Review of the Uisce Éireann Draft Water Services Strategic Plan 2050

Submission by The Irish Academy of Engineering

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EXECUTIVE SUMMARY

The needs of the economy are determined by the rate of growth / decline in economic activity within Ireland, the EU and globally. The scenario considered in the draft Plan is that Ireland will continue to grow its population and economy over the period to 2050. Pressures, existing and emerging will require to be carefully managed and resolved.

The draft Plan demonstrates a deep understanding of the technical and organisational issues that will be faced by UÉ over coming years. That is combined with insightful analysis and presentation of the individual approaches proposed to meet challenges and achieve the stated objectives. In the period to 2050 it is accepted that we will expect unprecedented changes in Ireland, many of them changes will impact the water cycle.

Overall delivery of the draft Strategic Plan 2050 is subject to "*economic and technical feasibility"* **suggesting that it may be beyond the control of UÉ to deliver all of its strategic objectives,** perhaps in part because it's funding model relies on 80% central government support. It should be technically feasible to deliver the objectives and demonstrate that affordability / value for money is the primary constraint on achieving compliant and energy efficient water services infrastructure. The availability of funding is therefore one of the key challenges, and also a key constraint if available funding is below the level required to deliver the necessary standard of water services.

UÉ has a well-developed structure, teams and strong technical capacity. It is restrained from meeting its long-term objectives primarily by the availability of funding.

We commend UÉ's approach to innovation since its establishment and strongly support and encourage that approach into the future.

A 10-to-15-year horizon with the ambition to be fully compliant by 2040 would be more appropriate. Reviews and updates at 5-year intervals are insufficient, do not provide the flexibility to address emerging priorities.

The IAE believes there is a case to be made for a change to the current approach of separating OpEx and CapEx to one which provides flexibility to the utility to take a more holistic approach to the management of its asset base.

Notwithstanding the sensitivities relating to the question of funding, there should be no room for any misunderstanding on the scale of investment and certainty on funding required. Certainty on funding availability on a multi-annual basis is critical to achievement of the Plan Objectives. This would also be critical for high value multi-year projects, where Ministerial consents are provided on a phased basis, with no future certainty of funding.

Without multi-annual and adequate funding, the necessary and essential improvements to our water services will not be made and existing infrastructure will continue to deteriorate.

The introduction of a fit for purpose planning system with clear timelines for approvals is critical to timely implementation and upgrading of water services. Significant delays have been encountered in the planning process over the last 10 years. The extent to which planning and environmental issues delay proposed works must be addressed. While a new Planning and Development Bill has been published, it has not progressed with the urgency needed to address the delays inherent in the current planning process.

UÉ's demand for energy will inevitably increase in future given the utilities need to provide for ongoing population increase, economic growth and the impact of evolving national and EU legislative requirements. This increased need can be partially addressed by selecting processes and equipment that is more efficient and carbon neutral.

Resilience is the ability of the system to recover from shock or disruption. Many schemes have capacity deficits, with little or no headroom. Examples include the Dublin drinking water and wastewater schemes, which are deficient in overall capacity and do not have the required resilience to cope with increasing demands.

Ireland's distribution network is between 65 to 85 years old. Our leakage rates are very high. To achieve a national leakage rate of 25% by 2030 will require substantial additional investment.

Interactions between intense rainfall, storm water drainage, storm water overflows, and discharges of untreated wastewater from combined sewers will always exist. The role of UÉ and local authorities need to be clearly defined and a programme of measures put in place to minimise discharges to the combined sewer network. Source protection through catchment management and nature-based solutions are essential to protect our water resources.

More intense rainstorms will inevitably lead to an increased incidence of overflow from combined drainage networks. Investment in our networks and treatment plants, including the WSP and GDD projects are essential to meet national needs.

In the decade from 2014 UÉ has been successfully established and has set out its strategy for the period to 2050. In this review the IAE has identified a number of areas, which are critical to delivery of a fit for purpose water services to 2050.

1 INTRODUCTION

The Academy of Engineering (IAE) is an all-island think-tank whose aim is to advance the wellbeing of the country by marshalling the expertise and insights of eminent engineers to provide independent, evidence-based advice to policy makers.

This review examines the draft Plan published for public consultation in May 2024. The review will inform the future development of water services across the Ireland to 2050, in line with the net-zero emissions commitment made by the Government.

When Uisce Eireann (UÉ), was created in 2014 it was against a background of a significant and prolonged lack of investment in water services stretching back almost a century. Water services were funded directly through the Exchequer and even in good economic times insufficient money was invested to provide and maintain water services infrastructure. During recessionary times investment was curtailed and assets left to deteriorate to a point where they were unfit for purpose.

In 2014, based on available data the investment required to bring water services assets to a basic level of fitness was estimated to require an investment of €25bn.That figure has substantially increased over the last 10 years.

The review is informed by the experience of engineers in the decade since the establishment of the national utility in 2014 and the Academy's publication of two published reports, namely:

- *Delivering Ireland's Water Services for the 21st century* published in 2011, and
- *Uisce Eireann Irish Water Services in the 21st Century - A Review of progress to Date and A View to the Near Future* published in 2023.

These reports set out areas that the Academy considered should be addressed and included recommendations on Organisational Structure, Financial, Social Protection and Communications.

Over the 10 years since establishment of UÉ we have seen an improvement in drinking water quality and wastewater treatment. To illustrate this improvement details such as the percentage of drinking water supplied, and the percentage of wastewater treated (on an annual basis) that meets the standards should be included to illustrate the specific improvements over the 10 years. This information is available in the EPA annual reports on Drinking Water and Urban Wastewater.

It is worth noting that overall delivery of the draft Strategic Plan 2050 is subject to "*economic and technical feasibility"* **suggesting that it may be beyond the control of UÉ to deliver all of its strategic objectives,** perhaps in part because it's funding model relies on 80% central government support. It should be technically feasible to deliver the objectives and demonstrate that affordability / value for money is the primary constraint on achieving compliant and energy efficient water services infrastructure. The availability of funding is therefore one of the key challenges and also a key constraint if available funding is below the level required to deliver in the necessary standard of water services.

The vision for UÉ and the strategic objectives which are described in the draft Plan, when achieved, will result in a first-class water utility. Clearly, preparatory work by UÉ has been comprehensive, including prior consultations and careful and detailed consideration of key issues and challenges. The draft Plan demonstrates a deep understanding of the technical and organisational issues that will be faced over coming years. That is combined with insightful analysis and presentation of the individual approaches proposed to meet those challenges and achieve the stated objectives.

We would particularly commend the UÉ aspiration to:

"lead by example and embrace research and innovation, integrating new technologies and sustainable practices to secure safe and reliable water supply into the future while protecting the environment."

The Plan is concise and well-structured. The key objectives and actions are well chosen and comprehensive. The IAE welcomes the publication of the draft Plan and trusts that UÉ will consider and address the content of this review.

2 CONTEXT

The Plan sets out objectives and the means by which UÉ aim to achieve them in the context of the significant challenges that Ireland and UÉ are likely to face over the next 25 years. The Plan outlines strategic direction and the actions to be implemented to ensure sustainable public water services for Ireland. Once approved, it will replace the existing WSSP from 2015, which covered the period from 2015 to 2040.

The challenges we face as set out in the Plan include:

- Climate Change,
- Growing population and economy,
- Environmental and biodiversity crises,
- Ageing infrastructure,
- Stricter legislation, regulation and policy, and
- Funding constraints.

While four objectives and 35 key actions have been identified, a number of additional actions, are required to ensure that we have reliable and robust water services that meet the needs of citizens and facilitate economic development to 2050. The IAE has studied the draft Plan, identified constraints and challenges that need to be addressed, and actions / opportunities that should be amended / added or assigned a higher priority.

It would be useful if behind the Plan Strategic KPI's are developed and tracked on an annual basis to see the direction of travel, illustrate progress made and facilitate any necessary reprioritisation from year to year.

The objectives set out in the Plan are further developed as Strategic Aims and Actions as illustrated below.

3 THE CHALLENGES WE FACE TO 2050

The needs of the economy are determined by the rate of growth / decline in economic activity within Ireland, the EU and globally. The scenario considered in this draft is that Ireland will continue to grow its population and economy over the period to 2050. Growth is unlikely to be linear and will be subject to peaks and troughs. As evidenced in recent years economic prosperity and events such as the war in Ukraine, Covid -19 and more recently the war in Gaza will significantly influence our economic performance and the availability of funding for critical water services infrastructure.

New EU Directives and / or amendments to existing Directives are likely to result in changes to the standards for catchments, environmental protection, drinking water and urban wastewater. The extent to which these changes influence the required funding will only be apparent when revisions to existing Directives / new Directives are published.

In the case of **Ageing Infrastructure**, the plan notes the "*approach to maintaining and replacing assets over the last number of decades will not meet future challenges particularly in the context of climate change"*.

A more holistic / cross sector utilities approach is required.

The key challenges are in the view of IAE understated in the draft Plan and additional funding over that currently provided will be required. The water sector will be competing with other sectors and utilities for funding and resources.

3.1 Planning

Significant delays have been encountered in the planning process over the last 10 years. A new Planning and Development Bill has been published and promises to rationalise and streamline the approvals process. The introduction of a fit for purpose planning system with clear timelines for approvals is critical to timely implementation and upgrading of water services.

In common with other developers of major projects UÉ has had significant issues with planning system timelines – both the time taken in securing approvals and in subsequent Judicial Reviews of decisions. Such delays are mostly outside the control of UÉ and revised programmes bring knock-on negative impacts on budget estimates and completion dates. This issue has attracted much public comment in recent times.

The Academy believe that the EPA's requirement for detailed delivery dates for completion of entire projects without allowing uncertainties in the planning process, land acquisition and other issues not under the direct control of the utility needs to be highlighted by UÉ to the EPA.

3.2 Funding

Since the creation of the State, Ireland regularly goes from boom to bust. During periods of economic downturn, it has been the practice to cut capital expenditure and in boom times the funding only just meets **current demands**. This Exchequer funding model is not sustainable and will not put water services where it needs to be in 2050.

When UÉ was created in 2014 it was against a background of a significant and prolonged lack of investment in water services stretching back almost a century. Water services were funded directly through the Exchequer and even in good economic times never enough money was invested in the provision and maintenance of water-related infrastructure. In recessionary times investment was generally curtailed altogether and assets were often sweated to a point where they were left unfit for purpose.

A funding model for the delivery of water services has been put in place which reflects a balance between the provision of adequate funding without the imposition direct of household bills. The Irish Exchequer thus carries the burden of the regulatory tariff for the domestic sector and thereby reduces (or eliminates)

the accountability of the individual customer for his or her consumption. The arrangement also significantly negates the economic benefit of having installed meters covering some 60% of consumers. It nevertheless remains a key issue for Ireland with respect to the WFD as this measure requires Member States to protect and improve water quality as envisaged in the WFD This remains a key issue of compliance for Ireland.

Funding is subject to CRU approval and while oversight is essential, addressing the deficit and legacy issues, within a 10-to-15-year timeline is essential. Regulators should be encouraged to make an appropriate allowance for issues outside the control of UÉ, including development and regulatory consents, when setting compliance parameters.

A funding model for the delivery of water services has been put in place and the level of funding is decided by the economic regulator (the CRU). In coming to its decision on the quantum of funding to apply the CRU carries out a benchmarking exercise to inform its decision and ensure that it is sufficiently resilient to meet unexpected challenges.

The current funding model reduces the accountability of the customer for the management of their consumption, a key issue from a water conservation perspective. Direct charging of households for water supply notoriously failed to establish a social consensus in Ireland in the early days of the new water utility and it remains a political taboo. It nevertheless also remains a key issue for Ireland with respect to the WFD as this measure requires Member States not only to protect and improve water quality in all waters but also to maintain water pricing policies:

- for water that incentivise efficient use of water; and
- recover costs of services in line with the polluter-pays principle.

In its Strategic Funding Plan 2019-2024 UÉ recognised the challenges it faces in achieving compliance with regulatory standards, reducing leakage and losses from its systems, and increasing network and treatment capacity as the economy grows and societal needs increase. It recognises too the need to develop resilience in its systems to meet extreme events.

The actions that the Plan sets down and the further actions that will follow as the Plan develops, will require substantial funding over an extended period. The overall level of funding is a prerequisite to UÉ meeting its statutory obligations, achieving the Plan's objectives and the expectation of all its stakeholders of having a first-class water service.

3.3 Investment required

Section 7.6 of the Plan addresses the issue of **Long-term investment and multi-annual funding** and outlines the current arrangements and associated constraints that exist. It states:

"Uisce Éireann funding uncertainty, inability to access capital markets and cash neutrality, present challenges in the context of the size and scale of our capital investment programmes and for our supply chain and contractors. In order to build continued confidence in our project pipeline, and in turn for our supply chain to build and maintain their capacity, we would welcome certainty on funding availability on a multi-annual basis. This would also be critical for high value multi-year projects, where Ministerial consents are provided on a phased basis, with no future certainty of funding".

This is an important statement and one which should be given greater emphasis and included as one of the key challenges.

Notwithstanding the sensitivities relating to the question of funding, there should be no room for any misunderstanding on the scale of investment and certainty on funding required.

The IAE believes there is a case to be made for change in the current approach of separating OpEx and CapEx to one which provides flexibility to the Utility to take a more holistic approach to the management of its asset base. Developing a management approach that permits flexibility in the allocation of funding between operational and capital, with agreed parameters and limits, would provide benefits where the provider is seeking to address diverse criteria across economic, environmental and emissions objectives.

It would be prudent to utilise a wider pool of benchmarking comparator data from other EU jurisdictions, in addition to British data, so that more comprehensive comparisons can be achieved.

We note with concern, that UÉ's other key funding sources are equity (subject to Government vote), non-domestic charges, new connections revenue (self-fund new connections capex) and debt (facility provided by the Minister of Finance). UÉ are expected to remain cash neutral each year, matching cash inflows and outflows. UÉ are therefore likely to continue to be unable to access other commercial loan facilities / capital markets funding, placing continued reliance on the Exchequer and maintaining the funding uncertainty which exists from a year-to-year basis. Given that UÉ funding is effectively capped in any year, any unexpected over-runs in operational expenditure (e.g., during energy market crisis in 2022) are required to be re-balanced through a curtailment of capital spend, which results in the delay or deferral of projects. UÉ funding uncertainty, inability to access capital markets and cash neutrality, present challenges in the context of the size and scale of our capital investment programmes.

Certainty on funding availability on a multi-annual basis is critical to achievement of the Plan Objectives. This would also be critical for high value multi-year projects, where Ministerial consents are provided on a phased basis, with no future certainty of funding.

The extent to which our water services are currently underfunded, the knife edge that water supplies are on with little or no headroom and the high risk that we will be unable to meet water services needs and standards is understated in the Plan. Risks need to be quantified to be better understood. This will facilitate reduction, mitigation and elimination in a way that can be communicated to the customer and Government.

3.4 Climate change

The Climate Action and Low Carbon Development (Amendment) Act 2021 requires Ireland to achieve a 51% reduction in emissions by 2030, relative to 2018 levels, and net-zero emissions by 2050. Ireland must also:

- deliver annual climate action plans,
- implement a carbon budget programme, and
- define sectoral emissions ceilings.

Water and wastewater treatment processes are significant consumers of energy. UÉ's demand for energy will inevitably increase in future given the utilities need to provide for ongoing population increase, economic growth and the impact of evolving national and EU legislative requirements. Such demands must be mitigated by the requirement to progressively decarbonise operations. Both objectives can be advanced by greatly improving the efficiency of energy used and by enhanced reliance on renewable energy sources. In that context it should be recognised that overall energy demands will continue to increase and a focus on achieving net zero carbon will be central to meeting targets.

3.5 Aged infrastructure

The greatest challenge after climate change is the average age of water mains in Ireland, between 65 to 85 years old, compared to 36 years across the European Union. There is no mention of the actual age of some pipes – averages can be very misleading. Age equally does not imply risk. The larger diameter pipes 24" and above have generally aged well with some graphitisation – The biggest challenges are the small diameter 4" and 6" pipes which have very poor structural integrity and are very vulnerable to leaking due to ground movement often occasioned by low temperatures.

Equally some of the pipe materials used post WWII were made from poor raw materials and the pipes from the 1960-1970 using novel materials (PVC, Asbestos Cement, Prestressed pipes prone to failure) require replacement even though they are relatively young). Unless we replace our aged pipe assets before 2050 this problem will get worse. The current rate of replacement is clearly inadequate.

Irrespective of climate change, replacement of watermains at an annual rate of 0.5% and sewers at 0.1% is grossly insufficient. To get to 1% ('standstill'), as suggested in the Plan, would mean a doubling of the rate of watermain replacement and a ten-fold increase in sewer replacement. As most of the older parts of the networks are in urban centres with multiplicities of other adjacent services and where construction work will be highly disruptive, the associated costs will be substantial. It is important that the impact on resource demands and future required investment is quantified and understood, not just by UÉ, but also, and critically, by the regulators and funders. See also following comment. While much attention given to leakage control and network management, there is by comparison no mention of water efficiency becoming a criterion at user / consumer level. Water efficiency should be recognised and rewarded. A rating system such as the energy rating for homes or a combined energy and water efficiency rating should be introduced, with the consumer benefit that efficiency will be rewarded. This brings back into discussion the need for domestic metering of supplies or introduction of an alternative methodology to derive an efficiency rating for each consumer. The alternatives include use of water efficient appliances, fittings, smart technologies and use monitors. A culture where we value water in the domestic setting needs to be cultivated and developed.

We believe that UÉ should be able to estimate accurately the cost of replacing its network to reach the EU average and this figure is likely to fall outside of the current funding model. Without separate funding for network replacement, clearly identified in the funding model, the network asset replacement will not happen and the practice of continuing to sweat assets until they fail will continue.

3.6 Resilience

The provision of water services is a complex undertaking involving the management of significant risks not all of which are within the control or mitigation of the service provider. It is important therefore for the utility company to develop and deepen its level of understanding of those risks and options for their effective management. Resilience is the ability of the system to recover from shock or disruption whether due to natural or man-made causes such as drought, freeze / thaw or asset failure. The level of risk that is deemed acceptable should be identified for each major potential source of failure or disruption and this will determine the extent of the redundancy required by the system. A point will be arrived at where the costs incurred in reducing relevant risk are balanced by the economic and other consequences of the particular failure or disruption.

Many schemes have capacity deficits, little or no headroom. Examples include the Dublin drinking water and wastewater schemes which are deficient and do not have the required resilience to cope with demands.

3.7 Innovation

The Plan refers to UÉ adopting innovative approaches and technologies to problems which will become of increasing importance with challenges from climate change, and higher standards for potable and treated water. We commend UÉ's approach to innovation since its establishment and strongly support and encourage that approach into the future. However, this is presented as an intention rather than a commitment and the 'how' needs to be more explicit.

3.8 Storm overflows and bathing waters

There is a particular focus on bathing waters post Covid as there has been a significant increase in open water swimming. This focus has drawn critical attention to Combined Sewer Overflows or Storm Water Overflows. Such overflows are a consequence of combined (i.e. rainwater and sewage) urban drainage infrastructure in Irish towns and cities largely dating from the late 19th and early 20th centuries. They are an essential component of drainage systems as they allow for the diversion of excess flows of mixed rainwater and sewage from treatment plants in storm conditions. However, they often result in large volumes of untreated dilute sewage being discharged into water bodies over a relatively short period of time. Combined with stormwater runoff from hard urban surfaces, the effect is short-term contamination of waters and related swimming bans. This leads to understandable demands for much better control of such discharges though this cannot be achieved without significant investment. The UK water companies

recently apologised for the volume of contaminated water they have been discharging into receiving waters and announced an investment programme costing £10bn to resolve the problem of storm overflows. Climate change complicates the overflow issue as rainfall intensity has been increasing in recent years and will likely increase further in the future. In the absence of alternative strategies more intense rainstorms will inevitably lead to an increased incidence of overflow. This problem also highlights a lack of understanding of the sources of pollution after periods of intense rainfall. In Dublin Bay, for example, regular swimming bans are blamed on overflows at Ringsend whereas these are highly diluted and partially treated, as compared with the much more significant impacts from network overflows from storm sewers carrying street runoff which may pollute local streams that feed into coastal waters. As climate change advances other possible impacts include the increased vulnerability of sewer systems to flooding risk while a rise in summer drought conditions will result in restrictions in the availability of water for abstraction, in order to protect riverine biosystems from extreme low flows.

In the creation of Uisce Eireann the responsibility for storm water management and flood risk management remains with the Local Authority. With the increasing frequency of high intensity storms and rainfall which exceeds the design standards for drainage networks the risk is that stormwater will be diverted into the combined drainage network resulting in an increase in storm water overflows. Additional investment in the separation of drainage networks by Local Authorities to relieve localised flooding and surcharge is required to mitigate this risk.

3.9 Water resources and future proofing

Ireland is fortunate in having adequate resources of surface waters and groundwater. If managed responsibly these resources mean Ireland will not be among the water-stressed regions of the world as the impacts of climate change continue to emerge. That is not to say there are not pressures existing and emerging that will require to be carefully managed and resolved if they are not to result in crisis. Such pressures include increased water demand arising from economic growth and a projected population increase of about one million people by 2040 and a seemingly inexorable decline in the quality of the aquatic environment will challenge the ability of UÉ to deliver on its brief.

3.10 Collaboration

With a multitude of stakeholders, ensuring that all collaborate will continue to be a major challenge. The interactions of a multiplicity of stakeholders will be critical to how UÉ is perceived. In addition to direct stakeholders, UÉ will need to build a strong and reliable supply chain. The use of Frameworks has been successful to date and should continue to be developed.

4 STRATEGIC PROJECTS

The Greater Dublin Drainage (GDD) project which is a strategic investment in the region's wastewater infrastructure. It will provide a new wastewater treatment facility and associated infrastructure to serve the growing needs of north Dublin and parts of Kildare and Meath

The Eastern and Midlands Water Supply Project which has been identified in the National Planning Framework as a 'National Strategic Outcome' and is also listed as one of the key 'Strategic Investment Priorities' of the National Development Plan. The project forms a key part of our long-term strategy to increase water supply resilience and levels of service in the region by creating a major new source of water to meet water supply demands of up to 50% of the State's population to 2050 and beyond. It will enable us to meet the challenges of climate change and increasing demand by diversifying our water supplies. It will provide the greater area of Dublin, Meath, Kildare and Wicklow with a resilient, safe, secure water supply. Crucially it will also have capacity to serve communities along the route in Tipperary, Laois, Offaly and Westmeath. We note that the Government has recently approved the project.

Completion of both projects is critical to the economy and meeting water and wastewater needs and funding for the project should be prioritised by Government.

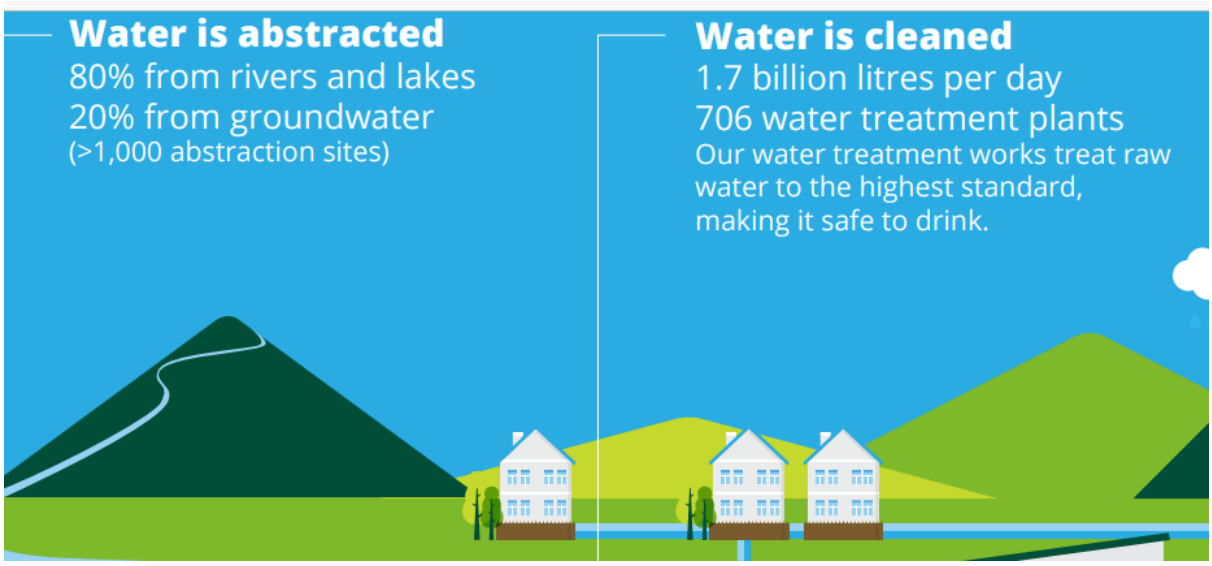
5 ABOUT UISCE EIREANN

The first para states

'we abstract 1.7 billion litres of raw water from the environment every day and we treat it so that it is safe to drink'.

The policy and regulatory framework should reference the amendments to the UWWTD and the DWD.

The graphic is a bit light on wastewater / collection network statistics and progress to date in comparison to statistics provided on drinking water. These should be added to the draft Plan.



This graphic omits the vitally important storage of raw water in dams and reservoirs. With climate change impacts and long periods of very low rainfall punctuated with extreme rainfall (monster rain) leading to spikes in water quality and flooding, the importance of creating storage will increase.

6 APPROACHES TO LONG TERM CHALLENGES

UÉ has a well-developed structure, teams and strong technical capacity. It is restrained from meeting its objectives primarily by the availability of funding. The existing funding model, with 80% of funding being a government subvention, leaves UÉ in a very difficult position. It has little or no access to external capital. Based on the financial support provided to date it will not achieve full compliance with standards or complete investments in essential infrastructure within a reasonable and acceptable timeline.

Water conservation and leakage reduction will form a key part of UÉ strategy to sustainably manage our precious water resources.

Delays in meeting standards can result in fines by the EU and risks to consumers. Risk assessments should be completed and regularly updated to illustrate the direct and indirect costs of failures and their impacts on the health and standards of living of consumers.

Currently UÉ abstracts water from many sources that are unsustainable and must abandon or reduce the volume abstracted in the short to medium term. Sustainable alternatives are required and generally the source must be adequate for existing and future needs.

Our water services infrastructure is acknowledged to be aged and deteriorating rapidly. Investment is well below the levels necessary to maintain services at current levels. Replacement of aged water networks at 1% annually, as proposed, is clearly inadequate and much greater investment and ambition is required.

7 IMPLEMENTATION

For successful delivery of any Strategic Plan and certainly one of this scale, it is essential that the necessary resources required to carry out the proposed actions are evaluated, and how those resources will be provided, are set down. In addition, realistic targets and associated milestones, together with robust methods of monitoring, measurement and review, must be identified.

These issues are addressed in Section 9 of the draft Plan but without the level of detail that would be expected and will ultimately be required. The Plan sets this out as follows.

"The WSSP 2050 sets the overarching framework for subsequent more detailed implementation plans. …… Whereas the WSSP sets out our long-term objectives and our strategic direction of travel in order to achieve them, more detail is provided in our Tier 2 plans on how we aim to achieve our objectives."

The Plan cannot be considered complete without the details noted above, the approach adopted recognises and deals with the difficulties that a Strategic Plan with a 25-year horizon present. They include the inevitability that so much can, and will, change between now and 2050, and the reality that not all actions can be identified or fully developed at this stage. The approach also has the benefit of putting a greater initial focus on the Objectives and the direction of travel that is required.

It comes with the inherent risk the Plan will, over time, lose focus and direction, actions will not be fully aligned with Objectives; and outcomes will be diluted or undermined.

The subsequent more detailed ***('Tier 2') Implementation Plans***, as referenced above, which are to be prepared therefore become critical, and it is those plans which must include full details of resourcing requirements, funding plans, where accountability lies, targets, milestones, monitoring and review plans.

In order to give impetus to the Plan, where possible, that Tier 2 Plans are identified and listed in the Plan and include at least an indicative timeline for their preparation.

8 REVIEWS AND UPDATES

The WSSP four strategic objectives,14 strategic aims and 35 actions proposed, should be reviewed and updated on an annual or bi-annual basis. Reviews and updates at 5-year intervals are insufficient as is the preparation of a 5 yearly assessment of progress. It is essential that the Government, prior to the preparation of an updated Water Services Policy Statement (current version 2024 to 2030) have a comprehensive report on the performance, needs and compliance status of our water services assets.

The principle that water services, should be to a satisfactory standard and meet legal standards, within a reasonable period, appears to be missed in the overall thrust, which is stated to be compliant by 2050. Compliance at a much earlier date is required. A 10-to-15-year horizon, with the ambition to be fully compliant by 2040 would be more appropriate.

There are many references to funding and Government subvention which is about 80% of income. This subvention income is subject to the Government's annual budgetary process. That is an unsatisfactory position with the organisation unable to access commercial loan facilities and hence there is uncertainty in funding from year to year. The draft states that:

'*Uisce Eireann funding uncertainty, inability to access capital markets and cash neutrality present challenges in the context of the size and scale of our investment programmes'.*

Without multi-annual and adequate funding, the necessary and essential improvements to our water services will not be made and existing infrastructure will continue to deteriorate. The working group established in 2024 to review funding should be given a published remit and publish its report to ensure stakeholders are aware of the funding requirements and constraints. The potential impacts of a failure to provide adequate funding needs to be quantified and communicated.

In the period to 2050 it is accepted that we will experience unprecedented changes in Ireland, many of these changes will impact the water cycle (climate, rainfall, flooding, droughts, seasons, resource availability, sea level rise, urbanisation, etc.). Together with the anticipated growth in population these aspects create a volatility in demands and responses that are extremely challenging.

Further, to mitigate the risks of failures in the Plan, UÉ should consider establishing a standing Strategic Plan Implementation Review or Oversight Group (with Irish and international members) who would carry out regular reviews of all aspects of the Plan.

In responding to these issues and moving faster to address the numerous issues around the provision of water services, we need a modern streamlined planning process. The extent to which planning and environmental issues delay proposed works must be addressed. While a revised PDA is anticipated, alignment of the National Planning Framework, Regional, Local Authority Plans and UÉ Strategies and Plans is essential. The linkages and dependencies need to be better illustrated and understood by Government and legislators. There is reference to Adaptive planning and how UÉ need to face longer term uncertainties such as climate change. How this will assist UÉ reach its objectives earlier than the proposed dates should be illustrated.

APPENDIX A

STRATEGIC OBJECTIVE 1: SAFE & RELIABLE DRINKING WATER

Water conservation measures include:

Action 1.7: Use less water through promoting water conservation to help customers reduce their use.

Action 1.8: Use less water through developing and implementing an enhanced Water Stewardship Programme.

Action 1.9: Lose less water through delivering leakage reduction.

What is generally not appreciated or well known is that there are within Europe two very different water network distribution systems.

The UK (No longer in EU) and Ireland use a low-pressure indirect system. System pressures of 1.5 to 2 Bar in the distribution system are just about sufficient to fill an attic storage tank of a two-storey house at some stage (usually at night) during a 24-hour day. Higher rise buildings usually need a break pressure tank at ground level and internal pumping to deliver water to consumers.

In Continental Europe they use a much higher pressure (above 10 Bar) and a direct plumbing system which feeds water to 4/5 storey buildings.

No system is better or worse but the low-pressure indirect system (Ireland and UK) is very tolerant of lack of network replacement. In high pressure direct system if pipes are not replaced, they burst cutting off thousands of customers. This driver ensures EU countries must have annual replacement plans and investment to ensure networks are regularly replaced before their design life expires.

That is why Ireland's distribution network is between 65 to 85 years old, compared to 36 years across the European Union. The practice has been to sweat the assets until long after their design life expires.

As a consequence, our leakage rates are very high - In 2018 the rate of leakage nationally was 46%; by the end of 2023 it was 38%. Since the commencement of the Leakage Reduction Programme, we have invested approximately €1.2 billion to the end of 2023 and we have an ambition to invest a further €250 million every year up to the end of 2030 to achieve a national leakage rate of 25% by the end of 2030. The comparable leakage figures in Europe are 3% to 12%.

The new EU Drinking Water Directive has a strong focus on leakage reduction. It is essential that our government, explains to the EU the two different systems as set out above. Otherwise, Ireland will always report figures which will be much higher than those in other EU Countries.

The question arises therefore as to whether UÉ's long-term leakage reduction targets are ambitious enough, especially with rising costs of treatment linked to energy pricing. This is clearly a matter for UÉ management decision-making.

The investment in domestic water meters has allowed Irish Water to identify customers with high rates of leakage and the 'First Fix Free' initiative which addresses leaks within the boundaries of domestic properties is driven by automatic leakage reporting from these 880,000 domestic meters. This is a very innovative approach which should be supported in the future. While the installation of meters has ceased, those meters already installed provide valuable information on household consumption and have allowed domestic use to be reduced to 120 litres per head and excessive daily demands to be identified. In the UK, daily demand is now targeted to be 110 litres per head per day on average by 2050 with the Code for Sustainable Homes indicating that 80 litres per head per day is achievable in new build sustainable homes.

The provision of safe and reliable drinking water is one of the core objectives of UÉ and is aligned to the objectives it is required to set out under Section 33 (4) of the Water Services (No. 2) Act 2013 vis a vis:

(a) Drinking water quality

(b) The prevention and abatement of risks to human health or the environment relating to the provision of water services

(c) The existing and projected demand for water services

(d) Existing and planned arrangement for the provision of water services

(e) Existing and reasonably foreseeable deficiencies in the provision of water services

(f) Existing and planned water conservation measures

(g) The management of property

The objective makes few specific (SMART) targets (e.g. Commitment to “no long-term boil water notices”, the assumption being that these will be set out in the supporting implementation Plan(s) or completion of all schemes on the Remedial Action list by 2040).

The same objective in the Irish Water 2015 Water Services Strategic Plan had the following specific key targets relating to water quality and conservation.

2015 WSSP – Objective	End of 2021	2027	2040
Percentage of samples complying with water quality standards from the current baseline of 99.82%	99.99%	99.99%	99.99%
Reduce leakage from current rate of approximately 49%	38%	30%	Economic level

The target of reaching the economic level of leakage by 2040 will see the network continuing to age and by an outlier in the EU. For that reason, the annual funding should allocate specific funding for network replacement with a particular focus on small diameter pipes.

The objective is broken down into three strategic aims relating to safe drinking water, reliable supplies and water conservation. These are broadly similar to the aims set out in the 2015 WSSP, as set out in the table below and align with the key objectives set out in the Government’s Water Services Policy Statement 2024 – 2030 of availability and reliability; safety and quality; and sustainability.

Plan - Objective	Aim 1	Aim 2	Aim 3
2015 WSSP - Ensure a Safe and Reliable Water Supply	Manage the sustainability and quality of drinking water from source to tap to protect human health.	Manage the availability, sustainability and reliability of water supply now and into the future	Manage water supplies in an efficient and economic manner.
2024 Draft WSSP - Safe and Reliable Drinking Water	Ensuring safe drinking water	Delivering reliable water supplies	Conserving our precious resources

Engagement with the non-domestic sector, which is not widely remotely monitored at present and where different meters are used and need an upgrade would provide further opportunities to reduce leakage. A remediation programme should be introduced to produce long term savings and efficiencies in that sector.

Each Strategic Aim is further broken down to specific actions as set out in the following sections.

Strategic Aim 1 - Safe drinking water

Undertake risk assessments across our supplies and implement management measures.

The core action here is the development and implementation of Drinking Water Safety Plans (DWSPs) and the implementation of the EU (Drinking Water) Regulations 2023, in a holistic catchment-based approach to safe drinking water. It is worth noting that the 2015 WSSP stated that DWSPs were in place

for 135 Water Supply Zones (WSZ) and that plans for the remaining zones would be in place by Q1 2021. The status of (and the timeline for) the development of DWSPs is not stated in the draft 2024 WSSP.

Conform with Drinking Water Directive and other legislative requirements. This action overlaps with the preceding action of implementing the EU (Drinking Water) Regulations 2023, which gave effect to the 2020 Drinking Water Directive. Unlike the 2015 WSSP there are no clear compliance targets and timelines set out, the assumption being that these will be set out in the supporting implementation plans.

Coordinate catchment management measures and champion nature-based solutions. This action again links back to DWSP implementation, particularly around source protection through catchment management and nature-based solutions. There is a clear commitment to the use of more sustainable catchment management solutions in conjunction with increased stakeholder and community engagement.

Strategic Aim 2 – Delivering reliable water supplies

Implement and review national water resource plan (NWRP). The NWRP is the first of its kind in Ireland in terms of a long term (25 year) plan for the provision of safe, sustainable water resources management across Ireland. Under this action UÉ commit ("*aim*") to a 1 in 50-year Level of Service (i.e. no supply shortfall more than once in fifty years) across the entire public water supply *"over time"*. It's not clear what "over time" means in this context, perhaps by 2050 or specified dates for each scheme set out in the NWRP.

Develop contingency plans This action centres on developing contingency plans to cover summer droughts and winter weather impacts. Drought plans are to be complete for at risk schemes by 2030 –we would anticipate that reliable yield calculations under the NWRP would include for climate change/drought scenarios.

Improve operational resilience This action centres on a broad commitment to minimise disruption to customers through a suite of operational processes and systems supported by secure monitoring and control systems. Again, it is a broad commitment with no specific target or timeline.

Strategic Aim 3 – Conserving our precious resources

Use less water through promoting water conservation to help customers reduce their use. This action centres on the promotion of customer water conservation and leakage reduction campaigns (e.g. First Fix Free) although there is no target set as to reduction in household/per capita consumption or household losses. You would imagine that the introduction of domestic charging (in line with WFD requirements), albeit highly unlikely, would be an important measure to get customer engagement in conserving water and reducing household losses.

Use less water through developing and implementing an enhanced water stewardship Programme. This action relates to continuing engagement with customers on demand management with a view to conserving water through more efficient use and using alternative technologies such as rainwater harvesting and greywater recycling. There is no measurable target for this action.

Leakage reduction This is one of the few actions that has a clear target of reducing the current national leakage rate (38% at the end of 2023) to 25% by the end of 2030. This is an ambitious target for the first five years of the Plan, noting that the current (end 2023) leakage rate is two years behind the target set out in the 2015 WSSP (38% by the end of 2021). It is not clear what the target beyond 2030 to 2050 is, other than there is a commitment under the overall Objective to reduce leakage to "European norms" which remains to be set under the 2020 Drinking Water Directive and supporting Regulations. By way of comparison the 2015 WSSP committed to reducing leakage rates to economic levels by 2040, noting that in the UK this typically fell between 18% and 22% of water treated. Without specific funding for network replacement the Plan will not deliver a fit for purpose network compared to EU norms.

APPENDIX B

STRATEGIC OBJECTIVE 2: SUPPORT OUR CUSTOMERS, COMMUNITIES & THE ECONOMY

Action 2.1: Understand customer needs and expectations.

Action 2.2: Enhance customer communications to address our customer expectations and provide real-time information on usage, incidents and water quality. Action 1.1: Undertake risk assessments across our supplies and implement appropriate measures to manage risk

Action 1.2: Conform with the Drinking Water Directive and other legislative requirements relating to drinking water quality.

Action 1.3: Coordinate catchment management measures and champion nature-based solutions for improving source water quality.

Action 1.4: Implement and continue to review our NWRP, delivering improvements in water supply infrastructure to ensure resilient supplies into the future.

Action 1.5: Develop contingency plans to improve reliability of our water supplies

Action 1.6: Improve operational resilience through preventative measures and developing and implementing improved incident response processes.

Action 2.3: Support our customers to play their part in protecting water as a precious resource and enabling better water services

Action 2.4: Develop a community education and engagement programme to raise awareness on the value of water and the water services we provide.

Action 2.5: Continue to develop amenity value in our assets with local communities, where safe and appropriate.

Action 2.6: Engage and collaborate with key stakeholders to support national, regional and local planning policy.

Action 2.7: Engage with housing and industry stakeholders to support delivery of new homes and economic growth.

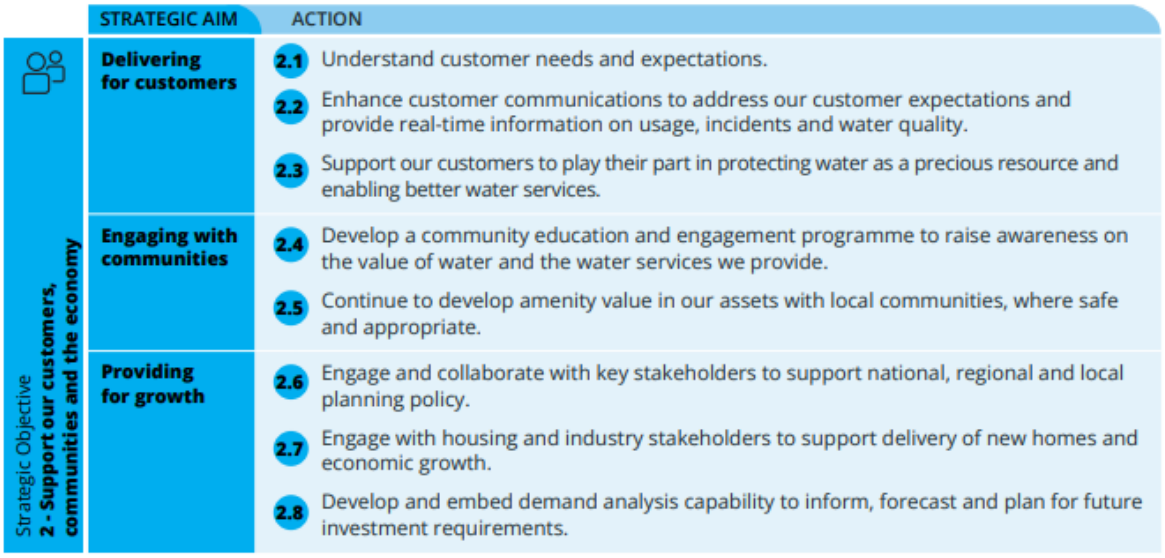
Action 2.8: Develop and embed demand analysis capability to inform, forecast and plan for future investment requirements.

The Plan states that:

'Uisce Éireann, as Ireland's national public water services provider, supplies 1.7 billion litres of drinking water to our customers every day and collects and treats more than 1.2 billion litres of wastewater before we safely return it to the environment.'

Where does 0.5 billion litres of drinking water go? Is that leakage / UFW ? The page 15 graphic indicates leakage has dropped from 46% to 38%.

There is no reference to the fact that it costs money to treat water to drinking water standard and also the cost of wastewater treatment, UÉ should provide customers with the cost per litre for water supplied and wastewater treated.



Strategic Objective	STRATEGIC AIM	ACTION
2 - Support our customers, communities and the economy	Delivering for customers	2.1 Understand customer needs and expectations.
		2.2 Enhance customer communications to address our customer expectations and provide real-time information on usage, incidents and water quality.
		2.3 Support our customers to play their part in protecting water as a precious resource and enabling better water services.
	Engaging with communities	2.4 Develop a community education and engagement programme to raise awareness on the value of water and the water services we provide.
		2.5 Continue to develop amenity value in our assets with local communities, where safe and appropriate.
	Providing for growth	2.6 Engage and collaborate with key stakeholders to support national, regional and local planning policy.
		2.7 Engage with housing and industry stakeholders to support delivery of new homes and economic growth.
		2.8 Develop and embed demand analysis capability to inform, forecast and plan for future investment requirements.

Strategic Aim 4 - Delivering for customers

It is stated that:

'We will develop research programmes to look at areas such as customer expectations and water conservation.'

This should include customer education around customer water conservation.

The message that it costs money to treat water/wastewater needs to be emphasised – many people still think that water is free. Provide the customer with the actual unit cost per litre for drinking water and wastewater.

Strategic Aim 5 - Engaging with communities

Wetlands are only really suitable for small wastewater loads due to the land required.

Strategic Aim 6 - Providing for growth

UÉ have cut down on extra capacity both in the networks and the treatment plants and this is short sighted given the time and effort it takes to get projects from the start to operation.

The comment:

'We will advocate for prioritising growth areas that have available infrastructure and environmental capacities.'

Available infrastructure is not necessarily where the demand is or where people want to live or where businesses want to set up.

The GDD case study refers to:

'*Sustainable treatment of wastewater sludge to produce a biosolid which can be used as fertiliser*'

Is this a long-term solution that the EU will accept.

APPENDIX C

STRATEGIC OBJECTIVE 3: PROTECT AND RESTORE OUR ENVIRONMENT

Action 3.1: Work with regulators and stakeholders to develop a Wastewater Strategy Framework.

Action 3.2: Develop and implement Integrated Urban Wastewater Management Plans.

Action 3.3: Ensure sustainable abstractions and manage water treatment residuals.

Action 3.4: Protect and restore water bodies through collaboration

Action 3.5: Manage wastewater services throughout the asset lifecycle to achieve regulatory requirements

Action 3.6: Manage water services throughout the asset lifecycle to achieve regulatory requirements

Action 3.7: Manage our assets to have biodiversity 'Net Gain'.

Action 3.8: Champion nature-based solutions and catchment measures in the delivery of water and wastewater projects.

The introduction states:

"We deliver a reliable water and wastewater service that protects the environment, and we support a healthy environment by enhancing habitats and ecosystems."

"*We must also ensure that when returning treated wastewater to the water environment,* ***we play our part*** *in achieving Water Framework Directive objectives for those water bodies."*

It further states:

"There are many ways to achieve this goal, (*provision of water and wastewater services that not only avoid damaging, but also enhance, the environment is vital to safeguard the wellbeing of current and future generations) such as ……. **by working with others** in integrated catchment management initiatives. This collaborative approach can reduce the requirement for water treatment and at the same time support biodiversity, recreational activities and tourism"*

These statements underline the recognition by UÉ that, in addition to its role in protecting the water environment, there are many other stakeholders, e.g. agriculture, industry, local authorities, the public, who also have an important, indeed essential, role. Difficulties arise when, *inter alia,* other stakeholders' interests are not aligned with those of UÉ; different priorities are in play; and where access to and availability of resources will be very different.

We welcome UÉ's commitment to collaborative engagement with its customers, communities, stakeholders, other organisations and other bodies. Alignment of UÉ, stakeholders and it's supply chain is essential to protection and restoration of our environment.

Strategic Aim 7 - Protecting our water environment

Work with regulators and stakeholders to develop a Wastewater Strategy Framework. The Plan notes that UÉ is developing a National Wastewater Strategy Framework. This will be a critically important (Tier 2) document.

Wastewater source control will form a key part of that framework. This will be increasingly relevant in managing risks from industrial micropollutants to wastewater treatment. It is also an important consideration in UÉ's approach to innovation.

Develop and implement Integrated Urban Wastewater Management Plans. The Plan notes that:

"The drainage of our cities and towns is a shared responsibility, with Uisce Éireann being responsible for the public wastewater network (including combined sewers), and the local authorities being responsible for the public storm water network and overall management of flood risk.

There can be interactions between these networks and water bodies, particularly in the larger agglomerations, with complexity involved in understanding how the existing system operates hydraulicly and in planning to meet future performance requirements."

It is suggested that these comments understate the reality and the complexity of the issue and the challenges that shared responsibility presents. Interactions between intense rainfall, storm water drainage, storm water overflows and discharges of untreated wastewater from the combined sewer network will always exist, but where is the optimum point in the system for UÉ's responsibilities (and liabilities) to commence, and the local authorities to end? No doubt this is an issue that has been given much consideration by UÉ. It is an issue that warrants review.

Local authorities will need to address storm water drainage in a way that minimises peak flows to combined sewers and reduces the number and extent of storm water overflows. A programme of measures, funded by the Government is required to minimise inflows to the network.

Ensure sustainable abstractions and manage water treatment residuals The Plan notes that UÉ: "…*will continue to update risk assessments in line with updated information on available yields and the impact climate change will have on our sources*."

It also notes that UÉ is committed:

"To a programme of data collection at our key sources to develop a better understanding of the natural hydrology and the impact of our abstractions on the environment".

It is presumed to be the case that risk assessments relating to wider impacts of climate change will also consider reduced base flows and assimilation capacities for treated water discharge and that the data collection referenced will include more than just the key water sources.

Strategic Aim 8 - Playing our part under the Water Framework Directive

As already noted, the necessity for and importance of collaborating and working with others are constant themes throughout the Plan. It is again emphasised in this section of the Plan, which notes that …

"*To achieve the WFD environmental objectives ….. a collaborative effort is the best way to achieve this outcome as the causes and the solutions to protecting and restoring our water catchments are not within the gift of any one sector"*. .

Manage wastewater services throughout the asset lifecycle to achieve regulatory requirements This action states no more than UÉ's statutory obligations. Reference is made to the investment needs – *"substantial"* and that "*it will take multiple investment periods to address"*.

The credibility of any Strategic Plan is dependent on having robust funding plans in place.

Manage water services throughout the asset lifecycle to achieve regulatory requirements This section refers to the Water *Environment* (Abstractions and Associated Impoundment) Act and the licencing requirements (EPA) that arise both for new and existing abstractions. This is an important and overdue development which should help to provide clarity on rights and responsibilities regarding the use and protection of water sources.

Strategic Aim 9 - Contributing to positive biodiversity

Manage our assets to have biodiversity 'Net Gain'. Regarding biodiversity, the Plan notes actions by UÉ which are already underway, including its Biodiversity Action Plan (BAP) launched in 2021. This is an important demonstration of a wider understanding of UÉ's interactions with the environment and a commitment to taking a proactive role in improving biodiversity. It is noted that UÉ is already implementing actions from that BAP, including that biodiversity is an integral factor in decision making processes. As with all other actions it is important that the effectiveness of these actions is monitored and reviewed.

There is an important statement made in this section which underlies all of UÉ's obligations and activities.

"*We manage infrastructure that is located within a range of habitats and our infrastructure often interacts directly with freshwater, estuarine, marine and terrestrial habitats through the abstraction of drinking water or the discharge of treated wastewater.*"

There are similar such statements made elsewhere in the Plan which describe the scale and complexity of UÉ's obligations and the challenges involved in meeting these obligations.

APPENDIX D

STRATEGIC OBJECTIVE 4: SUSTAINABLE SERVICES FIT FOR THE FUTURE

Action 4.1: Develop and implement a Net Zero Road Map.

Action 4.2: Work with our supply chain to embed sustainability in the delivery of water and wastewater infrastructure

Action 4.3: Review and implement the National Wastewater Sludge Management Plan

Action 4.4: Maximise circular economy benefits.

Action 4.5: Manage activities on our assets in a coordinated manner across their full lifecycle, with the aim of achieving ISO55000 certification.

Action 4.6: Ensure risk and value-based decision making across the lifecycle of assets

Action 4.7: Develop a culture of innovation in the water services sector to enable a sustainable future

Action 4.8: Continue to develop

foresight and horizon scanning capability

Action 4.9: Quantify and articulate long-term investment needs for our water and wastewater assets

Action 4.10 Secure multi-annual funding approach

Strategic objective 4 includes five stated strategic aims each with two stated actions.

This section identifies the expected actions, but UÉ has significant catching up to do in comparison to other water utilities and in the face of the other challenges. Ramping up of activity is essential to meet the Net Zero objective and, in particular in relation to leakage reduction, infrastructure whole life carbon assessment and management, alternative and conjunctive energy generation or provision as a major energy user.

Strategic Aim 10 - Achieving net zero carbon

Develop and implement a Net Zero Road Map It is noted that UÉ ambition is to achieve Net Zero by 2040 and it is acknowledged:
"*That we are at an early stage of our decarbonisation journey, but we are fully committed to understanding, analysing, and prioritising our carbon reduction opportunities*".

As such progress should be measured on an annual basis and be a focus during reviews of the Plan.

There is no mention of embedded carbon which could have large impact given the scale of infrastructure investment required. Carbon life-cycle assessments should be integrated into design decisions. UÉ should seek PAS 2080 certification for its design processes. Whole life assessment is mentioned in relation to asset management and material selection but it not clear if carbon is being considered. As an asset owner and operator UÉ could influence and minimise embedded carbon.

Work with our supply chain to embed sustainability in the delivery of water and wastewater infrastructure UÉ are a founding partner of the newly established Irish branch of Supply Chain Sustainability. This is an excellent initiative which has been made available across their supply chain.
In the callout box under Governance it reads "*eradicate corruption and whistle-blower procedures*" rather than have whistle blower procedures in place and protection for the disclosure parties. Rewording is required.

Strategic Aim 11 - Adopting **circular approaches**

Review and implement the National Wastewater Sludge Management Plan There is no indication of progress to date and the scale of actions proposed.

Maximise circular economy benefits It is essential that procurement, design and funding mechanisms are suitable and agile enough to facilitate a Whole Life approach. In the past, experience has been that

project budgets have not allowed for opportunities to be realised where more sustainable solutions are proposed.
"*This standard embodies the principles of circular economy including, employing design-out-waste approaches from project inception stage, right through to consideration of material reuse options at project end of life stage*."

Emphasis must also be placed on efficiency and energy minimisation from commencement of all projects.

Strategic Aim 12 - Managing our assets

Manage activities on our assets in a coordinated manner across their full lifecycle, with the aim of achieving ISO 55000 certification. It is noted that there is ambition to achieve ISO55000 certification, which is welcome and a best practice approach. There is no date committed to achieving this aim. A target date could assist in driving improved performance and asset understanding.
The existing approach to asset management is silo 'ed across investment, operation and maintenance teams with separate budgetary oversight leading to inefficiencies - A more holistic approach is required.

Ensure risk and value-based decision making across the lifecycle of assets Not clear what the action is here. Much of this should fall out from previous action if an ISO5000 approach is applied.

Strategic Aim 13 - **Gaining value from innovation**

Develop a culture of innovation in the water services sector to enable a sustainable future
This section lacks detail or any metrics. The water services sector is traditionally conservative. Measures to support an innovation culture should be identified.

Continue to develop foresight and horizon scanning capability This action should have timelines linked to reviews.

Strategic Aim 14 - **Securing long-term funding**

Quantify and articulate long-term investment needs for our water and wastewater assets UÉ estimate that it will be late 2040's or early 2050's before it brings all wastewater plants into compliance. As there is likely to be more stringent discharge requirements over the next 20 years UÉ may never catch up unless there is a commitment to an earlier full compliance date. Current authorisations do not take account of pending UWWTD or DWD updates and higher standards will require substantial additional investment.
There is no firm commitment in relation to implementation of the NWRP - only noting the majority of customers by 2050.

It is noted that the funding requirements to account for whole life cycle management, may cost multiples of the current funding. This will have significant impact on the future investment required and on the supply chain to deliver.

Secure multi-annual funding approach UÉ note the need to have budget and funding certainty, this is critical in the face of other major investment programmes and the ramp up expected in UK water sector which will impact the supply chain and reduce available resources.