset-level solutions.
5. **Intervention generation.** Actions aimed at reducing service delivery risk and can include projects, programs, maintenance, investigations, or operational measures. This process involves defining actions and estimating costs to achieve objectives and improve asset performance.
6. **Investment valuation.** Prioritises interventions considering legislative, business, operational, and financial constraints.
7. **Scenario analysis/ plan balancing.** Selects optimal solutions to meet UÉ's objectives by assessing business constraints, financial targets, service goals, and risk profiles.
8. **Stakeholder consultation.** Engages stakeholders by presenting an overview of the Draft Investment Plan from the Initial Plan Balancing step.
9. **Constraints (final plan balancing).** Ensure projected investment aligns with constraints like financeability, operability, deliverability, and stakeholder feedback.

# Delivery Framework | Overview

## Review of UÉ investment planning and delivery capabilities

UÉ has established an enduring investment delivery structure called “Invest To Outcome” to ensure investments achieve strategic objectives. This structure aims to address identified gaps and recommendations from UÉ internal Project Clarity and Scottish Water International’s independent review.

Project Clarity, launched in late 2019, was a cross-functional change and lookback program aimed at enhancing UÉ's capital investment planning and delivery capabilities. It focused on creating a coordinated, effective, efficient and safe capital investment planning and delivery capability. The program was completed at end of 2020.

Scottish Water International was commissioned by UÉ and the CRU to conduct an independent review of UÉ’s investment and delivery processes. This review followed the identification of several internal process issues in 2019, which led to a revised regulatory submission to the CRU. The submission, made in 2019, included increased project cost estimates and a reduction in planned outputs and outcomes for the RC3 period from 2020 to 2024. SWI’s recommendations reinforced the findings from Project Clarity.

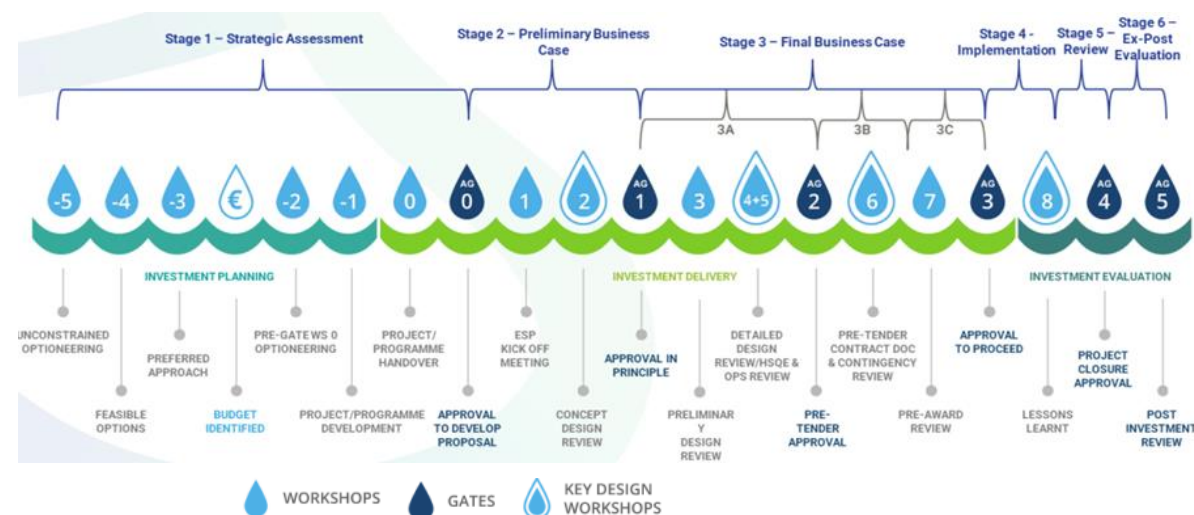
SWI’s improvement recommendations were based on the following areas and themes:

- Scope definition
- Estimation, risk and uncertainty
- Programme, portfolio and project risk
- Governance and change management
- Investment plan
- Workshop and project tracker
- Asset planning as asset owners
- Increased involvement from operations
- Value management
- PMO and reporting
- Maturing accountability and ownership
- Contracting models (risk sharing)

## Project lifecycle framework

UÉ tweaked its processes, updated and added additional workshops and gates in its Project Lifecycle framework to align with the recommendations from the public spending code, Project Clarity and SWI’s review. This aims to ensure effective governance of the identified investments.

The Project Lifecycle framework is broken down into three phases, Investment Planning; Investment Delivery; and Investment Evaluation. Individual workshops, and gates are subdivided into six different stages, from strategic assessment to post evaluation, as shown in the diagram below.



# Delivery Framework | Project Lifecycle Framework

## Project lifecycle framework

Below are some further details regarding UÉ’s workshops and gates.

<p><b>Stage 1 - Strategic Assessment:</b></p> <ul style="list-style-type: none"> <li>- Define project scope, drivers and outcomes</li> <li>- Input from asset planners and operations</li> <li>- Assess unconstrained and long list of options</li> <li>- Include indicative range of costs and early-stage risks</li> <li>- <b>Governance Approval</b></li> </ul>	<p><b>Stage 2 – Preliminary Business Case:</b></p> <ul style="list-style-type: none"> <li>- Assess the feasibility of a short list of options</li> <li>- Include surveys and other key assessments</li> <li>- Include cost estimates for various options</li> <li>- Financial/economic appraisal for shortlisted options</li> <li>- Identify a preferred option</li> <li>- <b>Governance Approval</b></li> </ul>
<p><b>Stage 3 – Final Business Case:</b></p> <ul style="list-style-type: none"> <li>- Detailed design cost estimates</li> <li>- Land acquisition</li> <li>- Planning permissions and statutory consents</li> <li>- <b>Governance Approval</b></li> <li>- Tender documentation and processes</li> <li>- Pre-award review</li> <li>- <b>Governance Approval</b></li> </ul>	<p><b>Stages 4-6 – Implementation to Ex Post Evaluation</b></p>

- Upon approval, Stage 2 involves surveys, key assessments, concept design cost estimates, and financial/economic appraisals to identify a preferred option.
- Stage 3 covers detailed design cost estimates, land acquisition costs, and planning/consenting requirements, along with pre-tender approval and review of contracting documents.
- Stage 4 focuses on project implementation.
- Stages 5-6 involve reviewing project completion, capturing lessons learned, approving project closure, and conducting a post-investment review.

## Arcadis View

Arcadis views these developments positively and notes their alignment with recommendations from Project Clarity and SWI’s independent review. Subdividing the project lifecycle into more workshops and gates provides UÉ with a robust structure to analyse key project risks with input from internal and external stakeholders. It is commendable that risks, cost estimates, and contingencies are considered from project initiation to implementation. Additionally, UÉ’s practice of conducting post-investment reviews to capture lessons learned will help continuously improve its processes and ensure future cost estimates are accurate.

UÉ’s new project lifecycle framework is comprehensive and well-directed:

- In Stage 1, the scope, outcomes, project team, and stakeholders are clearly defined, with early integration of asset-related information to enhance local considerations and inter-departmental communication. Risks and cost factors are identified and included in cost ranges for various options.

# Delivery Framework | Governance Framework

## Governance framework

One observation from Project Clarity and SWI's review highlighted the need for UÉ to streamline its internal governance processes. This ensures that investment planning is consistently developed using uniform criteria and methodologies across the organisation. This emphasis is particularly crucial as UÉ undergoes a transformation journey involving the integration of assets and personnel that were previously under more than 30 local authorities.

UÉ has taken a proactive approach establishing several Standard Operating Procedures (SOPs) and guidance documents. These include the following:

- Project/Programme Workshops Procedure (Invest to Outcome)
- Project Risk Contingency Management SOP
- Governance and change management guidance
- Capital Investment Governance - six Dials, escalation and threshold criteria approvals guidance
- Cost estimating SOP

UÉ's updated SOPs and guidance documents are a step in the right direction to help the organisation in planning and managing its investments more effectively.

As part of its Capital Investment Governance guidance, UÉ has set escalation criteria and thresholds across six "Dials": outcome, output, cost estimate, schedule, priority, and delta opex. The criteria vary across different project stages and appear reasonable—for example, cost estimates range from +/- 20% at early stages to 10% before tender and 5% during implementation.

When these are met and changes occur within a project or program, they must be escalated to portfolio governance for resolution. A structured process has been defined, involving review and analysis at different organisational levels, starting from Technical Governance to Infrastructure Delivery and Asset Planning change boards, then progressing to sub-portfolio review, portfolio review, and finally to the capital change board.

## Arcadis view

The escalation pathway appears reasonable, enabling UÉ to filter and analyse changes and make necessary decisions. Additionally, Arcadis views it positively that separate risk contingency and cost estimating procedures have been developed. This is particularly significant considering the role these factors played in UÉ's 2019 regulatory re-submission to the CRU, which included increased project cost estimates.

# Delivery Framework | Cost Estimations & Standard Durations

## Cost Estimations

As indicated on the previous page, one of the key challenges that UÉ has faced over the past years was the escalation of costs in its investment programmes, which was partly caused by inaccurate or incomplete assumptions and cost estimates.

UÉ has revamped its cost estimating SOP post Project Clarity, adopting three main methodologies. The first method involves estimating project costs using UÉ's internal tool, PCT, based on known and assumed scope. This method is primarily utilized for highly complex and low-volume investments, serving as the primary approach for standalone projects and those within programs. The second method employs run rates (€ per agreed Output) multiplied by the number of outputs, ideal for high-volume and low-complexity cases, predominantly used for programs. The third method entails utilising committed expenditure collected from post-procurement and post-investment reviews.

### Arcadis View

Arcadis finds UÉ's three cost estimation methods reasonable and in line with common practices in other utility organisations. Additionally, it is positive that UÉ reviews cost estimations from post-procurement and post-investment reviews, as well as tender to outturn ratios. This ensures that lessons learned are integrated and reflected in future investment plans, which is considered best practice and would aid UÉ in improving its decision-making and adjusting its processes.

## Standard Durations

In addition to refining cost estimations, UÉ has worked on enhancing standard duration estimates by analysing historical data. Benchmarking has been established for water, wastewater, and early contractor involvement projects of various sizes. This assessment occurs annually in Q1. The durations represent "normal" durations without risk and encompass activities outlined in UÉ SOP/processes, statutory requirements, and external dependencies such as contracts. These durations cover key project lifecycle stages, from design to construction completion.

### Arcadis view

Arcadis regards this development positively, viewing the alignment of project timelines with recent projects as a good practice. This enables UÉ to establish realistic timelines in investment planning and enhancing resource planning and deliverability. It is also commendable that the estimates encompass various project sizes and operational activities across key project lifecycle stages. Arcadis recommends advancing this approach deeper, with more frequent updates such as quarterly or semi-annually. Additionally, it would be beneficial developing a separate duration benchmarking specifically focused on risks and explore methods of integrating it with the existing standard benchmarks.

# Delivery Framework | Planning & Consent

## Planning and consent challenges

UÉ submits 50-60 planning applications annually, relying heavily on exempted developments. The overly complicated and cumbersome planning and consent process leads to significant delays and risks, with each consent potentially subject to judicial review, further exacerbating project delays.

Obtaining approvals and consents for even routine capital maintenance or upgrade works often takes years. The interaction between project planning and other required consents, such as foreshore consents and EPA licenses for wastewater discharge, introduces further risks, delays and uncertainties. Straightforward projects typically take 5-7 years to complete, while those facing consent hurdles can exceed 10 years.

Key challenges include:

- Highly complex planning and consent processes
- Overlapping consents
- Uncertainty in decision timelines involving An Bord Pleanála (ABP), which will be renamed to An Coimisiún Pleanála (ACP), and increased judicial reviews
- Involvement of a new maritime regulatory authority
- Requirement for water/wastewater licensing
- Lack of prioritization for critical state infrastructure
- Insufficient sector resourcing and expertise

These factors collectively create significant barriers to efficient project delivery.

## New planning and development legislation

UÉ anticipates that the new Planning and Development Bill 2023, which has completed the third stage in Dáil Éireann, will streamline and enhance Ireland's planning system. This Bill results from a comprehensive review by the Office of the Attorney General of the Planning and Development Act 2000. Over more than two decades, numerous amendments had made the Act challenging to navigate effectively. The Bill aims to maintain a purposeful planning system for Ireland, balancing key pillars like public participation, environmental concerns, and critical infrastructure delivery.

UÉ has had productive discussions to ensure the new Bill does not include clauses that could adversely affect its operations, responsibilities, or powers. These efforts aim to prevent negative impacts on the sustainable and orderly delivery of water and wastewater infrastructure, thereby supporting national objectives and ensuring timely, efficient infrastructure delivery.

UÉ provided its recommendations to the Department of Housing, Local Government and Heritage through two letters. The first, sent in March 2023, provided a detailed list of recommendations on the draft Bill. The second letter, sent in December 2023, followed the Bill's publication in November 2023 and its progression to the Second Stage in the Dáil. While UÉ acknowledged that many of its submissions were reflected in the Bill, the second letter highlighted critical areas that still needed to be addressed.

Below are some of UÉ's recommendations outlined in the two letters:

- UÉ suggested to be granted discretionary power to apply to ACP for water services infrastructure crossing functional areas of multiple planning authorities to minimise administrative hurdles for submitting applications to each authority.

# Delivery Framework | Planning & Consent

## New planning and development legislation

- UÉ noted that although a competent authority initially deems an Environmental Impact Assessment (EIA) unnecessary, it can later reverse this decision without clear limitations. UÉ suggests that if this section is retained, it should be conditional and activated only under specific parameters aligned with screening criteria. The competent authority should also provide sufficient justification and reasoning.
- UÉ noted that statutory consents are usually processed sequentially rather than concurrently by relevant competent authorities, hindering holistic environmental assessment and causing duplication of work. UÉ proposed establishing a lead authority to coordinate consenting authorities for projects requiring multiple consents, suggesting ACP as the most suitable entity.
- Regarding the direct applications to ACP, UÉ observed that wastewater treatment plants above 10,000 p.e. are classified as Strategic Infrastructure Development (SID) under the Planning and Development Act 2000, with a notably low threshold. UÉ often requires pre-application discussions for modifications exceeding this threshold, and these could be handled efficiently by the planning authority. UÉ proposed raising the SID threshold to 30,000 p.e. exclusively for new plants to streamline processes. UÉ also highlighted the urgent need for a full review of national EIA thresholds regarding Annex II, due to their current impracticality in the environmental licensing.
- UÉ highlighted that the Bill removes its Compulsory Purchase Order (CPO) powers, a crucial oversight that must be rectified before the Bill becomes law. UÉ reiterated this recommendation in its second letter after the draft Bill's publication.
- In its second letter, UÉ highlighted that the Water Environment Act 2022 designates certain surface water abstractions as SID. However, this designation was not included in the Bill, hindering direct applications to An Bord Pleanála for major water projects like the Water Supply Project.

- In its second letter, UÉ highlighted concerns about local authority decision-making timelines under the Bill. It sets an 8-week period for standard planning applications, or 12 weeks if Appropriate Assessment (AA) and/or EIA is required, extendable with the applicant's consent. The impact of these timelines upon enactment remains uncertain. UÉ requested clarification and recommended closely monitoring.

The examples and content of the two letters demonstrate UÉ's proactive involvement in shaping the new Bill through its diverse recommendations. Many of these suggestions have already been incorporated into the draft Bill released in November 2023.

## Arcadis View

Arcadis considers these recommendations a positive step forward, aiming to streamline the planning and consent process, alleviate unnecessary requirements that impede regular maintenance and upgrades of existing facilities, and mitigate duplication of work and silos among different consenting authorities.

Additionally, UÉ welcomes the consolidation of planning requirements for strategic infrastructure developments in the new Bill, emphasising increased clarity and efficiency with the introduction of mandatory timelines for ABP/ACP. UÉ also supports the provision allowing amendments to both material and non-material aspects, foreseeing smoother progress for non-material changes on-site by its consultants. Furthermore, UÉ backs changes to the judicial review process, aiming to enhance certainty and reduce delays while maintaining the ability to challenge planning decisions for interested parties.

Arcadis views these developments positively, believing they could greatly benefit UÉ by advancing infrastructure projects and reducing timelines. Arcadis advises UÉ to maintain ongoing engagement with relevant authorities to shape additional regulations and laws, as outlined in its two letters, including regulations such as Wastewater Discharge Authorisation and Water Abstractions.

# Managing Change to the Investment Plan

## Introduction

- This sub-section considers how UÉ have managed changes to their investment plan. Within RC3, numerous events occurred requiring UÉ re-prioritisation due to unforeseen circumstances including unexpected inflation rates and variability of UÉ's cash funding from the Exchequer. The majority of these have been third-party drivers of change beyond UÉ's control.
- UÉ's investment management approach is set-out in the Capital Investment Programme section.
- As of 2021, UÉ has a formal change control process and submits an annual Change Control Report to CRU detailing adjustments to the Capital Investment Plan (CIP), providing transparency to stakeholders on the impacts.
- The CRU's RC3 decision and UÉ's CIP is based on the 2019 Strategic Funding Plan. UÉ submits a refresh of this to the Department of Public Expenditure and Reform each year through a 'Business and Finance Plan' (BFP). The plan extends to five years from the year of submission.
- The impact of the re-prioritisation UÉ notes as elongated time to complete projects and increased overall costs from for example, pausing or delaying projects with a minimum impact on committed outputs and outcomes.

## Changes to Funding Process

- The RC3.5 decision set UÉ's overall portfolio allowance for a five-year revenue cycle. On an annual basis, UÉ's capital budget is in turn set by the Exchequer funding process. UÉ's annual Exchequer funding for 2020 was reduced by €74m in the Government's budget announcement in November 2019. In 2020, two Government stimulus packages were provided to UÉ.
- UÉ is part funded by charges to non-domestic customers for water and wastewater usage and services. Each year this revenue is forecast, and any subsequent variance can result in the capital programme being adjusted.
- Allocated funds must be used within the calendar year requiring UÉ to rebalance their portfolio, progressing alternative work streams. For example, UÉ accelerated much of its Water Mains Renewal programme into 2021.

Source: UÉ RC4 Network Capital Expenditure Lookback, 2020 Change Control Report

# Managing Change to the Investment Plan | Key RC3 Changes

## Key Changes To Funding Across RC3

- The three annual Change Control Reports detail various third-party drivers to material variations in RC3, including changes to funding, the planning application process, statutory approvals and requirements. This is done with the aim of matching any projected underspends with increased investment in other areas.
- Any changes to the requirements or capital funding must be accommodated through management of the annual work schedule in the capital investment plan. Therefore, understanding what drives change is critical to understanding the appropriateness of change management to best adapt and establish a realistic CIP.

Key drivers of updates made across the three Change Control Reports produced in RC3 can be grouped into the below themes:

### External Drivers:

- Macro-economic pressures – high inflation resulting from Covid 19, Brexit and the war in Ukraine.
- Changes in available funding – for instance, reduction in Exchequer funding or government stimulus packages.
- Delays due to the planning / statutory approval process

### Internal Drivers:

- Unforeseen complexities that arise where there is a deficit in information at the early stages of a project and further requirements arise later in the programme. This may also result in feasibility challenges, where it becomes clear than initial assumptions made, or solutions proposed, are no longer viable under further investigation.

- Emerging needs/changing priorities, for instance when unplanned failures occur.
- Supply chain constraints as Ireland's supply chain faced pressure for resources from increased activity in construction areas such as housing and transport.
- Transformation of UÉ to a Single Public Utility (SPU) model – the implementation of the Target Operating Model resulted in resourcing challenges.

Specific major changes made to Outcomes / Outputs and expenditure allowance across the RC3 period include:

- The pausing/delay of specific projects at tender stage to stay within the updated Exchequer budget but with minimal impact on Outcomes/Outputs.
- A change of funding from Capex to Opex in 2021 and 2022 to enable assets to continue to operate as Opex costs suffered from rising inflation.
- Reallocation of ring-fenced allowances for delivery of a further 220km of rehabilitated mains.
- Reallocation of ring-fenced allowances for delivery of a further 1.5 ML/Day leakage reduction.

# Managing Change to the Investment Plan | Summary

## Arcadis View

- In the 2020 Change Control Report, UÉ noted that it was anticipated that 12 Outcomes and Outputs would not be fully achieved by the end of RC3. Reporting in 2024, UÉ is now forecasting to under-perform only on four Outcomes/Outputs. This shows UÉ's improvement across the RC3 and the importance of change control process.
- Ongoing assessment of progress against Outputs / Outcomes, and therefore any required changes allows for improvements to be implemented on a continual basis, rather than at the end of the RC3 period. For instance, during RC3, UÉ began moving to a programme-based delivery approach, rather than focusing on standalone projects. This delivered efficiencies across works such as upgrades to multiple smaller wastewater treatment plants, creating time and cost savings and facilitating over-delivery on some Outputs/Outcomes.
- Overall, the Change Control Reporting process evidences good progress towards increasing transparency in UÉ's reporting, especially in regards to updates to key performance indicator metrics. It also allows more opportunities for ongoing monitoring and therefore continuous improvement activities.
- Arcadis notes an opportunity to provide further detail and justification on the specific changes implemented in UÉ's reporting. Greater granularity, quantification and justification of the specific changes made to funding allocation, and how this relates to specific projects, would further increase transparency over the decision-making process.

# Non-network Capex

# Non-Network Capex | Overview

Non-Network Capex consists of all the expenditure not directly related to the provision of water or the treatment of wastewater.

Despite sizeable variances from the budget in each category (see table), UÉ's non-network capex is expected to be €0.7m (0.2%) overbudget which disguises some large variances. The main reasons for the variances cited throughout the Non-Network Capex Lookback were:

- COVID-19 restrictions;
- Inflation above the HICP predictions and RPE; and
- The UÉ Transformation Programme (UÉT).

The expenditure categories (see table) have been analysed in the subsequent slides.

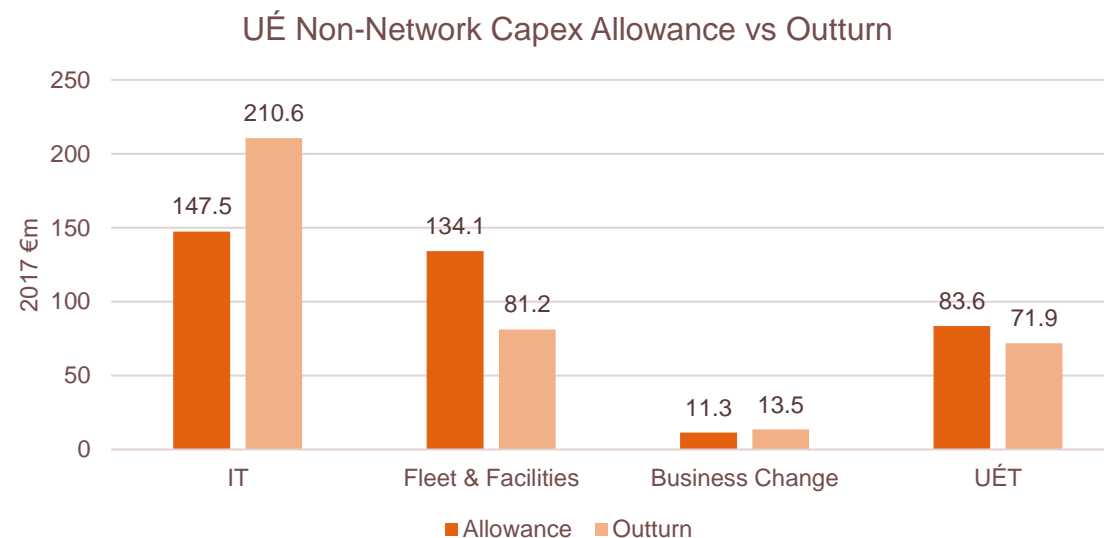
## Arcadis View

Across the construction industry, spending on construction projects was delayed due to the COVID-19 restrictions. UÉ responded by reallocating funding towards closing out legacy IRC2 projects and those necessary for security, and targeting improvements to operational efficiency, particularly in the fleet and facilities category (although the impact of these projects will be seen in RC4). Arcadis opines that this indicates a reasonable re-prioritisation process was used to identify and invest in areas of greatest risk, considering available funding avenues and the types of projects made unavailable by external factors.

Arcadis opines the above cited reasons for the variances largely reasonable as the pandemic restrictions did cause delays, HICP was above RC3 predictions (and high RPE reduced the funding available in real terms) and delays to the UÉT made resource forecasting difficult. As the COVID-19 restrictions have gone and inflation has somewhat stabilised, UÉ should be able to now focus on efficient delivery. Arcadis also notes that the non-network capex budget is a small proportion (8.3%) of the total funding UÉ receives.

Source: UÉ RC4 Non-Network Capital Expenditure Lookback

Category	Allowance (2017 €m)	Outturn (2017 €m)	Variance (2017 €m)
IT	147.5	210.6	-63.1
Fleet & Facilities	134.1	81.2	52.9
Business Change	11.3	13.5	-2.2
UÉT	83.6	71.9	11.7
<b>Total</b>	<b>376.5</b>	<b>377.2</b>	<b>-0.7</b>



# Non-Network Capex | IT

IT capex covers the products and services to keep UÉ secure, optimally running and capable of growth. Over RC3, IT expenditure was €63.1m (43%) higher than the allowance with the major areas of overspend being Run Mandatory and Business Growth & Development Projects (see table to the right).

Based on the Non-Network Capex report, the overspend has been driven by a number of factors, including:

- COVID-19 – requiring accelerated transition to remote working;
- Inflation – increasing costs of suppliers and raw materials above the Harmonised Index of Consumer Prices (HICP);
- Increased requirements for cybersecurity – the need to comply with the Network and Information Systems Directive (NIS-D). The Cyber Security Remediation Programme was introduced to comply with the NIS-D and reduce operational risks Cybersecurity expenditure is primarily represented in Run Mandatory costs;
- Focus on improved data management – one of the SWI recommendations. Implementation of the National Telemetry System (NTS) and the rollout of cloud infrastructure drove Service Transformation and Run Mandatory costs;
- Government decision to separate from Ervia, initiating the UÉT, resulted in greater expenditure to set up stand-alone IT systems, processes and capability. This expenditure is shown in the Group and Centrally Delivered IT sub-category. Since separation, UÉ have noted that they have required smaller IT contracts, resulting in a loss of economies of scale.
- A tight labour market, restricting available specialist resources.

## Arcadis View

Whilst the IT expenditure was higher than planned, a number of reasonable external factors influenced the UÉ spending in RC3. Arcadis understands UÉ accelerated

projects to meet key business demands and upgrade legacy infrastructure, and opines this approach reasonable since it was prioritising customer needs, security and enabling future growth. However, clear, quantitative targets for RC3 are not clear and therefore Arcadis is unable to opine on whether UÉ was successful in this category.

Arcadis understands that UÉ is at a fairly early stage of development in terms of unifying and improving IT systems (and cyber security) to ensure complete robustness and security of supply in line with updated requirements. Arcadis understands that this is an issue of import and is positive that UÉ are planning continued focus into RC4 and beyond.

IT Cost Sub-Category	RC3 Allowance (2017 €m)	RC3 Outturn/Forecast (2017 €m)	Variance (2017 €m)	Sub-Category description
Environmental/Regulatory/Customer	21.6	23.4	-1.8	Investment to meet requirements imposed by Irish or EU law or UÉ stakeholders
Run Mandatory	53.5	88.1	-34.6	Projects that allow IT applications to function securely and smoothly
Business Growth & Development Projects	7.6	33.7	-26.1	Incorporating new/upgraded technologies that allow the business to grow
Water & Wastewater Service Transformation Projects	38.7	47.7	-9	Improvements to efficiency through monitoring and management
Group and Centrally Delivered IT	26.1	17.7	8.4	Staff-facing IT and equipment
<b>Total</b>	<b>147.5</b>	<b>210.6</b>	<b>-63.1</b>	

# Non-Network Capex | Fleet & Facilities

This cost category includes the management of the company vehicles and physical offices, including laboratories.

Costs were €52.9m (44%) below allowance, primarily falling short in the development of Depots and Inventory Management (Operations Centres). These centres act as a base for frontline fleet and crews, containing hybrid working space and inventory storage. The Operations Centres are intended to act as an accompaniment to the Project and Regional Offices, spread more widely as local bases. Of the 36 Operations Centres planned, only 1 will be delivered in RC3 with 4 others entering the construction phase. The Non-Network Capital Expenditure Lookback identifies two factors as causing the underspend:

- COVID-19 – the restrictions caused delays to construction, changed requirements for office-based work and enabled further office consolidations; and
- Delays to the UÉT – increased difficulty in forecasting resources (employee numbers, local authority offices and assets) caused uncertainty over the numbers that would be needed and resulted in projects being paused.

## Arcadis View

Arcadis notes the areas where expenditure was furthest below allowance involved construction of physical assets. This is in line with the effects of the COVID-19 restrictions which stopped construction work between 2020 and 2022. Additionally, Arcadis understands the uncertainty created by the delays to the UÉT and agreements with Local Authorities caused changes to the forecasted number of Operations Centres and Offices needed. UÉ will lay out property requirements in the UÉ Property Strategy for RC4 once asset numbers and availability become clearer. This will clarify the investment and facilities needed. Arcadis finds this a reasonable approach forward.

Arcadis notes that clarity on achievement of targets is not provided for all sub-categories. Fleet vehicles/ capital and regional project offices have the most comprehensive plans, reflecting the current position and demonstrating how and when targets will be met.

Fleet & Facilities Cost Sub-Category	RC3 Allowance (2017 €m)	RC3 Outturn/ Forecast (2017 €m)	Variance (2017 €m)	Sub-Category description	Completion status
Fleet Operational Vehicles	26.5	29.6	-3.1	Replacing and upgrading UÉ vehicles	1330 vehicles by the end of RC3
Scientific Technical Services Strategy	33.5	33.5	0	Building two new testing laboratories to improve data quality	1 of 2 will be operational by 2025
Dublin Office	8.4	5.7	2.7	Consolidating the four Dublin offices to two	Complete
Capital Project Offices & Regional Offices	13.3	6.1	7.2	Designing new offices and upgrading the staff welfare and H&S facilities at existing offices where assets have failed	6/16 at preliminary design phase, moving to construction in 2025
NOMC	4.4	1.8	2.6	Developing a secondary National Operations Management Centre (NOMC)	Operational in Q1 2025
Depots and Inventory Management/ Operations Centres	41.7	4.5	37.2	Creating bases for vehicles and frontline staff around Ireland	1/36 delivered. 4 at preliminary design phase 4 at construction phase
Training Centre	5.3	0	5.3	Developing in-house training facilities	Not established
Facilities Branding	1	0	1	UÉ branding on new and existing assets	No data
<b>Total</b>	<b>134.1</b>	<b>81.2</b>	<b>52.9</b>		

# Non-Network Capex | Business Change

Business Change costs are associated with supporting the delivery of complex projects, including project, portfolio and change management, business analysis, process delivery and on-going support.

Costs were €2.2m (19%) above allowance, with RC3 sub-categories budgeted for RC3 projects overspending. However, the largest deviation from the budget was the underspend in the projects continuing from IRC2 (see table).

One of the IRC2 legacy projects was in supporting the rollout of new hardware and software. The Business Change team engaged in a multi-year programme to allow interactive data capture and exchange and the automatic generation of reports. This system improved compliance reporting, environmental workflows and UÉ’s ability to provide algorithms.

It should be noted that a number of these projects are multi-year by nature and it is anticipated that further investment will be required into the RC4 period. One of the projects continuing into RC4 will be a new, automated recruitment module to replace the previous manual one. This was a direct response to the resourcing difficulties caused by the UÉT and helped to reduce the risk of errors arising from manual processes.

The Non-Network Capital Expenditure Lookback identifies that the overspend on Business Change for RC3 projects was due to the number of projects requiring Business Change support being higher than expected. This was mainly driven by regulatory and compliance projects as well as the business readiness requirements.

## Arcadis View

Arcadis understands expenditure was higher than expected due to a higher demand for Business Change services on regulatory and compliance projects. These investments were required to meet regulatory, legislative and operational compliance requirements.

Given a number of the RC3 projects span several years and the specific in-period targets have not been defined in the information available, it is difficult to comment on their success within the period. Arcadis positively notes the IRC2 legacy projects were successfully closed out, although understands they did not require as much support as expected.

Arcadis notes these are relatively small variances compared to the total non-network capex allowance.

Business Change Cost Sub-Category	RC3 Allowance (2017 €m)	RC3 Outturn/ Forecast (2017 €m)	Variance (2017 €m)	Sub-Category description
Business Change projects continuing from IRC2	10.5	7.6	2.9	Support for IRC2 projects that have continued into RC3
Customer Capability Enhancements	0.4	2.7	-2.3	Provision of specialist resources for new and emerging business requirement projects
Support Services	0.4	3.2	-2.8	Changes required by new and emerging business
<b>Total</b>	<b>11.3</b>	<b>13.5</b>	<b>-2.2</b>	

# Non-Network Capex | UÉT

The UÉ Transformation Programme (UÉT) includes the costs related to transitioning water management staff from local authority employment to UÉ.

In RC3, the costs associated with the UÉT were from three main categories including:

- Implementation costs; providing service support in Health, Safety, Quality & Environment, Human Resources, IT and data management;
- Staff costs; the salaries of the UÉ members working directly on the UÉT; and
- Training and legal costs; for an external quality assurance team and legal advice on the cooperation agreements with Local Authorities (LAs).

Costs were €11.7m (14%) behind schedule, primarily due to delays in the programme as a result of complexities in transferring staff but UÉ forecast they will still be able to deliver the programme within the RC3 allowance. The majority of expenditure was in the development of key processes to make UÉ ready to safely transfer employees. In addition, UÉ has worked to communicate with LA staff to increase knowledge of the UÉT, preparing them for the upcoming transition with roadshows.

The annual expenditure profile also shows delays. The bulk of costs have occurred/ are predicted to occur in 2023 and 2024, as opposed to the allowance where the maximum was in 2021. In the workshops, UÉ highlighted that despite being delayed, they are predicting the total expenditure to be in line with the original allowance.

UÉ has reached several milestones in the transformation. Agreements have granted access to nearly 200 LA offices and depots and all LAs have transferred responsibility and data without incident. 34% of HR meetings have resulted in a willingness to transfer and over 10,000 applications have been processed to fill the skill gaps created by LA staff not wishing to switch to UÉ employment.

The UÉT Programme Team provides monthly updates to the UÉT Steering Committee and ultimately the UÉ board. These updates are reviewed monthly on governance and control processes.

Source: UÉ RC4 Non-Network Capital Expenditure Lookback, UÉ Presentation titled 'RC3 Meeting and Presentation'

This is used to guide the UÉT and measure progress against time and cost schedules. The UÉT team also submit annual reports to the CRU, detailing progress, expenditure and challenges. PWC are contracted to provide additional, independent oversight.

## Arcadis View

Arcadis notes positively that UÉ has engaged in roadshows across the country to inform Local Authority water operations staff about the programme and has initiated HR interactions. Arcadis finds this a reasonable approach since it aims to facilitate the transition of future employees.

Arcadis understands delays to the programme have caused variances in the RC3 period. It is encouraging that despite this, UÉ have gained access to LA infrastructure and water management facilities and have started recruiting and training staff.

Arcadis notes positively there is a strong focus on monitoring the progress of the transformation. It is encouraging to see there are regular third-party reviews being undertaken. The governance processes put in place will facilitate project delivery in RC4, giving multiple opportunities for potential issues to be detected and resolved.

UÉT Cost Sub-Category	RC3 Allowance (2017 €m)	RC3 Outturn/ Forecast (2017 €m)	Variance (2017 €m)	Sub-Category description
UÉT	83.6	71.9	11.7	Transfer of staff from LAs to UÉ

# 3 Projects Review & Assessment of Material Variations

- 1 Introduction
- 2 Capital Investment Programme
- 3 Projects Review & Assessment of Material Variations
- 4 Review of Performance Against SWIs recommendations
- 5 Inflation impact on Capex costs

# Initial Selection Criteria

## Context

RC3 capital programme of works was a significant undertaking for the UÉ as it continues to transition to a single public utility. The delivery of the capital programme was also marked by COVID-19, high inflation and resulting pressures on the supply chain. The UÉ has delivered on 20 out of 24 outcomes, overperforming in some areas, and underperforming in others.

Arcadis undertook a more detailed assessment on a selected set of projects to understand how UÉ teams plan and deliver investment in capital programmes and how decisions are made when changes to programmes occur throughout the regulatory period. As part of the assessment, Arcadis also sought to evaluate reasons for some of the material variations in projects, where significant differences exist between initial estimates and actual performance. The following review will also be beneficial to identify key areas of focus in the future RC4 period and help in assessing future capital programme proposals based on UÉ's learning curve and experience gained during RC3.

Arcadis' review is based on projects deemed to be critical, high value or of high delivery risk. The projects have been selected based on those that significantly under or over performed in three areas:

- **Outcomes – based**
  - The projects that either did not meet the outputs and outcomes laid out by the CRU at the start of RC3 (and updated in the RC3.5 decision) or projects that contributed to significantly exceeding the outcomes target.
- **Cost – based**
  - The projects where spend was substantially ahead or behind initial forecast.
- **Time – based**
  - The projects that have been delayed and parts or majority of it is pushed to RC4 delivery.

Based on the above selection, a core set of programmes/projects deemed most critical or high value or high delivery risks were selected for a more detailed review.

Arcadis based the assessment on the available Capex Lookback Report, written answers provided by the UÉ and two deep dive workshops with the UÉ team focusing on specific projects/programmes. The UÉ team invited relevant experts to the deep dive sessions which supported Arcadis in gaining a better understanding of each focus area.

# Proposed Focus Areas

The following are the key focus areas of Arcadis review, selected based on under or over-performance on cost, time and/ or outcomes. The following pages discuss details and Arcadis' findings on each area.

Projects	Comment
<b>Capital Maintenance</b> – Programme level with a focus on Wastewater (Above and Below ground) & Water Above Ground	In general, capital maintenance programme of works has been over budget and, in some parts, under-delivered (i.e. rehabilitated sewers was below target and pressure management was over budget).
<b>National Lead Programme</b>	Spending was nearly double the forecasted budget however the target was exceeded nearly three times over.
<b>Major Programmes</b> - Water Supply Project - East & Midlands Region; Greater Dublin Drainage Project	Both projects experienced significant delays and spending behind schedule.
<b>Wastewater Treatment</b> - Programme level	Several projects have been delayed with funding reallocated and UÉ facing issues with planning and statutory approvals processes.
<b>Water Services Above Ground (WSAG) Package Plant Bundle</b>	Contributed significantly to over-delivery on the outcomes (Water treatment plant capacity & risk of Microbiological non-compliance) and accounted for a large overspend and the need for additional investment shifted from other portfolios.
<b>Agglomerations ECJ UWWTD</b>	Focus on the delayed locations to understand plans, budgets, changes to solutions and plans for future delivery.
<b>Mains renewals (rehab)</b>	Contributed to over-delivery on Water Mains Rehabilitated outcome. One of the largest overspend of any RC3 project.
<b>New connections – Water &amp; Wastewater</b>	Higher overspend but also almost twice the revenue gained from an increased number of new connections in RC3.
<b>Find and Fix (Leakage Reduction)</b>	Whilst overbudget, more information is necessary to determine the success of this project. Arcadis understands there is an ongoing review of the leakage reduction data.

# Major Programmes | Overview

Two Major Programmes were scheduled to take place in RC3:

- Greater Dublin Drainage (GDD) Project, aiming to increase the wastewater treatment capacity in the Greater Dublin Area (GDA).
- Water Supply Project (WSP) – Eastern and Midlands Region, aiming to diversify the water supply sources for the GDA.

Both are generational projects designed to upgrade infrastructure and create headroom for future growth. However, due to planning and legal challenges, neither project has progressed according to predictions used in deciding the RC3 ringfenced allowance.

In 2022, the CRU released the ringfencing around the major projects funding to compensate for inflationary effects and contribute to UÉ's meeting of outcomes and outputs. Of the original €704m allowance, only €83m would be used on the major projects, the rest would be used to compensate for the funding loss in real terms as a result of inflation above initial predictions.

Neither project has started construction. The teams have been significantly reduced in size due to delays which limits abilities to progress at pace. The GDD project is currently in the public consultation period (ending 07/06/2024) whilst the WSP is at Approval Gate 1 awaiting ministerial approval. Further details on progress of each programme are discussed in the following pages.

## Government role

The Government has had concerns about the affordability of these programmes. The original timelines for both programmes were staggered, however, due to delays and legal challenges, these are now at a similar stage requiring significant funding at the same time. UE discussed the funding requirements from the Exchequer since public investment or private-public partnerships have been excluded as funding options.

During RC3 when it became clear the programmes' timelines were starting to slip, the government required UÉ to cover the inflationary increases across their portfolios and use the available funding. This contributed to discussions on releasing the ringfencing of the major programme funds which the government and CRU eventually approved.

## Going forward

The UÉ team plans to approach the CRU for the new funding in RC4 required for progressing works on both major programmes. It is unknown whether the funds will be ringfenced again.

UÉ suggested a potential option of having a parallel, distinct funding route for the major programmes as these do not compare in scale to the rest of the capital programme and thus should be treated separately from the business-as-usual funding. Arcadis understands UÉ is currently in discussions with CRU to agree a way forward to funding and delivering major programmes in RC4+.

## Arcadis View

Arcadis understands the delays have been a result of legal challenges and issues in obtaining planning permission which is a common challenge for national-scale projects across the industry.

Arcadis notes positively that both programmes have by now undergone public and technical scrutiny with independent reviews of the project need and proposed solutions which is expected at this early stage of large programmes of works.

Future funding availability and mechanisms will be key to enable the delivery, however, Arcadis understands these are currently not in UÉ's full control.

# Major Programmes | Greater Dublin Drainage

The Greater Dublin Drainage (GDD) Project will provide wastewater treatment capacity once the Ringsend wastewater treatment plant (WWTP) reaches full capacity. The major programme is intended to facilitate sustainable growth up to 2050 in the Greater Dublin Area (GDA).

## Progress to date

In November 2019, Ireland's national planning body, An Bord Pleanála (ABP), granted the GDD planning permission. This decision also confirmed the Compulsory Purchase Order (CPO), a key step in allowing UÉ to acquire land along the route. Subsequent legal challenges and court hearings caused the decision to be overturned.

In August 2022, ABP requested updates, if applicable, to the Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS). The updated documents were submitted in October 2023. ABP found the further submission significant and advised further public consultation will be required. The consultation period is currently ongoing and will end on 07/06/2024.

At present, UÉ is engaging with ABP to determine next steps and a timeframe for programme delivery. In the workshop, UÉ provided internal estimates that construction could finish in 2028 and commissioning in 2032, although neither is within UÉ control.

53.6% of RC3 expenditure on this project has been linked to securing CPOs, land on the route of the sewer and fieldwork. To save costs the team has been halved. UÉ has also focused on de-risking the programme by assessing key risks around the site and dividing the works into key and advanced programmes.

## Arcadis View

Arcadis understands UÉ wrote to ABP asking for clarity and notes this level of active engagement is encouraging. Arcadis understands the delays have been as a result of legal challenges and the current timelines are not under UÉ's control.

# Major Programmes | Water Supply Project

The Water Supply Project (WSP) aims to create a second water supply for the Greater Dublin Area (GDA). Water will be taken from the Parteen Basin, treated at Birdhill and moved via underground pipeline to the GDA. The project will consist of 5 infrastructure sites including a water treatment plant and 172km of pipelines.

## Progress to date

UÉ engaged in four rounds of public consultation which were used to identify a preferred scheme. Works completed to date have included:

- Creation of concept designs and design drawings for the infrastructure sites.
- >3000 site investigations at infrastructure sites and along the pipeline.
- Modelling of water levels and quality at the Parteen Basin.

To pass Approval Gate 1 (AG1), the new spending code required a preliminary business case with a cost benefit analysis of viable alternatives. During the workshops, UÉ highlighted it had been established no suitable alternative existed, so an entirely new concept had to be designed and then analysed.

The CRU and the consultants, HR Wallingford, engaged in reviews of the project where they challenged the need and economic growth predictions. UÉ responded and the project was approved to be passed onto the Major Projects Group. Full approval was granted in February, currently awaiting ministerial approval.

In accompaniment to the project, UÉ have looked to reduce the demand for water. UÉ developed a Capital Maintenance Plan on the operation and replacement of Pressure Reducing Valves (PRVs). This is to aid leakage management and therefore reduce losses.

The lack of funding has caused slower progress in obtaining land. In the workshop, UÉ laid out their preferred methodology as agreeing voluntary handovers of land from the owners. Since government funding is not released until AG1, these agreements have not been able to progress at the planned rate.

Furthermore, the progress of the WSP was also delayed due to the implementation of the National Water Resources Plan and Regional Water Resources Plans which set out system-level solutions across wider catchments, looking to address water quality and quantity aspects. The introduction of these frameworks required adjusting the timelines and details of the proposed solution to align with the strategic water objectives.

## Arcadis View

Whilst projects have not progressed as planned, Arcadis notes positively the recent proactive attitude from UÉ in liaising with key stakeholders including the planning bodies and the wider government to minimise potential delays and progress in a collaborative manner.

**Wastewater**

# Wastewater Programme - Overview

The wastewater programme has faced several challenges across the RC3 period. The UÉ team discussed the challenges and lessons learnt during the workshops.

As UÉ is a maturing utility company, it was faced with scarce data and little experience of delivering such large programme of complex works at the start of RC3. This, along with external stakeholder pressures likely resulted in an overly-ambitious programme of wastewater work being committed to with optimistic timelines for programme delivery at the start of RC3.

The UÉ team has been developing a better understanding of projects delivery throughout RC3, collecting data on its assets, average duration of project phases, and key risks and costs related to projects. This will contribute to better defining future portfolios of proposed works for RC4.

The key shifts within the wastewater programme of works resulted from several factors:

- Government decision early in the RC3 to shift available funding to water focused asset portfolio due to COVID-19.
- Lack of sufficient flexibility within the government funding. If a project is delayed, the associated budget is used elsewhere in the portfolio to use up the available funding for a specific year.
- Severe delays on a number of larger complex wastewater projects, requiring third party agreements, consents and at times development of alternative solutions.
- UÉ team found significant challenges in locations where no wastewater treatment facilities are available. Stakeholder engagement has been key to progressing the works, nevertheless, about 4-5 of key projects are on hold, currently being processed at courts, with large uncertainty on timelines going forward. New treatment works projects are the cause of the most significant delays within the RC3 programme of wastewater treatment works.

- Where significant delays occurred, the wastewater funding was used in other areas of the overall Capex programme during RC3. The UÉ team plans for better defined portfolio of projects in RC4+ to reduce large funding shifts and provide a more realistic outlook of what is feasible to deliver going forward, based on gained experience.

## Arcadis View

The discussions with the UÉ team support the Arcadis understanding of a maturing utility company that has been improving its asset knowledge and project delivery processes throughout the RC3.

Arcadis notes that wastewater programmes are typically more challenging in delivery, due to environmental regulations and likely stakeholder challenges.

The UÉ wastewater programme of works has faced significant delays, and this will likely be the ongoing challenge in RC4+.

The UÉ team has used its learnings from current project delivery to better define the schedules and average durations of the projects which will support more realistic planning in RC4+. This is seen as positive and shows a pro-active approach of the UÉ team to learn and improve, whilst collecting important project data to feed into future decision-making.

Whilst it is expected that changes occur throughout a regulatory period, requiring team's prompt response and agile approach, Arcadis notes an opportunity to improve the governance processes around recording of the decisions made. This relates to recording shifts of funding across the portfolios with clarity on reasoning and prioritisation approach for each major change. Arcadis notes positively that new governance has been implemented throughout the RC3 and will likely improve the change processes in RC4 onwards.

# Wastewater Treatment Programme

During the workshops, the UÉ team discussed the overall approach to the Wastewater Treatment Programme, its key objectives and progress till date.

The key priorities for wastewater treatment remain the same throughout the RC3:

- Compliance with Urban Wastewater Treatment Directive (UWTTD) by the European Union;
- Areas with untreated wastewater discharges (50 towns and villages);
- The EPA's Priority Urban Area Action List (PAL).

Projects that address the first two priorities will also contribute to improving the performance against EPA PAL.

The UÉ team explained typical timelines for projects delivery based on lessons learnt from RC3:

- Water main rehabilitation or minor upgrades – 12 to 24 months
- New/ upgraded small to medium treatment plant - 5 to 7 years (due to planning and commissioning and related requirements)
- Large treatment plant (requires a Ministerial approval) - up to 10 years
- National Infrastructure projects - 10+ years

This does not include any potential objections or legal challenges that may occur during a project.

The UÉ team explained the decision making within the portfolio and how changes have been made during RC3 with key points highlighted below:

- The three key priorities for the wastewater treatment remain the same throughout the regulatory period, whilst the mix of projects within the portfolio will change during the regulatory period, responding to fluctuations within the programme delivery.
- When larger projects get delayed, other works are being brought up to delivery stage - typically upgrades to the existing treatment plants.
- The portfolio managers look to keep progressing works across the portfolio despite of some projects being stalled due to consultations, permit and land challenges, complexity of the proposed solutions or other factors.

# Agglomerations non-compliant with Urban Wastewater Treatment Directive

UÉ is required to comply with the requirements set out in the Urban Wastewater Treatment Directive (UWWTD). In 2019, the European Union Court of Justice (ECJ) found that Ireland had 28 agglomerations that were not in compliance with UWWTD.

## RC3 Performance

- Since then, UÉ has had a plan in place for improvement works at wastewater plants with a target to achieve 13 agglomerations within the UWWTD compliance by the end of RC3. UÉ reported that only 8 agglomerations are forecasted to comply by the end of 2024.
- To obtain full compliance, on completion of works, one year of sampling of water quality is required to validate the compliance with UWWTD. This means that two of the 8 agglomerations where works will have been completed in RC3 will only become fully compliant in 2025 (RC4).
- UÉ describes the key reasons for delays across wastewater projects as being related to challenges with planning permission and statutory consents, issues with land & wayleaves and additional scope creep.
- Cork City and Midleton agglomerations are most significantly affected and will not reach compliance till RC4 and beyond. This is due to the scale and size of the required interventions and increased scope, as more data became available in RC3.

During the workshops, the UÉ team provided further details on progress with several agglomerations and the complexity of required works which resulted in delays. The summary of the main points are discussed below:

- **Arklow agglomeration** (planned to be in compliance in 2026):
  - The largest town without a wastewater treatment facility.
  - Overall time from start to planned completion is 11 years.
  - The project required three rounds of public engagement which also impacted the proposed solution and contributed to delays. However, the results of community engagement were positive and lead to an overall support for the final design, with no further legal challenges.
  - UÉ team took proactive steps to shorten the timelines by applying for Foreshore Licence and Wastewater Discharge Licence in parallel with the tender process.
  - Further time was spent on the ministerial application and gaining the Cabinet approval before awarding the contract and starting construction works.

# Agglomerations non-compliant with Urban Wastewater Treatment Directive

- **Athlone agglomeration** (planned to be in compliance in 2026):
  - Challenging project due to location of key assets and complex proposed solutions.
  - Issues with tendering – initially, all tender applications withdrew due to high level of risk placed on the delivery party. UÉ team looked into best procuring practices for tunnelling works and reissued a tender with adjusted risk assignments. This resulted in one company tendering for works which caused difficulties in gaining government approval.
  - Due to prolonged process of tendering and changes to planning policies, the previously acquired permissions expired in 2017, triggering a new planning application process.
  - UÉ team also took a proactive approach to de-risking the process with early media and public engagement. Good progress with expected completion of works by December 2025.
- **Enfield agglomeration** (planned to be in compliance in 2026):
  - The proposed solution was altered during the project duration, changing the conventional sludge treatment into a sustainable solution of reed beds. The change required additional land acquisition and permits which resulted in delays.

## Arcadis view

Based on the available information and workshop discussions, Arcadis sees the approach to delivering on the UWWTD as reasonable.

Whilst the UÉ did not deliver on several agglomerations planned for RC3, some of these are close to completion and others have clear reasoning on longer delays.

The works required in several locations to comply with UWWTD are complex, however, UÉ teams' understanding of the challenges and proposed ways forward has been improving over the RC3.

Arcadis notes that whilst some risks can be managed within the organisation, there is a large uncertainty on delivery timelines of such projects due to external stakeholder challenges, which is similarly a challenge in the wider industry.

The case studies provided by the UÉ team gave an insight into processes in place and Arcadis notes positively:

- the proactive attitude taken to resolve challenges resulting from lack of tenders – seeking good practice and learning from the obstacles during the process.
- Increased focus on early-stage public engagement to minimise risks to projects planning and delivery, by reducing chances of public appeals in courts.
- Seeking sustainable solutions where feasible in place of traditional grey infrastructure.
- Optimising where possible timelines for permits and consents.

The experience and knowledge gained during RC3 will support the team in planning more realistically the future works as the organisation matures.

# Sewer Rehabilitation

Sewer rehabilitation sub-portfolio of works forms part of the Capital Maintenance Programme (below ground assets). UÉ will have missed its target of km of sewer rehabilitated by end of RC3 by 108km (31%).

Sewer rehabilitation works entail either providing a new lining to the internal sewer walls or replacing sewer sections which are at risk of failure or have failed.

The programme and its progress has been further discussed by the UÉ team during the workshop, with the key points summarised below:

- The main focus of the RC3 programme were gravity sewers which are divided by non-man-entry and man-entry sewers. Man-entry sewers are large diameter sewers where staff entry is required to complete works. The man-entry sewer works are about 10 times more expensive than smaller diameter sewer rehabilitation.

## Lessons learnt:

- At the start of the RC3 period, there was no data to estimate the proportion of man-entry sewers that required interventions, thus under-estimating the overall budget requirement. The original database on sewer assets was also poor.
- The team focused on improving the process for prioritising works and managing risk. As part of that, the UÉ team developed a GIS based tool (Sewer Rehab Prioritisation Tool) to assess the likelihood of failure in sewers based on age, material, location, depth, size and consequence of failure (ease of repair, customer & environmental impact). The results were then combined with another tool to propose solutions and calculate unit cost of repair and cost per unit risk reduction.
- The team is also looking to apply alternative technologies for inspection and rehabilitation works. Databases are continuously updated as information on assets becomes available.

- The stakeholder engagement with third parties has improved in RC3 which helped to understand level of risk of certain assets and challenging asset locations.
- Going forward, the focus in RC4 will be on wastewater pumping stations and rising mains (pressurised sewers) and inverted siphons.

## Arcadis View

Based on the discussions and data available, the lack of asset understanding at the start of RC3 has contributed significantly to missing the targets and underestimating the budget requirements.

The UÉ team presented improvements in data collection and a proactive approach to prioritising works and better assessing future costs, which is positive in Arcadis' view. It shows the team is seeking continuous improvements across various areas of project delivery such as data collection, technology used, stakeholder engagement and investment planning processes.

Whilst the team has gained better understanding of the gravity sewers within their network, the focus on RC4 will shift towards wastewater pumping stations and rising mains. These are very distinct assets that differ from gravity sewers and there is a risk that similarly poor data on these assets might lead to less accurate estimates in RC4 on proposed scope, budget and timelines.

Arcadis notes that the overall approach to capital maintenance which is risk-based might support better decision making during future regulatory periods.

# Capital Maintenance (Water and Wastewater)

Capital maintenance (CM) is an important portfolio of works to replace or refurbish poor condition or failed assets to maintain the service delivery. This also includes asset compliance and reducing additional operational cost.

The UÉ capital maintenance programme has been reactive in nature where most immediate asset replacement needs arise. This has been driven by the needs of the local asset operations staff.

Initially, mechanical and electrical (M&E) work was carried out by Local Authorities' (LA) contractors with little visibility of how and where the money was spent and little record keeping of completed interventions.

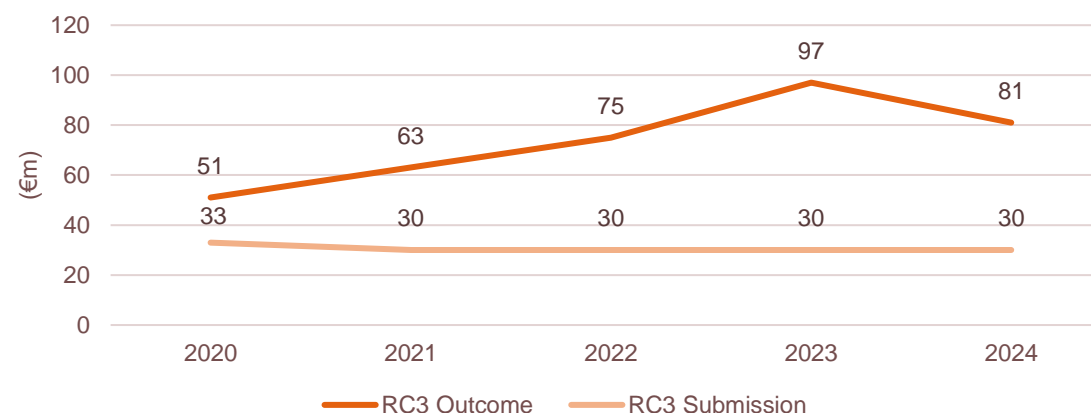
The spending for the CM programme has increased from €21.5m in 2017 to €97m in 2023 at the highest spending year during RC3. The RC3 submission predicted an almost flat spend profile of €30m annually, however, the actual spend was significantly higher. Overall, the outturn variance is €214m above the allowance of €153m.

According to UÉ, the largest spend resulted from small water mains renewals, and drinking water quality had the largest number of interventions till 2023. Interventions and spend varies regionally.

Over RC3, UÉ has further developed and strengthened the CM programme:

- Overall governance has been developed for the CM programme. As an example, there are financial approvals in place with strengthened reporting on works completed and required interventions to assets.
- Prioritised statutory inspections programmes and planned maintenance and established dedicated programmes to Electrical systems and to the Pressure systems capital maintenance requirements. Plans to develop specific asset class strategies in RC4.
- Better clarity on outcomes and outputs achieved and captured within UÉ enterprise systems. Plans to move towards planned instead of reactive maintenance in RC4.

Investment Profile



## Arcadis View

The Capital Maintenance programme is a large and important aspect of keeping service delivery. Strategic, planned and data-driven decision making is essential to maintain the aging infrastructure across the UÉ asset base.

Based on the information available, the UÉ team is in early stages of transitioning from reactive to planned CM. This builds on the transition to a centralised database and decision-making process away from the fragmented LA-based framework that was previously in place.

Arcadis sees positively the direction of changes and improvements in CM programmes and recommends further application of best practice in planned CM approach, with an emphasis on embedding the collected data into the decision-making process for planning future investment.

**Water**

# Water Treatment Programme – Overview

## Overview

The water treatment programme of works relates to several quality outcomes and outputs:

- reducing the risk of lead
- microbiological non-compliance
- Trihalomethane (chemical) non-compliance
- removal of properties from the Remedial Action List register held by the EPA.

Large amount of works have been delivered as part of the Water Supply Above Ground Programme including the Coagulation/ Flocculation / Clarification (CFC) & Filtration Programme, Disinfection Programme, or standalone projects.

## RC3 Performance

This programme most closely aligns with the Water Services Strategic Plan (WSSP) Objective of Ensuring a Safe and Reliable Water Supply in the Quality theme. Spending on this theme was €186m (29%) above initial RC3 allowance although the water treatment programmes did receive additional investment i.e. UÉ confirmed there was a decision to move funds from the slower progressing wastewater projects to water to maintain in-year neutrality. Water projects received the funding because they were assessed as having a greater impact on the customer. UÉ also exceeded the target in all the outputs and outcomes listed above.

## Over-delivery of the programme

During the workshop, the UÉ team discussed the overall progress of the water treatment programmes of work and the significant over-delivery on some of the outcomes. The success on over-delivery was attributed to a number of factors, such as:

- Over RC3, the increased asset understanding, and improved governance helped in making more informed and risk-based decisions on shifting the funds. Better data and processes will also support the estimations for RC4.
- The availability of the already set-up supply chain able to deliver within the timeframes.
- Release of the ringfenced funding available to use on projects in delivery.
- Overall flexibility to the delivery approach with funds shifted from other areas of capital programme.
- Improved ability to identify and allocate risk at each site and assets resulting in more informed decision-making by the planning and water delivery teams.
- Priority placed on water services by the government and by UÉ due to the direct impact it has on customers, as opposed to the wastewater programme which has a primary impact on the environment.
- The team has worked with the EPA and the wider government to have a better visibility of risks and availability of funding.

# Water Treatment Programme - Delivery

## Project Delivery Improvements

The UÉ has sought improvements to project delivery in several areas, with positive outcomes noted by the UÉ water team:

- Focusing on targeted interventions to bring efficiencies to the wider water programme. An example is the Disinfection Programme, a top priority for the EPA, which has driven significant microbiological risk reduction across the country. It focused on a single process to address more sites in a shorter timeline. The programme entailed improvements to 179 sites and had a budget of €65.9m, over-performing on its forecasted outcomes.

Output/Outcome	RC3 Target	RC3 Forecast
Reduction in the number of properties at risk	563,093	1,164,003

### *Drinking Water Quality (Microbiological) Risk*

- Shifting towards Early Contractor Involvement (ECI) model of project delivery which focuses on engaging the contractor earlier in the design stages to benefit from collaborative approach to finding an optimised and efficient solution. UÉ's ECI is an open-book target cost programme contract with embedded pain / gain mechanisms. This approach helps to provide better cost certainty and risk management throughout the project. UÉ team benefited from the approach which significantly reduced overall timelines for project delivery.

- The UÉ team in collaboration with its contractors has used off-site fabrication at some sites, to shorten the construction time on site and aid the planning and consent process, reducing the environmental risk. Case studies presented by the UÉ team show a focus on standardisation, modular and off-site construction in line with good industry practice.
- Based on RC3 experience of 'one size fits all approach' being not adequate, the UÉ team is looking to streamline the decision-making process for choosing preferred options within its larger programmes of works, such as managing of THM risk.

## Orthophosphate dosing

Whilst UÉ is on track to reach its target for orthophosphate dosing by end of 2024, the team mentioned significant challenges from unexpected complexities. The UÉ team expanded on this, explaining that the treatment works that required the installation of Orthophosphate treatment generally required significantly more water process changes than originally envisaged. This was due to the need to introduce pH changes to the plants necessary to achieve the ideal conditions for phosphate lining of pipes. Many of the raw water where orthophosphate was introduced were hard waters which required greater chemical dosing to allow for introduction of orthophosphate.

# Water Treatment Programme – Delivery

## Key water quality frameworks

UÉ mentioned several frameworks in place which help in identifying and developing options for addressing water quality issues:

- UÉ uses an industry-standard Drinking Water Safety Plans approach to holistically identifying and assess risks across its water treatment processes.
- The National Water Resources Plan that is now embedded across the UÉ sets out a strategy for water resources across the country, helping in identifying the most suitable interventions, with understanding of the wider water catchment impacts.
- An improved operational monitoring system is being rolled out across the UÉ (the National Operations Monitoring Centre). This will help in better oversight of the treatment facilities and provide data for improved decision-making to identify future capital programme needs.

## Arcadis View

Overall, UÉ has delivered on its water quality outcomes, over-performing on several of targets. This was supported by the funds being shifted from other parts of portfolio or wastewater programmes which progressed slower than expected; as well as from the release of ringfenced funds.

Arcadis is unable to assess the scale of overspend on delivering the agreed outcomes within the agreed budgets as financial data available for assessment lacks in sufficient granularity. The UÉ team discussed an improved governance being implemented to allow for more transparent recording of decisions made and its financial impact on portfolios.

However, based on the workshops, it was clear to Arcadis that the UÉ team is proactive in balancing the portfolio needs to meet its targets, and seeks improvements to the existing processes and delivery models to optimize its portfolio and timelines.

Arcadis notes positively the efforts to embed contractor involvement in early stages of optioneering and design development, as well as the shift towards off-site modular construction methods which are in line with good practice across the industry.

UÉ mentioned emerging challenges with chemicals that have not been a problem historically, indicating the need for a shift in identifying new risks and potential solutions for the RC4. Further water quality risks also continue developing across various treatment sites, being added to Remedial Action Risk register held by EPA.

With new and ongoing risks being identified, the UÉ team will likely face a new learning curve in RC4 on aspects such as understanding the assets condition, identifying adequate and most efficient solutions as well as developing supply chain capabilities and more. This might result in further challenges to early cost estimates in RC4, however, Arcadis notes positively the UÉ team's proactive approach to improving the existing processes. Such steep learning curve is expected from a maturing utilities organization.

# EPA's Remedial Action List

The Remedial Action List (RAL) is an EPA's register of public water supplies most at risk or with known deficiencies to be addressed by the UÉ by a specified date. The register is updated by EPA twice a year, with some sites coming on or off the register depending on the data available.

## Performance

Based on the EPA's online records, there are currently 57 sites on RAL register, out of which 9 are set to be removed by end of 2024.

UÉ had a target of 48 sites to be removed from RAL over the course of RC3 and expects to have a total of 57 removed by end of 2024, exceeding the target by 9 sites.

Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
No of Water Supplies removed from the EPA's RAL	No.	48	48	57	119%
Reduction in the number of properties with risk of THM non-compliance	No.	113,465	165,256	171,487	128%

Out of the 57 sites to be removed, 23 are targeting chemical risk of Trihalomethanes (THM), which is a byproduct of treatment processes, and 15 sites target the risk of Cryptosporidium, a type of parasite contamination.

## Trihalomethanes Risk

The RAL register was used by UÉ as a primary tool to identify and manage the THM risk across its treatment works. The UÉ identifies the THM as the largest challenge across its water treatment facilities.

One of the key issues with chemical risk is due to high variance in water quality. This is attributed to having majority of water supply come from surface water, which is more exposed to external elements than groundwater.

Alternative technology was applied by the UÉ to tackle the THM risk, such as activated Carbon, Ion Exchange, Membranes, and Chloramination in addition to blending and using alternative water sources where possible.

## RAL – based delivery challenges

In general, UÉ team found that projects which address RAL register tend to take longer to deliver than anticipated (approx. 5 years). Large stand-alone projects can take approx. 7.5 years to complete and programme delivery shortens the time to 3.8 years. COVID and other key global events also affected the initial timelines.

Additionally, incomplete knowledge on asset condition of multiple small water supply sites across the country, means that new, unexpected risks emerge as the programme progresses, with new sites added to RAL. To fund and mitigate these supplies, UÉ re-prioritised other lesser needs within sub-portfolios and projects. UÉ noted an increasing new challenge in managing the chemical risk of manganese and iron, which is more seasonal and random. This will be a focus area in RC4.

# Water mains - New and Rehabilitation

Water mains renewals target the poorest performing sections of the water mains network by either replacing or lining the pipes to reduce customer outages or poor water quality.

## RC3 Performance

In the initial RC3 decision, UÉ was set a target of 511km of mains rehabilitated. As part of the RC3.5 decision in 2022, the CRU increased the target by 220km to 731km.

Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
New Water mains	km	496	419	500	101%
Rehabilitated or lined mains	km	731	826	948	185%

The outcome for rehabilitated mains is on track to be significantly exceeded at the end of RC3 due to reallocation of funding across the overall investment portfolio. The water mains renewal programme received investment ahead of schedule as part of the government's stimulus funding response to the COVID-19 pandemic. This accelerated outcomes ahead of initial projections.

## The National Water Resources Plan

There were several changes to the project delivery as part of the New Water Mains programme. The key driver of change was the development and adoption of the National Water Resources Plan (NWRP) during the RC3.

The NWRP is a strategic framework that seeks to set out common objectives and a coherent plan to address water quality and quantity needs across the country. It is divided into four regional plans with location specific solutions. The NWRP was developed by UÉ Asset Strategy teams in collaboration with Local Authorities and consulted with the Environment Protection Agency (EPA) and the public.

Many of the initial RC3 proposed solutions for new water mains were overridden by the proposals in NWRP which, in principle, should provide more integrated catchment solutions. This resulted in a large shift in projects delivered within the portfolio with many projects altered or abandoned with new projects being put forward for delivery.

The UÉ team confirmed that going forward, all proposed solutions will be aligned with the NWRP which will undergo periodic reviews as per similar UK-based process. This should reduce large fluctuations in the projects being put forward.

# Water mains - New and Rehabilitation

## Changes to Water mains portfolio

Further material changes to the programme were caused by the poor asset understanding at the start of the RC3 which affected project delivery:

- As the projects were developed in scope and more data was collected, some changes to the project mix were required. For example, after initial investigations as part of the Greater Dublin Area Groundwater Augmentation Programme, insufficient water resources were found which resulted in need to seek alternative options.
- In other projects, more water mains were required than initially assessed. Rationalisation Programme which sought to connected weaker supplies to more secure treatment locations, resulted in laying of 161km of new and unplanned Water mains across 65 sites.

During the workshops, the UÉ team highlighted the improved Investment to Outcome (I2O) process which starts each project definition with identifying a clear need and a better governance process with more visibility on asset data and remaining data gaps. This allows the team to better assess the project risks and develop adequate mitigation measures.

## Arcadis View

Large changes to project makeup of water mains portfolio occurred during RC3, with key shift due to NWRP adoption. Arcadis notes positively the introduction of an integrated plan that should provide better, more optimised solutions across catchments. However, the improved data collection and embedding data in decision making process will be key to shifting towards a more stable portfolio of projects in RC4+. Using early site investigation and data capture to define scope for future projects will help the organisation further build the asset knowledge and understand and manage risks better, providing more stable budget predictions for future regulatory periods.

# National Lead Programme

National Lead Programme delivers replacement works for lead service pipes in order to manage the drinking water quality risk from lead. The works entail replacement of public side lead service pipe and customer-side lead pipes, usually located in the backyards.

## RC3 Performance

The UÉ will have over-delivered on the outcome by end of 2024 by more than 2.5 times.

Outputs	Unit	RC3 2024 Target	RC3 Delivered to Date	RC3 2024 Forecast	% of RC3
Number of Lead Services replaced	No.	13,231	28,789	36,872	279%

The focus of the programme has shifted over time to the public side lead services which are easier to replace than customer-side pipes. This is because additional consents and permits are required to perform works on the customer land. The UÉ team confirmed that the cost for public pipes replacement is roughly a quarter of the cost for customer-side pipe services.

During the workshops, the UÉ team discussed steps taken to improve the existing approach to lead replacement in preparation for the RC4.

- The team is looking at new technology to more accurately identify the lead pipe services in public spaces.
- UÉ team is also looking to increase the trial holes testing prior to scheduling full replacement works to better assess the requirements.

- Public information and local public consultations have started as part of the process to improve customer engagement and speed up the process of obtaining relevant permits and agreements for customer-side lead pipes replacement. This approach has brought initial benefits, but it is an ongoing long-term process.

The UÉ team also confirmed that additional funding was allocated to the National Lead Programme in 2022 which contributed to the over-delivery on the RC3 target outcome for number of lead services replaced. This was due to wider portfolio level re-allocation of funds to use available fundings in programmes of work already set up and in delivery.

## Arcadis view

UÉ's approach to initially prioritising the easier to access lead pipes on public land is reasonable and aligns with industry practice. Based on the workshop findings, Arcadis notes a culture of continuous improvement, with an example of developing an improved customer engagement to increase the support for customer-based lead pipes replacement, benefitting future programme delivery.

To encourage continuous progress with more difficult to access client-side lead pipe schemes, Arcadis recommends a review of the target outcome for RC4, based on lessons learnt from RC3 delivery.

Note that while this approach is reasonable, the RC4 programme should be costed using unit-costs which recognise that future work will get progressively more challenging.

# Find and Fix - Leakage

The Find and Fix programme aimed to reduce leakage across RC3, improving the efficiency of UÉ water networks and managing the demand for potable water. This work includes leakage reduction on both the public side and the customer supply side.

## RC3 Performance

In the RC3 decision, UÉ were given a net leakage reduction target of 176MLD (megalitres per day). This was split into 161MLD on the public side and 15MLD on the customer supply pipe. As part of the RC3.5 decision (CRU 2022977) the target was increased by 1.5MLD, although it was not specified if this increase would apply to the customer or public side.

There is currently insufficient data to comment on UÉ's performance over the whole period. It can be found in the Network Capex Lookback that there was a reduction of 90MLD at the end of 2022 on the public side alone.

The 2022 Change Control Report identifies several factors that impacted delivery:

- Diminishing returns mean interventions result in smaller leakage reductions.
- Supply chain constraints caused delays to programme delivery.
- Implementation of the UÉT Target Operating Model (TOM) left significant vacancies, particularly in Operational Leakage Management and water network operations.

A pressure management programme was also created to contribute to reducing leakage across the networks. The programme started as a response to increasing asset knowledge showing mixed pressure levels across the country. The programme actively seeks opportunities to reduce leakage by controlling or stabilising pressures. UÉ spent more than forecasted on the pressure management in RC3 as the programme increased in scope.

More pressure reducing valves (PRVs) have been installed to provide greater pressure control, although the full impact will be seen in the leakage reduction data, expected to be presented in Q3 2024.

## Next steps

Whilst UÉ were on target at the last known data point (2022), it is unlikely the RC3 target will be met by the end of the period.

During the workshops, the UÉ team confirmed they had been engaging with the CRU on a technical review to develop a methodology for calculating leakage reduction on the consumer pipe side.

From 2019-21 a reduction of 14.1MLD was achieved, however, it is unknown how much of that was in 2019 and therefore before the RC3 period. The UÉ team also confirmed the consumer pipe side leakage reduction up until 2022 is currently being calculated.

A full update containing the leakage reduction figures will be presented to the CRU in Q3 2024.

## Arcadis view

Arcadis notes the establishment of a dedicated project team to reduce leakage and engagement with CRU as encouraging. However, the incomplete data means Arcadis cannot give an opinion on UÉ's performance through RC3.

# New Connections – Water & Wastewater

The new connections represented the total number of properties added to the water supply network. New connections are funded from customers based on the approved CRU Water Charges and the Connections Charging Policy.

## RC3 Performance

The revenue from new connections and grants for RC3 was €650m (98% above target), where €8m came from grants.

This was a result of UÉ delivering more new water and wastewater connections than estimated for RC3 and so were above the budget.

The main reason was due to the government's initiative to drive housing development such as the Housing for All programme. The Housing for All programme has led to a difference in the set of economic assumptions resulting in higher than anticipated new connections number and revenue. This initiative has been fully supported by the UÉ.

The Housing for All programme projections were not available at the start of RC3 and UÉ estimates were based off run rates and known economic growth rates at the time.

## RC4 Approach

Going forward, UÉ plans to use the Housing For All programme projections lead by the Department of Housing. UÉ will use the most recent projections at the time of the RC4 submission.

## Arcadis View

UÉ's approach to estimating number of connections is reasonable and aligned with the Government's forecasting.

# 4 Review of Performance Against SWIs recommendations

- 1 Introduction
- 2 Capital Investment Programme
- 3 Projects Review & Assessment of Material Variations
- 4 Review of Performance Against SWIs recommendations
- 5 Inflation impact on Capex costs

# Scottish Water International (SWI) Recommendations

## Context

- UÉ together with CRU identified the need for an independent review of internal UÉ processes following a revised RC3 submission in 2019.
- Scottish Water International (SWI) were appointed to undertake the review of UÉ's mechanisms and processes for planning and delivery of infrastructure investment plans. As a result, a number of recommendations were made by SWI to UÉ's existing processes to help improve and mature the company's ability to plan and deliver capital programmes of work.
- UÉ have implemented many of the recommendations further maturing its approach to programme delivery.
- In January 2023, CRU procured a technical review to verify UÉ's implementation of all SWI Review Recommendations. Conducted by the HR Wallingford (HRW) and ChandlerKBS, the review provided additional recommendations to enhance UÉ's processes, systems and workforce.
- The HRW review determined that UÉ has made significant progress in implementing SWI recommendations, but a small number of improvements have not been fully implemented, particularly in relation to Cost Estimating Approach and Risk Management Methodology.
- As a result, CRU required the UÉ to plan and delivery the remaining SWI recommendations as well as new HRW review recommendations as part of the 'Post HRW Review Implementation Plan'.

## Arcadis Role

As part of the Lookback review, Arcadis reviewed the available SWI and HRW reports along with the information provided by UÉ on RC3 programme delivery till date. Based on this review, Arcadis has provided a high-level review of UÉ's performance against SWI's recommendations, considering the extent of implementation with areas that could benefit from strengthening the good practices.

It is worth noting, that Arcadis review is based on existing reports mentioned above as well as deep dive workshops with UÉ's teams undertaken in May 2024. It aims to provide further insights into recent progress, although it may not provide exhaustive coverage.

# Scottish Water International (SWI) Recommendations

## SWI Recommendations Overview

The SWI Recommendations covered an extensive overview of the UÉ’s internal processes and grouped the findings into the following themes:

No	SWI Review Theme	Key focus areas of the review	Areas of improvement identified by SWI
1	Scope Definition	Defining scope of projects and identifying key project and delivery risks in early stages	Enhance asset knowledge through improved data collection and early engagement with the Operations team, along with the preparation of detailed risk registers.
2	Estimation, Risk and Uncertainty	Developing accurate predictions of the monetary cost of risks and uncertainty	Form a specialist team with detailed knowledge of site-specific risks and historic costs to enhance early risk assessment and cost estimation.
3	Programme, Portfolio and Project Risk	Improving estimates of the financial impacts of risk	Recognise portfolio, programme and project level risks and assign management team accountability for using and managing risk contingencies.
4	Governance & Change Management	Streamlining the governance and review process	Review the time to approve escalations or changes. Possibly introduce a risk runway system to allow for more rapid escalation.
5	Investment Plan	Project reprioritisation and adjustments	Annual CIP refreshment and development of an internal Delivery Plan, identifying areas of risk and outperformance opportunities. Working with the CRU to increase certainty of funding and create a change control process.
6	Workshops & Project Tracker	Project gateway approvals process	Simplification of the Project Charter and explicit definitions of the roles and accountabilities of Project Managers and Asset Delivery Regional Leads. Clarify decision-making accountabilities and monitor workshop attendance.
7	Asset Planning as Asset Owners	Asset understanding and management	Improve asset understanding by building a predictive asset database and analytics. Increase Asset Planners' input early to optimise scope and review resource constraints.
8	Increased Involvement from Operations	Contributing parties in the creation of the CIP	Introduce Asset Operations team at the Project Charter drafting. Review resources and create an Asset Operations Portfolio Team to support Asset Planners.

# Scottish Water International (SWI) Recommendations

## SWI Recommendations Overview

The SWI Recommendations covered an extensive overview of the UÉ’s internal processes and grouped the findings into the following themes:

No	SWI Review Theme	Key focus areas of the review	Areas of improvement identified by SWI
9	Value Management	Introducing value engineering as early as possible	Set value management workshops for Phase 1 and conduct value engineering prior to tender, challenging scope when possible. Enhance commercial competencies for delivery, regional leads, and support managers to focus on value engineering, scope challenge, and commercial risk assessment.
10	PMO & Reporting	Reporting discipline during a project	Update reports monthly and between stage gates and ensure clear accountability. Improve system integration and governance processes for timely updates. Develop Key Performance Indicators (KPIs) and standardized monthly reporting.
11	Maturing Accountability & Ownership	Defining project responsibilities at each stage	Hand-offs between parties facilitate responsibility transfer. Asset Planners should maintain ownership of assets and capital interventions throughout, but resource review is advised due to current shortages.
12	Contracting Models (Risk Sharing)	Forming partnerships with the supply chain	Provide suppliers with consistent demand and visibility of work to enhance efficiency, establish strong links to mitigate risk, and create economies of scale.

The SWI Review themes were used to create 53 recommendations for the UÉ to implement, in agreement with the CRU. The recommendations were grouped into 14 metrics which were used to help assess UÉ’s progress in embedding the proposed improvements. UÉ agreed to submit quarterly reports to the CRU on the implementation of the SWI Recommendations, using the metrics to gauge progress.

In March 2023, the CRU commissioned HR Wallingford to review the UÉ’s progress on the implementation of the SWI Recommendations against each metric.

# HR Wallingford (HRW) Review

## HRW Recommendations Overview

HRW assessed UÉ's progress across 14 metrics, finding that 10 were fully implemented, two met to a reasonable extent, and two not implemented, having more material impact on the Capital delivery. HRW provided recommendations for completing outstanding metrics and improving overall performance, categorised into short-term and long-term actions. Short-term recommendation evidence will be submitted to the CRU by Q4 2024. As per the Plan, UÉ must submit a draft roadmap in Q1 2024, followed by a final roadmap in Q2 2024, and a progress report in Q4 2024.

Arcadis views UÉ's short-term recommendations for cost estimating and risk management as non-material and easily implementable. HRW's long-term recommendations for UÉ center on risk and value management, as well as enhancing the cost intelligence team. While recruitment may take longer due to market availability, Arcadis believes these recommendations are generally straightforward to implement given UÉ's operational knowledge. Engaging external third parties could further expedite preparation and review, integrating best practices from similar utilities.

HRW also gave recommendations on the metrics where SWI Recommendations had been fully implemented. The central themes of these recommendations were:

- Improving training procedures
- De-risking projects with better initial investigation and practical approaches to identifying risks
- ISO standards compliance
- Increasing automation.

## UÉ's Progress On HRW Recommendations

Arcadis has reviewed the UE's draft roadmap report from the Q1 2024. However, there is no specific information provided regarding its implementation status. Below are the timelines for HRW's key recommendations:

- Value Management (Metric 6): The SOP is set to be finished by the end of September, with training starting in July and wrapping up by the end of 2024.
- Cost Estimating Approach (Metric 10): The Cost Estimation SOP should include Tender to Outrun and Estimating Uncertainty calculations by the end of March.
- Cost Intelligence Team (Metric 11): Recruitment strategies for key resources should have begun in early 2024 and finished at end of the year.
- Risk Management Methodology (Metric 12): The update of processes, SOPs, and related documentation was expected to begin early in 2024, with completion targeted for the end of Q3 and Q4 2024.

## Arcadis View

Based on the general Arcadis overview including findings from UÉ workshops, the organisation is on track with implementing the SWI recommendations. UÉ is a maturing utilities company on a steep learning curve, proactively taking steps to improve its programme delivery capabilities and seeking to address the remaining areas of SWI recommendations.

Arcadis notes positively UÉ's proactive approach to implementing more structured governance and increasing its asset and operations understanding which will benefit the future regulatory submissions for Capital programmes. Such changes take time to be fully embedded in the existing and changing organisational structures but based on evidence seen till date by Arcadis, UÉ is on the right path, continuously improving in delivery of infrastructure programmes across the country.

# 5 Inflation Impact on Capex Costs

- 1 Introduction
- 2 Capital Investment Programme
- 3 Projects Review & Assessment of Material Variations
- 4 Review of Performance Against SWIs recommendations
- 5 Inflation impact on Capex costs

# RC3 Macro-Economic Drivers of Change | Overview

## Overview

- In setting allowances for the RC3 period, the CRU set a 2017 price base. Significant inflationary impacts beyond the Harmonised Index of Consumer Prices (HICP) adversely affected UÉ's cost base and CRU worked with UÉ over RC3 to identify options that helped ensure UÉ had access to sufficient funds to deliver operations at an appropriate level of service.
- The inflationary impacts felt over the RC3 period had the most significant impact on the cost of materials and resources for UÉ. The Wholesale Price Index for Construction Materials shows the cost of steel increasing by c.50%, timber by c.70% and energy by c.50% from late 2019 to early 2023. The labour cost index has steadily increased over RC3, making a significant difference to the cost of works and impacting programme timelines. The pace of inflation increase has begun to slow, in part due to the stabilising of material supply prices and reductions in energy costs, suggesting increased stability moving into the RC4 period.
- UÉ noted that the inflationary impact posed a risk to delivery of the capital programme over RC3. For example, UÉ noted that their ability to sustainably procure future work was impacted by Ireland's high levels of insolvency over the period and increasing cost of works. Preferred bidders have declined the contract offer within tender validity periods due to the inflationary effect on their existing bid and the potential for further future impacts.
- The risk of construction inflation above the HICP was confirmed by Scottish Water in its independent review of the RC3 CIP. To help determine the inflationary impact, UÉ developed a Hybrid Inflation Index which highlights the impact of Real Price Effects (RPE).

## Arcadis View

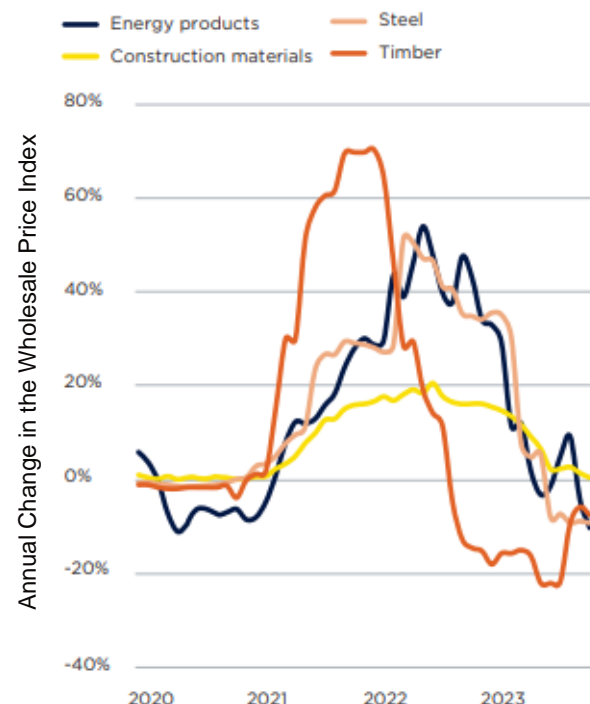
- RC3 was a period of extraordinary global events including COVID-19, Brexit and the war in Ukraine, all of which created clear inflationary impacts and were difficult to predict. To avoid the impact of inflation and real price effects, UÉ and CRU needed to redistribute funds to manage the change. This highlights the importance of an effective change management approach, with appropriate engagement from all parties.
- The June 22 Capital Expenditure Submission under-estimated the effects of inflation (and RPE). The variance between the original allowed HICP forecast and the actual rates changed from €65m to €113m and the variance in RPE changed from €357m to €441m. The impact altered the available funding for additional outputs and outcomes. Inflation and RPE were difficult to estimate at the time of the Capital Expenditure Submission, but this does represent a significant change. The method which UÉ employed to calculate the RPE appears reasonable, using indices which reflect the actual cost structure but, it is important to have understood all possible lessons learnt from events such as this to support continuous improvement.

# RC3 Macro-Economic Drivers of Change

## Introduction

- This sub-section reviews the external drivers to material variations in RC3, considering the macro economic environment, specifically material/commodity prices, supply chain risk and labour cost, and inflation.
- UÉ have noted that the most significant challenge that exists for their Capital Investment Plan pertains to materials and resources, both the abnormal inflation of costs and also availability.
- The risk of construction inflation above HICP was confirmed by Scottish Water in its independent review of the RC3 Capital Investment Plan.

## Material/ Commodity Procurement Prices



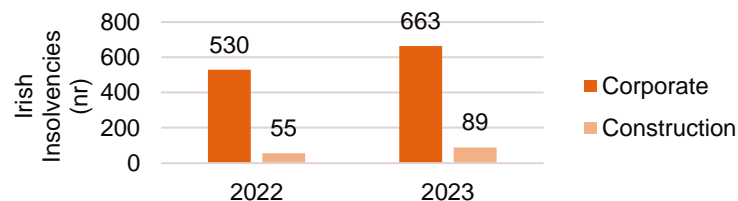
- The pandemic, Brexit and the Ukraine crisis have played a significant role in driving the escalation of construction costs, causing disruptions in global supply chains and extremely high levels of demand for home improvements. This has driven-up construction costs and impacted supply chain risk.
- The Wholesale Price Index for Construction Materials, as monitored by the Central Statistics Office (CSO), shows various surges from late 2019 to early 2023 in prices, with the cost of steel increasing by c.50%, timber by c.70% and energy by c.50%.
- Not all construction materials exhibited concurrent increases and those experiencing peak prices during the pandemic are currently undergoing a decline or have somewhat stabilised since the start of 2023, albeit at materially-higher price levels.
- Gas and electricity costs in Europe increased by much more than the global trend. Since, European natural gas prices have continued to fall and recently returned to more stable, long-term price levels. Strong volatility in oil prices has important implications for the Irish economy as Ireland has a relatively poor fuel endowment and relies heavily on imported oil. Pre-tax electricity and gas prices remain significantly above the euro area average.
- UÉ have noted that the real price effects experienced were of such a magnitude that they posed a risk to delivery of the capital programme over RC3. UÉ received claims from contractors due to price inflation on materials and products, coupled with minimal order price validity periods and increased delivery timelines.

Source: Arcadis Market View, Irish Construction, Turner & Townsend, CSO, Irish Water Capital Expenditure Submission, European Central Bank

# RC3 Macro-Economic Drivers of Change

## Supply Chain Risk

- There has been an increased risk of supply chain failure. Risk of supply chain failure can result in contractors and their supply chain being very selective in their project pursuits (where they can succeed in both project winning and delivery), a reduction in competitive prices or providing overly competitive (and below-cost) tendering which leads to concerns about market stability.
- In Ireland, there has been considerable competition in both main and subcontract works, albeit with provincial variations. According to the SCSI's Tender Price Index (an independent assessment of commercial construction tender prices in Ireland), the annual median national rate of inflation for 2022 was 11.5%, although 2023 has reduced to 3.9%.
- The highest corporate insolvency levels since 2018 were recorded in 2023, with a 62% increase in the construction sector. In addition, a range of major construction players, from Watkins Jones and Laing O'Rourke to Lendlease and McLaughlin & Harvey, have all reported pre-tax losses in their latest accounts.
- UÉ have noted that their ability to sustainably procure future work has been significantly impacted. Preferred bidders have declined the contract offer within tender validity periods due to the inflationary effect on their existing bid and the potential for further future impacts.



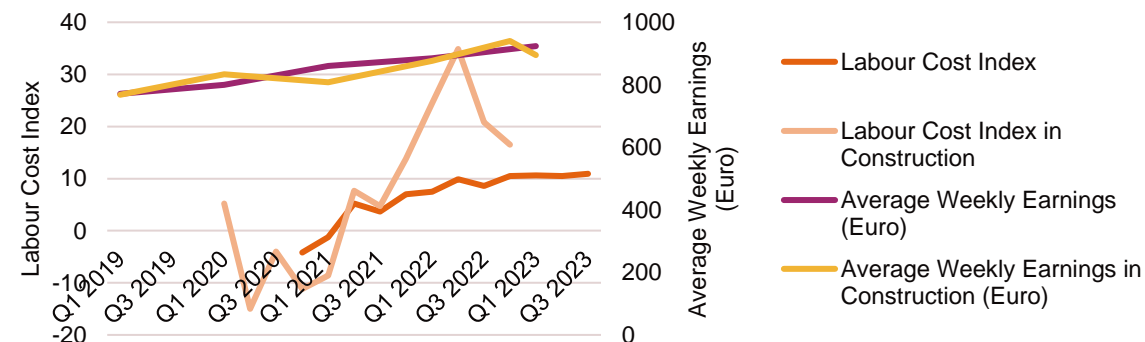
Source: Arcadis Market View, Irish Construction, Turner & Townsend, CSO, Eurostat, SCSI, Irish Water Capital Expenditure Submission, 2021 change control report

## Supply Chain Risk Cont.

- The Regional Bio Solids Facility project provides an illustrative example. It was tendered in 2020 but, by the end of 2021, the contractor advised that they would not be able to commit to a contract in line with the tendered amount due to the subsequent increase in input costs. As a result, this tender was collapsed and re-run.

## Labour Costs

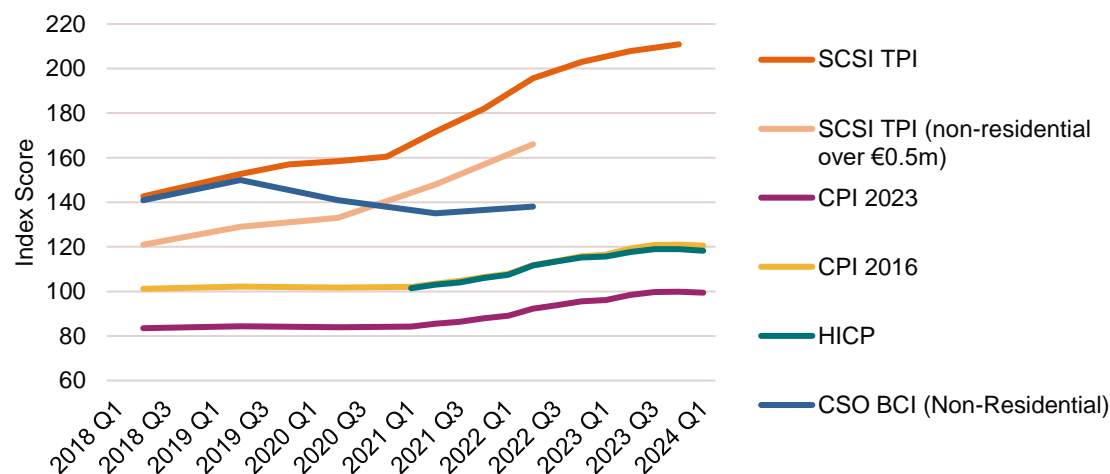
- The labour cost index (graph below) shows the short-term change in the total hourly costs for employers to maintain their employees, i.e., it measures how much the production factor 'labour' drives costs. This has steadily increased, with a large peak in Q2 2022. Additionally, average weekly earnings in construction has increased, often remaining higher than the overall average with a sharp peak in 2022.
- The cost of labour makes a significant difference to the cost of works and impacts programme timelines.



# RC3 Macro-Economic Drivers of Change

## Inflation

- RC3 was a period of extraordinary global events including COVID-19, Brexit and the war in Ukraine, all of which led to increased inflation across RC3 (see graph below) and had a significant impact on UÉ.
- The Society of Chartered Surveyors Ireland Tender Price Index (SCSI TPI) in particular increased, with a median national increase of 7.5% during the first half of 2022, attributed to pent-up demand due to Covid-19, supply chain issues and labour shortages.



## Inflation

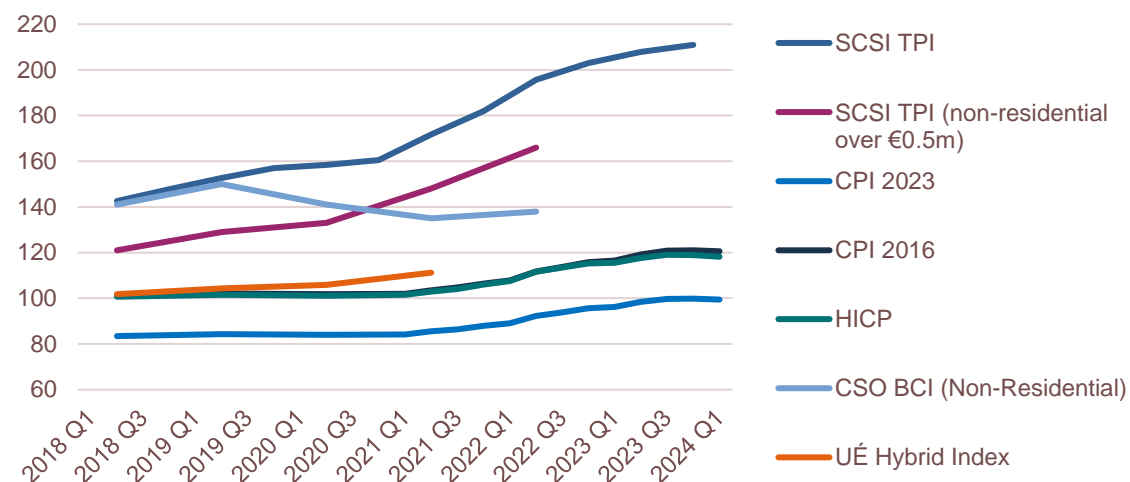
- Most recently, the rate of inflation has mostly remained above normal but steady, with the market experiencing continued challenges concerning financing costs, shortages of skilled labour and rising labour costs. The somewhat stabilisation is somewhat due to the stabilising of material supply prices and reductions in energy costs.
- In setting allowances for the RC3 period 2020-2024, the CRU decided on a 2017 price base. The impact of inflation was accounted for via a Harmonised Index of Consumer Prices (HICP) projection. UÉ's capex funding operates to a nominal cap that was based on the original RC3 decision HICP rates, any subsequent variance impacts real funding.
- In recognition of the inflation experienced, guidance was released by the Office of Government Procurement (OGP) for its Capital Works Management Framework contracts which, although they are not directly applicable, UÉ sought to align to. UÉ therefore transitioned from a HICP based indexation provision to WPI Table 3 (a sub-index for construction materials) for future contracts from March 2022, and broadly align with the State inflation burden share principles of the OGP approach.
- Significant inflationary impacts beyond the HICP adversely affected UÉ's cost base. Real Price Effects (RPEs) can be significantly higher than HICP. For example, the increased cost of steel has significantly impacted the cost of capital projects.
- CRU has worked with UÉ over RC3 to identify options that help ensure UÉ has access to sufficient funds to deliver operations at an appropriate level of service and investment but that does not undermine incentives for capital efficiency of output.

# RC3 Macro-Economic Drivers of Change

## Hybrid Inflation Index

- To help determine the inflationary impact, UÉ developed a Hybrid Inflation Index which highlights the impact of RPE.
- The Hybrid Index applies a combination of several industry standard indices to a model of UÉ's capex costs which reflects the nature of the work carried out by UÉ. The primary breakdown of costs is split between construction activities, services and other overhead costs. Sub-breakdowns below this level are also applied based on factors such as industry benchmarks and experience to date. Each individual cost category is matched to an industry standard index and a total index is then derived on a proportionate basis. Arcadis opines this is a logical approach.
- The Hybrid Inflation Index consists of the following weightings:
  - Annual CIF Sector Order: 26.89%
  - CSO Earnings & Labour Costs Quarterly Release: 33.58%
  - CPI Sub-index: 2.32%
  - HICP: 8.59%
  - CSO WPI for Building & Construction Materials: 19.67%
  - BEAMA Index: 8.94%
- The HICP is lower than the Hybrid Inflation Index, suggesting Real Price Effects are being incurred (see table on the right).

## Hybrid Inflation Index



	2020	2021	2022	2023	2024
HICP Index	101.1	103.5	113.4	118.6	119.7
IW Hybrid Index (June 2022)	105.85	111.2	121.21	126.67 <i>(forecast)</i>	129.33 <i>(forecast)</i>

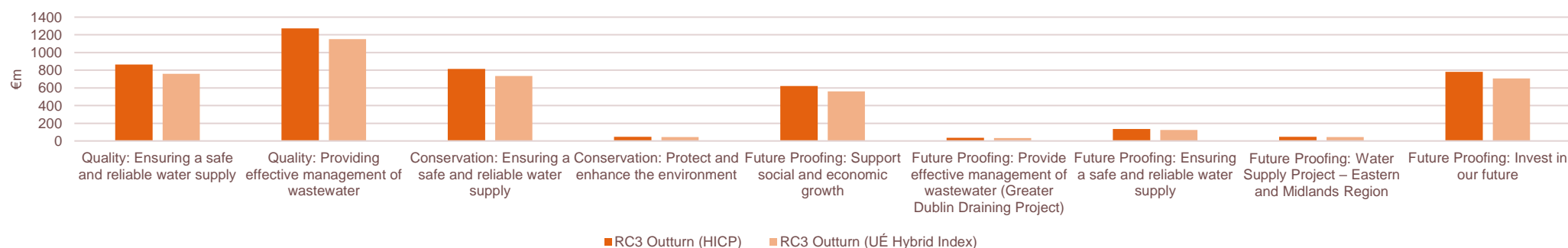
# RC3 Macro-Economic Drivers of Change

## Reallocating Available Ringfenced Funding

- A management approach to respond to the inflation (and RPE) related gap in funding included reallocating available ringfenced funding (€704m) from two Major Projects (Water Supply Project - East and Midlands and Greater Dublin Drainage) following a request submitted by UÉ in July 2022. The proposed use of ringfenced funds as of June 2022 was revised to account for changes to end of RC3.
- The reallocation considered the original allowance for the projects (€704m), forecast expenditure on the projects (€83m), the loss in real funding i.e. variance between the original allowed HICP forecast and the actual rates (€113m), the RPE as shown by the variance between the HICP and the Hybrid Index (€441m; see below), the reallocation of funding to meet Opex needs (€94m) and funding for additional outputs and outcomes (changed from €110m to -€27m).
- Arcadis notes that the June 22 Capital Expenditure Submission under-estimated the effects of inflation (and RPE). The variance between the original allowed HICP forecast and the actual rates changed from €65m to €113m and the variance in RPE changed from €357m to €441m. The impact altered the available funding for additional outputs and outcomes.

Original Allowed HICP Forecast Vs Actual Rates	2020 Actual	2021 Actual	2022 Forecast	2023 Forecast	2024 Forecast	Total
RC3 Nominal Funding Cap (€m)	792	896	1,099	1,141	981	<b>4,909</b>
RC3 Capital Allowance (2017 monies; €m)	760	884	1,015	1,033	871	<b>4,523</b>
RC3 Estimate Funding in 2017 Monies (using HCIP from 2024; €m)	783	865	982	971	809	<b>4,410</b>
<b>Delta (€m)</b>	<b>23</b>	<b>21</b>	<b>-33</b>	<b>-62</b>	<b>-62</b>	<b>-113</b>

UÉ's Assessment of impact of RPE on RC3 Capital Allowance Outturn



**Totals**

RC3 Outturn (HCIP): €4,593m

RC3 Outturn (UÉ Hybrid Index): €4,152m

RC3 Outturn (UÉ RF): €441m

## Contact Us



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