



Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

**Advice to the Minister on the
Economic Regulatory Framework for the
public water services sector in Ireland**

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Non-technical summary

Introduction

In May 2013, the Department of the Environment, Community and Local Government (DECLG) requested advice from the Commission for Energy Regulation (CER) to the Minister for Environment, Community and Local Government (the Minister) on an appropriate economic regulatory framework for the Irish public water sector). At issue was the model by which CER would regulate Uisce Éireann (UE) in the provision of drinking water and waste water services to Irish households and businesses and how this regulatory framework would protect the interests of the customers of UE.

CER prepared proposals for consultation on a regulatory framework in the paper entitled *“Economic Regulatory Framework for the public Irish water services sector”* published in October 2013. Having considered comments from respondents¹ the CER now presents its advice to the Minister on the proposed economic regulatory framework for water.

Summary of Advice to Minister

1. The CER recommends that an economic regulatory framework for the public water services sector in Ireland is put in place, similar to that in the electricity and gas sectors which is based on four key principles – stability, predictability, sustainability and cost efficiency. In regulating the water sector, the CER would apply the same values as it has done to the electricity and gas sectors, namely: fair and transparent regulation, acting with integrity and respect, consulting with stakeholders and customers, being accountable to the Oireachtas, customers and stakeholders, and making informed decisions. In order to ensure the regulatory framework continues to be appropriate to the future needs/priorities of the sector, the CER proposes to adjust/refine the economic regulatory framework over time, in line with the above principles and values, as the economic regulation of the sector evolves from its current formative state to a more mature system. Such modifications to the regulatory framework must be strategic in nature, carefully planned, flagged to participants in advance (with adequate consultation allowed), avoid retrospective action (where possible) and ultimately lead to furthering the interests of the water services customer.
2. CER is recommending the revenue cap (RPI-X) model as the regulatory framework for UE. This model works by capping the revenue that a regulated company such as UE can access during a period. Usually this revenue includes the rate of inflation, hence the use of RPI in the title which is the Retail Price Index. The regulator reviews the proposed costs of the regulated company during a specified regulatory control period and allows the company to recover the revenues necessary to cover costs that are efficiently incurred. The regulator often applies an efficiency factor (the X of the title) to those revenues so that the regulated company must seek efficiencies within its operations. The final outcome

¹ A summary of the issues raised by respondents accompanies this paper.

will be an allowed revenue amount (including inflation) less an X percent efficiency factor. The objective of the RPI-X framework is to provide UE with the incentive to pursue efficiency gains. If UE can achieve greater efficiency gains than X, they benefit, thus creating an incentive. The challenge for the regulator is setting X at an appropriate level and adequately assessing UE's costs.

3. The revenues required by UE will be a result of three building blocks: the costs of operating the water business – operational expenditure; the costs of investment in water service infrastructure – capital expenditure; and the value of the assets on UE's balance sheet – the regulated asset base (RAB). The revenues are recovered through the tariffs paid by customers. To ensure tariffs are reasonable, it is important that these revenues are set at a level necessary to fund an efficiently run company.
 - i. Operational expenditure (opex) – these are the day-to-day costs of running the UE business. To determine the appropriate level of opex allowed to UE, the CER is proposing to use a combination of three methods: benchmarking, efficiency/productivity trends, and use of industry experts. Benchmarking would be used through comparing UE's opex to that of comparable companies. CER would project future opex using trends of improving productivity or efficiency, based on trends within the industry or across the economy. CER may also use industry experts to advise on what opex costs should be allowed. By combining these three methods, it is intended that UE's opex is rigorously scrutinised.
 - ii. Capital expenditure (capex) – this category is focused on the determining a suitable level of investment in water services infrastructure. The regulatory framework needs to create an environment that fosters a level of investment in the water services infrastructure that is correct (effectively targeted), appropriate (at adequate levels) and fully justified (based on evidence of need). The CER would conduct a rigorous review of UE's proposed capital expenditure programme with the objective to ensure that the capex is necessary and consistent with the legal obligations placed on Uisce Éireann under relevant water legislation, consistent with stakeholder and customer expectations and represents value for money for the water services customer.
 - iii. Regulated Asset Base (RAB) – refers to the net value of the assets allowed to UE in delivering the water services regulated by CER. The RAB construct will allow UE to receive a proper and fair return on the capital investments it has made in water services infrastructure. Only spend that is efficiently incurred should be included in the value of the RAB. This feeds through in the revenue required by UE through the inclusion of an allowance for a depreciation charge on assets in the RAB and an allowance for the rate of return on assets in the RAB.

4. Given the importance of the value of the RAB to the regulatory model, a key question is what the opening value of the RAB should be. As this involves the transfer of the water infrastructure assets from the State to Uisce Éireann as the semi-state company, the CER is of the view that any decision by Government should be taken in the context of (a) various assets and liabilities being transferred to Uisce Éireann from Local Authorities, (b) what effect it will have on the charges faced by the water services customer, (c) the equity investment in Uisce Éireann planned by the Government (and the subvention level) and (d) the ability of the water utility to raise debt to fund future investments in the water services infrastructure. CER suggests that there are three options for the Government in making this decision:
 - i. Set the opening RAB later
 - ii. Set the opening RAB based on future funding requirements
 - iii. Set the opening RAB based on UE expenditure and liabilities transferred from the Local Authorities
5. Each decision on allowed revenues would apply to a particular period (revenue control period). CER is recommending that each revenue control period is six years in length. For each revenue control period not only is a decision made on allowed revenues, but the RAB value is updated. The RAB is amended to reflect investments made during the previous revenue control period. Thus, there should be a mechanism by which assets can be included in the updated RAB. CER recommends that the framework allows capex that was efficiently incurred in the previous period to be added to the RAB for the following revenue control period.
6. Beyond UE achieving efficiencies, there may be activities that are beneficial to the water customer which the regulator may try to encourage, or may be required to comply with legislative requirements. In such a scenario, the regulator may create specific incentives to achieve those goals. Any such incentives would be consulted upon with the public. This option would be available to secure benefits for customers that may not be captured by the RPI-X model. CER recommends the inclusion of such a tool within the overall regulatory framework.
7. There are a number of methods of calculating what the allowed revenues during a revenue control period should be. CER recommends the use of the cash flow approach to value the cash requirements of UE. This method entails a set of calculations that are discussed in more detail in the body of this paper.
8. The revenues permitted to UE over a revenue control period depend on assumptions about what happens over the course of that period, for example the level of demand. The tariffs are set to capture the necessary revenues but may not reflect events as they occur. If UE's tariffs are set for a year ahead, and after that year it turns out they recovered more revenue than they required or did not recover enough, then a correction factor could be applied to the revenues for the following year so as to bring them into line with events. This correction factor (k factor) could be applied on an annual basis to reflect the changes that may occur

across a revenue control period. CER is proposing the inclusion of a k factor methodology in the framework.

Transitional issues

Households will become liable for water charges in October 2014. Prior to those charging arrangements coming into force, the CER will need to conduct a revenue review of all UE's activities. There is limited time available to perform such a review and to consult with the public upon it. In addition, UE are in the process of becoming a fully operational water utility. In the context of such developments, CER suggest that there needs to be a transitional phase toward the full operation of the proposed enduring economic regulatory framework and that this transition will take some time.

CER suggests there is a transitional revenue review before moving to the standard regulatory framework. CER proposes that the first revenue review covers an interim period running from October 2014 to the end of 2016. This interim revenue review would then be followed by a full six year revenue control period.

The Minister has powers under section 42 of the Act to issue a policy direction to the CER and this could include directions on elements of the transitional review particularly where they impact on important government policy issues. .

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1 Introduction

1.1 Purpose of this paper

Under section 27 of the *Water Services Act (No 1) 2013*, the CER is empowered to ‘do all such things as may be necessary or expedient for the purposes of the performance by it of water regulatory functions’. The definition of ‘water regulatory functions’ includes those ‘relating to the fixing of charges in respect of the provision of (...) water services, the specification of minimum standards of service as respects the provision of such water services and the protection of the interests of persons to whom water services are provided’. Section 27(2)(a) provides that the ‘the Commission may advise the Minister in relation to the development of policy regarding the regulation of the provision of water services’

On 3 May 2013 the CER received a letter from the Department of the Environment Community and Local Government (DECLG). It requested advice from the CER on a proposed approach for the regulatory framework for the public Irish water services sector.² The letter stated that ‘in line with Government objectives (the proposed approach) must be compatible with the overall objectives of the development of a publicly owned water utility with the capacity to move towards self-financing and to deliver gains in efficiency, effectiveness and customer service, and must be in line with Governmental approaches to better regulation’.³

The CER embarked upon a consultation process to meet this request and formulate advice for submission to the Minister for the Environment (the ‘Minister’) on this matter. In October 2013 the CER published the consultation paper *‘Economic regulatory framework for the public Irish water services sector’*⁴ (the ‘Consultation Paper’). The CER received 16 responses to the Consultation Paper⁵ which are published on the CER website.

Since the publication of the Consultation Paper, the legislation underpinning the CER’s new economic regulatory role has been published and enacted. The *Water Services (No. 2) Act* (the ‘Act’) provides the CER a set of functions, duties and obligations in regulating the public water service sector in Ireland. Under the Act the CER has the power to:

- Direct Uisce Éireann to submit a water charges plan, review that document and approve, approve with modifications or reject it. The water charges plan will specify how charges are calculated and the costs incurred by Uisce Éireann in the performance of its functions.
- Approve or refuse to approve an agreement between a customer and Uisce Éireann for the charging of that customer for the provision of water services.

² Water services relates to the provision of a water supply and a wastewater collection service, which includes the distribution, treatment and storage of water, etc.

³ Please refer to the following link [here](#) on the Department of the Taoiseach website.

⁴ See CER/13/246 [here](#)

⁵ See CER/14/075 which sets out the CER’s view on matters raised by respondents.

- Approve codes of practice designed to secure the interests of Uisce Éireann's customers or refuse to approve the codes if they are not satisfactory.
- Advise the Minister for the Environment, Community and Local Government in relation to the development and delivery of water services.
- Request information from Uisce Éireann to facilitate the CER performing its functions under the Act. Uisce Éireann must comply with such a request as soon as practicable.

This paper sets out the CER's advice to the Minister on the appropriate economic framework for the regulation of the provision of water services by Uisce Éireann in line with the Act.

1.2 Summary of Advice on Economic Regulatory Framework

1.2.1 The Regulatory Framework

The CER recommends that an economic regulatory framework for the public water services sector in Ireland is put in place, similar to that in the electricity and gas sectors which is based on four key principles – stability, predictability, sustainability and cost efficiency. In regulating the water sector, the CER would apply the same values as it has done to the electricity and gas sectors, namely: fair and transparent regulation, acting with integrity and respect, consulting with stakeholders and customers, being accountable to the Oireachtas, customers and stakeholders, and making informed decisions. In order to ensure the regulatory framework continues to be appropriate to the future needs/priorities of the sector, the CER proposes to adjust/refine the economic regulatory framework over time, in line with the above principles and values, as the economic regulation of the sector evolves from its current formative state to a more mature system. Such modifications to the regulatory framework must be strategic in nature, carefully planned, flagged to participants in advance (with adequate consultation allowed), avoid retrospective action (where possible) and ultimately lead to furthering the interests of the water services customer.

The CER recommends that the revenue cap (RPI-X) model should be implemented as it is the revenue framework that the CER believes best meets the needs of stakeholders (including Government, Uisce Éireann and water services customers)⁶.

The revenue cap (RPI-X) framework should be made up of separate building blocks that will allow the CER to estimate a level of revenue sufficient to finance an efficient, well-run utility. This revenue must also include an adequate return on the capital employed in the business so as to ensure continued efficient investment in the water services infrastructure. One of the main building blocks is the allowance for Operational Expenditure (Opex) – the day to day running expenditure of Uisce

⁶ See Appendix A. for background on Revenue Cap (RPI-X) model.

Éireann. To derive an Opex allowance the CER proposes that it should use a combination of three inputs (i) benchmarking against other comparable companies, (ii) the use of efficiency/productivity trends evident in the Irish economy and (iii) the advice of industry experts.

Another building block is the allowance for the Capital Expenditure (Capex) undertaken by Uisce Éireann, an allowance which must promote a level of investment in the water services infrastructure that is correct, appropriate and fully justified. The CER suggests that Uisce Éireann will need to invest in many areas of the water services infrastructure to improve quality of service and compliance with EU water quality Directives and Regulations. The CER recommends that the process of identification and prioritisation of investment projects is undertaken by Uisce Éireann in a transparent and consultative manner, which acknowledges the views of all relevant stakeholders. The CER notes that such consultation by Uisce Éireann on its water services strategic plan and investment plans is required under the *Water Services (No 2) Act 2013*. The review of capital expenditure requires co-ordination between the respective roles and responsibilities of the CER as economic regulator of the water services sector, Uisce Éireann in fulfilling its various legal obligations, the EPA as environmental regulator, and the Government as the provider of state subvention. The capital investment plan should also take into account Government's spatial strategy and economic development strategies. This co-ordination will be an important element of the administrative cooperation arrangement to be agreed between the CER and EPA under section 43(3) of the Act.

A third important building block is the Regulatory Asset Base (RAB) of Uisce Éireann. At any point in time, the RAB is a measure of the net value (gross spend minus depreciation) of a utility's allowed assets used in the operation of its regulated activities. Only efficient capital spend on assets should be allowed to accrue in the RAB and should only include assets that are required to provide the regulated services.

The RAB construct will allow Uisce Éireann to receive a proper and fair return on the capital investments it has made in water services infrastructure. The CER recommends that only efficient spend on assets is added to the RAB and that those assets are valued through the Indexed Historic Cost methodology. The CER also recommends that models, such as the Capital Asset Pricing Model, are used in aiding the CER to derive a fair return on the Uisce Éireann RAB. Furthermore, at this time the CER believes it appropriate to implement a straight-line approach for the depreciation of Uisce Éireann assets, a depreciation profile which will depend on the average lifetime of the asset in question.

A key question when discussing the RAB is its opening asset value ("Opening RAB"). With the transfer of the water infrastructure assets from the State to Uisce Éireann as the semi-state company, the CER is of the view that any decision on the opening RAB by Government should be taken in the context of (a) various assets and

liabilities being transferred to Uisce Éireann from Local Authorities, (b) what effect it will have on the charges faced by the water services customer, (c) the equity investment in Uisce Éireann planned by the Government (and the subvention level) and (d) the ability of the water utility to raise debt to fund future investments in the water services infrastructure.

The CER suggests that there are three options:

- (1) Set the Opening Uisce Éireann RAB later: In order to understand the consequences of setting a particular level of RAB, a robust estimate of future capex requirements and the level of Exchequer funding should be used. This information may not be available until later). It may therefore be appropriate to wait until better information is available. In the meantime, the cost of borrowing and principal repayments could be included in the allowable revenues.
- (2) Set the Opening Uisce Éireann RAB based on future funding requirements: This option follows from option 1 above. Once sufficient information is available the Opening Uisce Éireann RAB would be set on a basis that would allow the financing of certain profile of debt and equity to achieve a level of future capex.
- (3) Set the Opening Uisce Éireann RAB based on Uisce Éireann expenditure and liabilities transferred from the Local Authorities: This option entails setting the Opening Uisce Éireann RAB based on the recent expenditure incurred by Uisce Éireann in setting up the utility and any liabilities transferred from the Local Authorities (up to the date of asset transfer). This option would effectively value the existing water infrastructure equal to the liabilities transferred. Any inability to raise debt would have consequential impacts on the level of equity needed and/or capex undertaken.

The CER proposes that specific revenue incentives are put in place for Uisce Éireann. The intent of these incentives would be to improve the utility's performance in the delivery of its responsibilities, particularly with regard to quality, efficiency and timeliness of service delivery to the water services customer.

Finally the CER suggests that it adopts a cash-flow approach to calculate the cash requirements of Uisce Éireann over the course of the revenue control and that a 'k-factor' methodology is applied to over or under recoveries from the pre-determined level of allowed revenues.

1.2.2. *Transitional Issues*

Section 1.2.1 above sets out the CER view on the proposed enduring economic regulatory framework. However the CER recognises that a transition toward this enduring economic regulatory framework is necessary given the nature of the fundamental reform in the water reform sector outlined in the DECLG Implementation

Strategy, Government policy for the introduction of domestic water charges from 1 October 2014 and the time constraints on Uisce Éireann and CER in undertaking a normal multi annual revenue control review in advance of the introduction of domestic water charges. It is also noted that Exchequer support for Uisce Éireann will be required until such time as it is able to access sufficient third party finance and recover sufficient revenue from customer charges such that it is self-financing. Therefore in the short to medium term, the level of Exchequer support is likely to be a constraint on the level of Uisce Éireann's capital investment programme and this will likely continue until such time as it can source a large portion of funding needs in the international capital markets. The CER also notes that there may be conditions attached to such Exchequer support. The Minister has powers under section 42 of the Act to issue a policy direction to the CER and this could include directions on elements of the transitional review particularly where they impact on important government policy issues.

As such it is likely that the transition toward the full operation of the proposed enduring economic regulatory framework will take some time. The CER therefore recommends the following as part of this transitional phase:

- An initial interim revenue control (October 2014 – end of 2016) is adopted before moving to a series of six year price reviews. The proposed timing aligns with the DECLG Implementation Strategy.
- The CER will perform a detailed analysis of Uisce Éireann's costs as part of the initial interim revenue control period seeking to ensure that only efficiently incurred costs are allowed. The outcome of the CER review of Uisce Éireann's costs will be published for public consultation in June, with the CER decision published in August 2014 in advance of the introduction of water charges from 1 October 2014.
- Uisce Éireann's capital investment submission as part of the initial interim revenue control period will primarily be based on the water services capital investment programme which was being carried out by the Local Authorities. The CER notes that these capital investment programmes have already been subject to a rigorous assessment by DECLG and the majority of projects initiated by the Local Authorities will continue or be completed under Uisce Éireann. However the level of capital available to Uisce Éireann to fund such capital investments in the interim control period is likely to be constrained and insufficient to carry out the entire capital programme. Therefore a prioritisation of capital investment programme for the interim revenue period will be necessary. In considering Uisce Éireann's capital investment programme, the CER proposes to engage with the EPA, as environmental regulator and the Government as the provider of state subvention to ensure as far as is possible that the prioritised capital investment programme provides the best value for money and is consistent with strategic needs and priorities.

Finally, the CER confirms that it is currently carrying out an in-depth review of Uisce Éireann's establishment costs, as requested by the Department. This follows the

short high level review on such costs that the CER completed on 18 November 2013 in response to the Minister's request for advice on 23rd October 2013 under section 27 of the Water Services Act 2013 (No. 6 of 2013). The current in-depth review will specifically consider whether the Uisce Éireann's establishment costs could be (i) considered reasonable (b) are of value/long term benefit to the water services customer; and (c) should be added to the opening value of the RAB where (a) and (b) are met. The CER will only allow efficiently incurred costs to be passed on to customers. The CER expects the in-depth review of Uisce Éireann's establishment costs will be completed in June of this year.

1.3 Structure of this Paper

This paper is structured as follows:

- **Section 2** outlines the objectives and principles of CER's recommended enduring regulatory framework;
- **Section 3** sets out CER's recommended form of the regulatory framework;
- **Appendix A** gives some further background on the Revenue cap (RPI-X) model and suggests how efficiency gains made under a RPI-X approach could be shared with the customer.

2 Objectives and Principles of the Regulatory Framework

2.1 The statutory basis for the regulatory framework

The *Water Services (No. 2) Act 2013* ('the Act') sets out the functions and powers of the CER in the economic regulation of the water sector. These core functions include:

- i. Direct Uisce Éireann to submit a water charges plan, review that document and approve, approve with modifications or reject it. The water charges plan will specify how charges are calculated and the costs incurred by Irish Water in the performance of its functions.
- ii. Approve or refuse to approve an agreement between a customer and Uisce Éireann for the charging of that customer for the provision of water services.
- iii. Approve or refuse to approve codes of practice designed to secure the interests of Uisce Éireann's customers.
- iv. Advise the Minister for the Environment, Community and Local Government in relation to the development and delivery of water services.

The Act requires the CER to perform its functions in a manner that best serves the interests of customers of Uisce Éireann and have regard to the need to ensure:

- a) that the customers of Uisce Éireann are provided with the quality of service provided for in an approved code of practice,
- b) that water services are provided by Uisce Éireann in an economical and efficient manner,
- c) that Uisce Éireann operates in a commercially viable manner,
- d) the conservation of water resources,
- e) the continuity, safety, security, and sustainability of water services,
- f) that Uisce Éireann can meet all reasonable demands for water both current and foreseeable,
- g) the recovery of costs of water services in accordance with Article 9 of the EU Water Framework Directive,
- h) that Uisce Éireann performs its functions in a manner that will enable the achievement by the State of the environmental objectives of that Directive,
- i) that Uisce Éireann performs its functions in an open and transparent manner.

The CER notes that the Minister may issue general policy directions to the CER under section 42 of the Act.

In approving Uisce Éireann's water charges plan, part of the CER's responsibilities involves regulating the level of revenue that Uisce Éireann will be able to recover from the water customer (both domestic and non-domestic) to cover its costs.

The CER will need to develop a framework within which Uisce Éireann's costs will be examined and approved. This framework must, among other things, ensure that only the costs efficiently incurred by Uisce Éireann are charged to customers. These Uisce Éireann costs will be made up of operational costs and costs related to capital expenditure (including depreciation and return on investment). In addition Uisce Éireann, as the single water utility in Ireland, must have a strong incentive under the framework to improve service and reduce costs from the outset of regulation.

2.2 Objectives of CER's proposed regulatory framework

The regulatory framework for Uisce Éireann should enable the determination of an appropriate level of allowed revenues that the utility can recover over a set period. The CER's objectives, when this framework is established, will be to ensure that:

- The interests of final customers are protected, in the short and long term. This means containing water charges to the maximum extent possible, incentivising Uisce Éireann to deliver good customer service, delivering efficient network investment and meeting relevant environmental and public health standards;
- The framework is consistent with the relevant legislation that enables it⁷;
- The condition and performance of current public water services infrastructure is improved and sustained;
- Uisce Éireann is able to attract, at an efficient price, the capital investment to support the necessary level of upgrading, renewal and extension of the water services infrastructure (both water services and wastewater services). In doing so, the CER wishes to ensure that Uisce Éireann's investment plans provide value for money for customers in terms of the benefits they add;
- Appropriate incentives are provided for Uisce Éireann to improve its efficiency (e.g. reducing leakage rates on the network, improving treatment of wastewater, enabling environmental requirements to be met), and that resulting savings are passed through to customers. The CER will set targets that are challenging but achievable; and
- The intervention by the CER into the business of Uisce Éireann is kept to an appropriate level.

⁷ As set out in section 2.1

2.3 The key principles of CER's proposed regulatory framework

The CER suggests that a number of principles are adopted when developing an economic regulatory framework. It is important to note that these principles reflect the Government Policy Statement on Economic Regulation published on 22 July 2013.⁸ The statement details a strategic framework for economic regulation which incorporates principles such as predictability and transparency.

The principles that the CER proposes to follow are:

(1) **Stability** – the framework must provide a solid platform for Uisce Éireann to carry out its activities. Frequent complaints and unwarranted interventions by the CER into the revenue controls etc., would lead to the new regime being continually adjusted. Unnecessary regulatory interference increases uncertainty for the utility and the public, which in turn could discourage vital investment in, and long-term planning of, the water services infrastructure.

This is not to say that the regulatory framework should be fixed and unable to adapt to a changing regulatory or policy environment. Reform of the Irish water sector is at a formative stage and the framework must be flexible to accommodate future changes. However, modifications to the regulatory framework must be strategic in nature, carefully planned, flagged to participants in advance (with adequate consultation allowed), avoid retrospective action (where possible) and ultimately lead to furthering the interests of the water services customer.

(2) **Predictable** – the framework should provide stakeholders with a picture as to how it will develop in the short and long-term. Predictability is connected with the principle of stability, as both facilitate efficient investment at least cost to the water services customer. An unpredictable regulatory framework will likely raise the cost of capital faced by the utility, which will ultimately be to the detriment of customers in the form of higher water charges. An example of an unpredictable framework would be for the value of the RAB to be amended in an unexpected fashion.

Rational and objectively reasoned arguments will help all stakeholders predict decisions around the regulatory framework. Sudden, unanticipated or poorly justified changes in the construct of the regulatory framework are likely to erode the confidence of private investors and increase the cost of capital for the water utility. The net result would be higher charges for water customers.

(3) **Sustainable** – the framework must be sustainable for customers and stakeholders in both the short and long term. The economic regulatory framework must allow the water utility receive a reasonable assurance of a revenue stream in future years that will cover its costs (only efficiently incurred and approved costs), including an appropriate rate of return on investments made and the recovery of capital invested. This assurance is in return for providing monopoly services to an

⁸ Please refer to the following link [here](#) on the Department of the Taoiseach website.

acceptable quality. Uisce Éireann must be able to finance its efficient operations, and any efficiently incurred capital expenditure, so that it can continue to operate to the benefit of present and future water services customers. In essence, a more financially sustainable framework should result in a more environmentally sustainable system, through improved quality standards and service provision.

(4) **Cost efficiency** – the regulatory framework must drive Uisce Éireann to constantly look, year-to-year, for economic efficiencies to the benefit of customers. Essentially Uisce Éireann must provide more for less – it must constantly look to provide greater service and quality to its customers at a lower cost. However, the necessity for cost efficiencies must be balanced with the other principles outlined above – stability, predictability and sustainability.

The economic regulatory framework must strike the correct balance between what is achievable by Uisce Éireann in its efficiency drive and incentivising it to achieve that level of efficiency.

2.4 Values underpinning the operation of the regulatory framework

The CER will apply the same values to the water industry as applied in the electricity and gas sectors, with protection of the customer paramount, both in the short-term and in the long-term. We will adhere to our values at all times. These values interlink and support one another.

- *Regulate in a fair, transparent and consistent manner*
 - Fairness means that the CER will regulate the water industry in an even-handed balanced manner.
 - Transparency means that the CER will conduct its activities in an open manner so that those who are affected by our decisions can clearly see how we came to those decisions in the first place.
 - Consistency means that the CER will regulate the water industry with steady continuity by adhering to the same values outlined in this part of the paper, values which have guided the CER since 1999.
- *Act with integrity and respect.*
 - Integrity means that the CER will act in an honest and ethical fashion when regulating the water industry, as it does in the energy sector and as safety regulator.
 - Respect means that the CER will value the opinion and viewpoints of all stakeholders, both those who agree with our decisions and those who disagree. When regulating the water industry the CER will always respect

the right of all stakeholders to their own viewpoint and to communicate that viewpoint to the CER.

- *Proper consultation with stakeholders and customers.*
 - Proper consultation means that the CER will engage meaningfully with those who are affected by our decisions before coming to those decisions. Meaningful engagement can come in the form of talking with people, being accessible to people, meeting with people, listening to people and being pro-active in the communication process.

 - Proper consultation seeks advice or information from people that will help promote confidence in them that the CER is regulating the water industry effectively. The CER is most credible when it listens and shows that it is listening to those affected by our decisions.

- *Accountability to customers and stakeholders.*
 - Accountability means that the CER is answerable to stakeholders for the decisions we make in the water industry. The CER is also accountable to the Oireachtas.

 - Accountability also means that the CER will take responsibility for its decisions.

 - Accountability places an obligation on the CER to explain our decisions, act in a professional manner, to lay out the reasons why such decisions were made and to show why these decisions were made in the best interests of the water services customer and in a balanced fashion.

- *Making informed decisions*
 - Making informed decisions means that the CER will base decisions on the best available evidence with the objective of meeting our primary goal – the protection of the water services customer.

3 CER's Proposed form of the Regulatory Framework

The CER recommends that a revenue cap (RPI-X) framework⁹ is adopted for the public water services sector in Ireland.

The setting of such a revenue cap requires the determination of the level of revenue that would be sufficient to finance an efficient, well-run business. This allowed revenue must also include an adequate return on the capital employed in the business so as to allow continued efficient investment.

The setting of an efficient level of revenues requires a consideration by the CER of the likely level of operating costs and capital expenditure that an efficient business requires over the duration of a revenue control period. To date the CER has, for the most part, operated a five-year revenue control period for the electricity and gas network utilities. It is considered that this length of revenue control correctly balances the need to incentivise efficiency gains in the utility, but limits customer exposure to forecasting errors that may result in excess profits for the utility.

The CER recommends that a steady state revenue control period of 6 years is adopted for the water services sector, in order to align with the River Basin Management Plans cycle.¹⁰ This timing would allow the various parties involved to synchronise and co-ordinate the requirements of the forthcoming water Capex Programme. The review of capital expenditure requires co-ordination, taking account of, the respective roles and responsibilities of the CER as economic regulator of water services sector, Uisce Éireann in meeting its legal obligations, the EPA as environmental regulator, and the Government as the provider of subvention/equity to Uisce Éireann and to ensure that capital investment takes into account Government's spatial strategy and economic development strategies.

This section sets out the CER's recommendations on a number of detailed issues relating to the proposed regulatory framework. These include:

- the treatment of operational expenditure;
- the treatment of capital expenditure;
- the appropriate approach to setting the opening asset value of the Uisce Éireann RAB;
- the appropriate approach to valuation of assets being added to/within the Uisce Éireann RAB;
- the appropriate capitalisation policy for adding assets to the Uisce Éireann RAB;
- the estimation of a reasonable rate of return on assets in the Uisce Éireann RAB;
- the treatment of depreciation for assets in the Uisce Éireann RAB;
- the use of specific revenue-based incentives;
- how maximum allowable revenues are calculated; and
- the form of the revenue control formula.

⁹ See Appendix A for further background detail on Revenue Cap (RPI – X) model.

¹⁰ Please refer to the following link [here](#) for documentation on the River Basin Management Plans.

3.1 The treatment of Operational Expenditure (Opex)

A central objective of the regulatory framework is to provide Uisce Éireann with an incentive to operate its business efficiently so as to provide value to the customer. One way of doing this is to base the allowance for future opex on a level considered equivalent to efficient costs, when setting future revenue requirements. This method provides the water services customer with greater value than using the utility's actual or forecast level of opex - which may include inefficient expenditure. An independent, objective, thorough and focused view of opex by the regulator is central to the performance of any revenue control.

Opex is the day to day costs incurred by the business. Opex can be broken down into two categories: controllable and non-controllable. Controllable opex comprises such categories as staff costs, contractor fees, consultant fees, consumable materials etc. Uncontrollable opex can include the rates payable by the utility to the city or county councils.

In order to make a robust determination of controllable opex, the CER proposes to use a combination of three methods: (i) benchmarking, (ii) the use of efficiency/productivity trends and (iii) the use of industry experts. Using these methods gives the regulator a good understanding of the utility's business, where it sits relative to the rest of the economy and where it sits relative to its peer utilities in other countries.

(i) Benchmarking

Benchmarking enables comparisons with other water utilities to be made and facilitates setting a target for the business to achieve the same costs as the average or most efficient comparator water utility. Using benchmarking to set allowable revenues can give the business a powerful incentive to become more efficient. Benchmarking can also help identify the speed at which the utility should be incentivised to reach greater efficiencies. The timing of efficiency gains will be important in the context of Uisce Éireann - a new water utility operating in Ireland.

Determining benchmarks of the type required for setting Uisce Éireann's opex is not without its problems. In many other countries, there are a number of water utilities (e.g. there are approx. 20 in Great Britain) against which to compare. Benchmarking in Great Britain is therefore somewhat easier than in Ireland, where there will be only one water utility.

The CER faces the same issue on the gas and electricity network businesses. We have generally used benchmarking data from other countries to cross check the costs of Irish utilities. While it is difficult to make appropriate allowances in any such exercise for all the relevant factors that may lead to differences in costs (e.g., stage of development of the utility, size of network, age of network, weather, different cost allocation methodologies, different

legal and/or regulatory frameworks), benchmarking is still a useful tool. Care needs to be taken to ensure that the inputs used result in a like for like comparison and appropriate interpretation of the results is needed to ensure that the correct conclusions are drawn by the regulator.

(ii) The use of efficiency/productivity trends

The CER may project future opex using objective and stable measures of efficiency trends. These could be industry specific or economy wide measures of annual gains in labour or capital productivity. This technique has the potential advantage of being less contentious than attempting to use suitably adjusted information on comparators' efficiency levels. However, the use of trends may be more appropriately applied to a company or sector operating in a mature environment where costs are stable and predictable.

(iii) The use of industry experts

The CER may also use industry experts to advise it on setting the opex allowance. These experts generally draw on their experience and knowledge of working in the relevant industry in helping to advise the regulator of allowable costs. The experts engage in detailed investigations of all opex allowances, cost allocation between controllable and uncontrollable allowances, cost effectiveness of these allowances etc. This analysis would assess the plausibility and objective merit of proposed opex (i.e. should it be allowed and, if so, at what level).

If the regulated company has been through a revenue control period the experts will generally review and audit its outturn operational expenditure for that revenue control. This process could involve looking at the particular organisational/wage structure of the company and comparing it against other companies operating in similar industries. It could also involve a review of the maintenance policy of the company and seeing how it compares against other similar companies, e.g. the company reviews wear and tear on certain assets every 3 years, whereas other companies carry out a review on the same assets every 5 years. This exercise ultimately leads to a report from the experts on the recommended level of opex and identifying key areas where efficiency savings can be made by the utility.

Uncontrollable opex is by definition not directly controllable by the utility and therefore once the utility can demonstrate that it cannot avoid incurring the cost it is included in the allowable revenue. Local taxes, environmental or resource costs may fall under this category.

3.2 Determining a capital expenditure allowance (Capex)

The regulatory framework needs to create an environment that fosters a level of investment in the water services infrastructure that is correct (effectively targeted),

appropriate (at adequate levels) and fully justified (not just for the sake of it). The CER recommends that Uisce Éireann is required to put in place effective short and long-term planning of investment in this infrastructure. As provided for under the Act, Uisce Éireann must put in place a water services strategic plan¹¹ (covering a period of 25 years) to guide its capital expenditure plans for the water services sector.

Based on this strategy Uisce Éireann will develop a multi-annual investment plan¹². The CER expects that Uisce Éireann will have a number of areas that will require investment arising from requirements in EU Directives and increases in demand due to demographic or economic developments, such as:

- Renewal, refurbishment, repair and maintenance of the distribution/collection network and treatment plants;
- Upgrading treatment plants to meet national and EU standards;
- Metering and billing systems;
- Information technology, such as asset management systems, work management systems and its Geographic Information System (GIS);
- Expansion of SCADA¹³ and telemetry, for remote monitoring and control; and
- Other items such as buildings, vehicles, tools, computers etc.

Uisce Éireann will have a finite budget to spend on its capital investment plans. To help IW determine its capital investment priorities, the CER recommends that Uisce Éireann consult with customers and stakeholders to understand their requirements. The CER note Uisce Éireann's statutory consultation obligations under section 34 under the Act. In particular, the CER expects that Uisce Éireann will engage with:

- Government Departments - for example to ensure that Uisce Éireann takes into account Government's spatial strategy and economic development strategies;
- Environmental Protection Agency (EPA) - to ensure that Uisce Éireann understands the EPA's priorities in terms of meeting drink water and waste water standards, ensuring risks to breaching standards are minimised. Uisce Éireann must also work with the EPA to ensure that the Water Framework Directive objectives are achieved;
- Regional and Local Authorities – to ensure that Uisce Éireann understands and takes into account regional and local development plans and River Basin Management Plans;
- Industrial Development Authority/Enterprise Ireland – to ensure that Uisce Éireann understands the development agencies' plans and strategies;
- Other statutory bodies – such as the Office of Public Works, Inland Fisheries, the National Consumer Agency, Waterways Ireland etc.;
- Large customers – to ensure that Uisce Éireann understands their needs and requirements;

¹¹ See section 33 of the Act.

¹² See section 34 of the Act.

¹³ Supervisory Control And Data Acquisition

- Representative Bodies – such as environmental groups, recreational water users, anglers, business representative groups etc.; and
- Domestic Customers – engaging with customers through representative groups and carrying out surveys to understand the domestic customers' expectations and requirements.

The CER expects that Uisce Éireann will engage with customers and stakeholders in an open and transparent manner. The output from this engagement process will be used to inform IW on the priorities of its capital investment programme. As provided for under the Act, Uisce Éireann must submit its capital investment programme as part of its water charges plan for the CER.

It is proposed that, like opex, the CER and its technical experts will engage in a review of the required capex. The CER's objective of the review will be to ensure that the capex is necessary, consistent with the legal obligations placed on Uisce Éireann under relevant water legislation, consistent with stakeholder and customer expectations and represents value for money for the water services customer. An important principle of this review is that inclusion of a project in the IW capital investment plan does not automatically confer approval; an individual project must be subject to detailed appraisal on its own terms and will also be subject to the requirements of the planning system.

Uisce Éireann should be required to demonstrate that:

- Their capital investment plan is consistent with their long-term investment strategy;
- A thorough consultation process has been undertaken with customers and stakeholders, the outcome of which is reflected in the capital programme;
- Uisce Éireann has a robust procurement process in place to ensure that all capital works are efficiently procured and deliver value for money to the customer;
- The projects proposed in the capital programme represent the best value solution and a comprehensive review of alternatives, both alternative capex or opex, supports this conclusion;
- The estimated costs are realistic and achievable and Uisce Éireann's proposed costing structures are benchmarked with other utilities or industries with similar activities;
- The benefits of the capital programme and a method of demonstrating to customers the benefits realised as projects are delivered; and
- The measures undertaken by Uisce Éireann to ensure that the capital programme is being delivered efficiently and the reporting arrangements that Uisce Éireann anticipates will be required to demonstrate this.

The CER is of the view that the process outlined above will help deliver efficient investment in the water services sector. As set out earlier, the review of capital expenditure requires co-ordination, taking account of, the respective roles and responsibilities of the CER as economic regulator of water services sector, Uisce

Éireann in meetings its legal obligations, the EPA as environmental regulator, and the Government as the provider of grants to Uisce Éireann and the need to ensure that capital investment takes into account Government's spatial strategy and economic development strategies.

3.3 Opening Asset Value of the Uisce Éireann RAB

The RAB is an important concept in the construction of an effective regulatory framework. A key question when discussing the RAB is its opening asset value ("Opening RAB"). As this involves the transfer of the water infrastructure assets from the State to Uisce Éireann, the overall approach is ultimately a decision for Government.

This decision must be taken in the context of (a) various assets and liabilities being transferred to Uisce Éireann from Local Authorities, (b) what effect it will have on the charges faced by the water services customer, (c) the equity investment in Uisce Éireann planned by the Government and (d) the ability of Uisce Éireann to raise debt to fund future investments in the water services infrastructure.

The CER suggests that there are three options:

- (1) Set the Opening Uisce Éireann RAB later: In order to understand the consequences of setting a particular level of RAB, a robust estimate of future capex requirements and the level of Exchequer funding should be used. This information may not be available until later. It may therefore be appropriate to wait until better information is available. In the meantime, the cost of borrowing and principal repayments could be included in the allowable revenues.
- (2) Set the Opening Uisce Éireann RAB based on future funding requirements: This option follows from option 1 above. Once sufficient information is available the Opening Uisce Éireann RAB would be set on a basis that would allow the financing of certain profile of debt and equity to achieve a level of future capex.
- (3) Set the Opening Uisce Éireann RAB based on Uisce Éireann expenditure and liabilities transferred from the Local Authorities: This option entails setting the Opening Uisce Éireann RAB based on the recent expenditure incurred by Uisce Éireann in setting up the utility and any liabilities transferred from the Local Authorities (up to the date of asset transfer). This option would effectively value the existing water infrastructure equal to the liabilities transferred. Any inability to raise debt would have consequential impacts on the level of equity needed and/or capex undertaken.

3.4 Adding assets to the RAB

The CER recommends a revenue control period of 6 years. It is important to establish the principle of how capex in the previous revenue control is treated during the successive revenue control period so that only efficiently incurred costs and assets can be added to the RAB.

To achieve this objective, at the time of a revenue control review, the CER recommends that the framework allows the utility to include efficient capital investment made during the revenue control period into the RAB. This outcome can be achieved by including the forecast level of new investment in the current control period to the closing asset value of the previous period, to calculate the opening asset base of the forthcoming control period.

However, differences between forecast and actual investment during the course of the current control period may arise. Forecast expenditure will rarely exactly mirror actual expenditure. Differences can result from:

- price differences, which may be due to unanticipated movements in the price index used in forecasting investment or efficiency gains (i.e. the regulated company purchasing input materials more cheaply than the price index would imply);
- volume variations, to the extent that, say, demand has not grown as anticipated, such that investment has been higher or lower than forecast;
- variations in the quality of service, e.g. actual investment may be lower than forecast, but at the expense of a deterioration in the quality of service; and
- efficiency gains, from a lower volume of investment to achieve the same quality and output as forecast.

The CER recommends that it should distinguish between the different causes of a variance between forecast and actual capital investment, during the revenue control review process. This differentiation will be with the aim of rewarding efficiencies and of penalising poor performance by disallowing investments which are not efficient. As highlighted above, investment by Uisce Éireann (and the respective plans) needs to be justified to the CER, to be included in the RAB.

3.5 Valuation of assets added to/in the RAB

The approach to valuing assets added to (and within) the RAB is a crucial decision within the revenue control process. As noted above the RAB plays a key role in establishing the value of each business and hence its ability to cover capital expenditure and provide an adequate return on capital employed.

Specifically, the evolving value of the RAB should be such that it is capable of providing sufficient revenue when applying the cost of capital to it, to ensure that the

company is able to fund new investments in the water services infrastructure. The correct valuation for assets being added to/within the RAB is key to the regulated business, its customers and those providing funding for investment.

There are numerous methods for valuing the assets being added to the RAB. The value of the assets in the RAB of a regulated company is fundamental to the calculation of both the return on and recovery of a regulated company's investments.

The CER suggests that the **indexed historic cost (IHC)** approach¹⁴ is used to valuing new assets of the Uisce Éireann RAB (i.e. post calculation of the Uisce Éireann Opening RAB). The indexation factor proposed is general inflation, as opposed to any 'industry specific' factor. The CER considers IHC to be a stable and transparent method to value assets added to the Opening Uisce Éireann RAB, with the historic cost (i.e. the purchase cost) of the assets relatively easy to determine. Using general inflation as the indexation factor promotes transparency in the process. The stability of the methodology stems from the fact that once you set the valuation of the Opening Uisce Éireann RAB all stakeholders can see its progression during the revenue control and indeed from revenue control to revenue control. This clarity provides the methodology with a strong element of predictability, in that the regulated company will know that under IHC if it makes an efficient investment it will be remunerated in a predictable and steady fashion through the revenue controls.

3.6 Approach to Grants or Capitals Contributions

The CER recommends that customer capital contributions and/or Government grants (but not Government equity) for the build of assets are subtracted from gross capital expenditure figures in the relevant year. The alternative approach would be set capital grants/contribution against annual revenue requirements. The CER believes setting capital grants/contributions against the cost of assets that they are intended to pay for is the most appropriate treatment and lowers the amount of capital required by Uisce Éireann, an important consideration in the initial years of regulation.

3.7 Rate of Return on the Uisce Éireann RAB

The allowed revenue of a regulated network company such as Uisce Éireann, for any given period, includes the cost of financing capital investments made by the company. This cost of capital allowed by a regulator in setting the revenue control should reflect the opportunity cost of the funds invested in assets, (i.e. the risk adjusted costs faced by an investor for providing capital to Uisce Éireann when it could have provided the same level of capital to another water utility in say the UK, Europe, US etc.). It can also be thought of as the discount rate which an investor would use in evaluating the income stream to be expected from investing in a regulated network company like Uisce Éireann.

¹⁴ See CER/13/246 for further background on the indexed historic cost approach.

Generally speaking, the more risky the company, the higher the rate of return required, since suppliers of funds will require a higher return to compensate them for bearing greater risk of default. Higher rates of return mean higher bills for customers. Therefore maintaining an expected allowed return on capital in line with the required rate of return is the primary determinant of the regulated company's financial viability.

The nature of the regulatory framework, the regulatory process and regulatory risk in particular, is an important factor in determining the required rate of return for Uisce Éireann. Therefore the CER recommends that it establishes a transparent methodology for estimating this figure as part of the regulatory framework. The more stable, predictable and sustainable the regulatory framework is the lower the required rate of return for Uisce Éireann, which means lower bills for water customers.

3.8 Methodology for establishing the required rate of return

Since most businesses are financed with a combination of debt and equity, the relevant measure of the cost of capital is the weighted average of the cost of debt and the cost of equity, where the weights reflect the company's long-term target level of gearing (i.e. the ratio between the level of equity and debt invested in the company). This ratio is known as the Weighted Average Costs of Capital or WACC. When applied to the RAB of a utility it can be used to derive a return on capital employed. Considering that the CER proposes to inflate the Uisce Éireann RAB to account for inflation (i.e. a RAB in real prices), the WACC also needs to be calculated in real terms.

Calculating the WACC requires a number of inputs. These inputs are now discussed.

The cost of debt

The cost of debt to a regulated business can generally be thought of as the sum of the real pre-tax return required by investors in risk free investments, (such as Government bonds) plus a margin over the risk free rate at which debt can be obtained by the company in question.

Debt repayments made by a company to its investor(s) are generally fixed, in that a company will have to pay back a pre-agreed set amount of money to the investor(s) at pre-agreed intervals. These set payments are in contrast to the variable nature of returns on equity.

'Risk' can be defined, in this context, as the risk of non-payment of the debt from the company to the investor(s). One potential measure of the risk of non-payment is the rating on the company's debt, provided by credit ratings agencies. Therefore, one way to calculate a company's debt premium is to consider the rating(s) of its debt and then take market data on spreads on bonds with this same rating. For companies

which do not have listed bonds, (as will be the case for Uisce Éireann in its initial years of establishment), and which are not rated, the regulator can make a reasonable assumption about the rating that they might have were they to be rated, based on other similar companies, such as other water utilities.

The CER recommends that it uses this process of comparison when estimating a cost of debt for Uisce Éireann.

The cost of equity

The cost of equity can be described as the rate of return that an investor expects to earn when investing in shares of a company. This return is made up of the dividends paid on the shares invested and any increase, or decrease, in the market value of the shares invested. As Uisce Éireann is, and is expected to continue to be, a publicly owned regulated company that does not issue to third parties (quoted or non-quoted) shares, the CER needs to establish a method for estimating its cost of equity. This technique will enable the full calculation of the required rate of return. There are a number of methods to do this. The CER is minded to adopting the Capital Asset Pricing Model (CAPM).

The CAPM provides that the cost of equity should give shareholders a risk premium above the risk-free return according to a company's systematic risk, i.e. the inherent risk of a company operating in a market. This premium (known as the 'Beta') depends upon whether the return to that company is more or less risky than the market return of a similar company operating in a similar industry.

The CAPM is a forward-looking model, that is, it is intended to model future rather than historic returns of a company. It is by no means a perfect model - approaches to estimating key parameters of the methodology can be contentious and historic values of key parameters may not reflect future values. However, the CAPM is used by the CER in deriving the required rate of return for the Irish energy network companies and is used by regulators internationally in countries such as the UK and Australia. It is also well understood by investors globally, investors who Uisce Éireann will ultimately look to source funds from at some point. This understanding of the CAPM should, in turn, promote predictability in the regulatory framework. This, as noted above, is expected to have positive effects on customer bills and welfare.

Gearing of the regulated company

In calculating a WACC estimate, it is necessary to make an assumption about the gearing level of the company, i.e. the ratio of debt to equity in the company. This ratio will allow the regulator to know the weight that should be placed respectively on the cost of equity and the cost of debt.

The logic of the revenue cap RPI-X framework is that, in principle, the regulator should be aiming to identify the WACC of the regulated company itself. In other words, the CER should be concerned with allowing an effective return on the assets in the RAB, rather than the returns to individual stakeholders in the regulated

company. The CER should not be concerned with the allocation of the allowed return between equity holders (i.e. the Government) and debt investors. The CER is not in general concerned with the structure of the company's balance sheet, other than ensuring that Uisce Éireann is not highly geared, which could lead to financial distress and inability to make the required level of investment. Nevertheless, the key issue for the regulator to consider is whether the actual or optimal level of gearing should be used in the WACC calculation.

It should be the CER's objective to allow the regulated business to recover from customers only the required cost of finance that is based on an assumed target or 'optimal' level of gearing. Generally, regulators (including the CER for the energy networks) have tended to use an optimal or target approach. The justification being that if the actual gearing of the regulated company is non-optimal which results in its cost of capital being raised, that extra cost should not be passed on to customers through higher bills.

Therefore the CER is recommending that a target/optimal level of gearing is used in the WACC calculation, as opposed to the actual gearing of the utility.

The treatment of tax

There are two approaches to incorporating tax requirements into the allowed WACC of the regulated company. The regulator can either allow a pre-tax WACC or a post-tax WACC. A pre-tax approach allows the regulated company to earn a return out of which to settle tax expenses. In a post-tax approach taxes are modelled separately from the return (WACC) as a cost item in the allowed revenues of the regulated company. A post-tax WACC allowance would require detailed analysis by the CER of the specific tax requirements of the utility, which may shift from year to year.

Therefore, the CER is proposing to use the pre-tax WACC approach because it is a transparent and stable approach – the Irish corporation tax rate of 12.5% is known from the outset of the regulatory framework.

3.9 The treatment of depreciation

An allowance for depreciation within allowable revenues recognises the need on the part of the regulated business to recover the expenses incurred in the purchase of the asset over its economic life. This depreciation charge, made in the allowed revenues, is derived from a depreciation methodology applied to the assets in the RAB of the regulated company.

An objective of depreciation within the regulatory framework is that it be set to ensure that the assets are not stranded in future reviews. In the interests of regulatory certainty, the depreciation methodology applied to assets in the RAB should not be varied ex-post. This would undermine incentives and create uncertainty about the recoverability of future investments.

There are a number of depreciation methodologies that could be applied to assets contained in the Uisce Éireann RAB. At this time, the CER is recommending that a straight-line depreciation methodology is applied to assets in the Uisce Éireann RAB as it is uncomplicated, transparent and a methodology which is simple to apply to assets included in the Uisce Éireann RAB. CER is of the view that this methodology largely fits the key principles of the regulatory framework set out earlier.

Asset lives

The Uisce Éireann RAB will consist of numerous types of assets such as pumping stations, distribution pipes, treatment works, IT, buildings, etc. These assets will have different expectations around the length of time that they provide an economic value to the water customer. This length of time can be referred to as its 'asset life'.

For example, a water distribution pipe would be expected to have an economic life up to 100 years. A computer hardware/software can become obsolete quite quickly in the face of IT developments and may only have an asset life of 5 years.

Regulators generally categorise assets in the RAB in terms of their assets lives. There is no uniform approach to this determination, some regulators may apply an asset life of 5 years to the computer assets, and others may apply 7. The CER does not recommend that the asset lives of the various water services infrastructure assets are defined – those durations should be consulted upon with stakeholders at a later date. The purpose here is to identify the principle upon which this determination will be made – the use of asset categories within the Uisce Éireann RAB and the application of average lifetimes to the assets contained in those categories.

3.10 The use of revenue-based incentives

The use of an RPI-X framework will provide Uisce Éireann with an incentive to pursue efficiency gains in the operation of its business. Separate to this framework the CER may also pursue a specific performance, based revenue-incentive mechanism in relation to certain activities under the control of the utility.

Performance based revenue-incentives are a key component of revenue control regulation. They complement and enhance the requirement for a regulated business to efficiently manage costs by ensuring that the business also has an incentive to improve its performance in the delivery of its responsibilities, particularly with regard to quality, efficiency and timeliness of service delivery to the customer. Nevertheless, the success of an incentive regime is contingent on the correct balance being struck between risk and reward for the utility. There is no point in a regulator setting an incentive which is either overly rewarding to the utility (which exposes the customer to unnecessary costs) or overly punitive (which threatens the financial viability of the utility). Incentives with fixed boundaries for risk and reward (i.e. a cap and collar approach) protects against such outcomes.

Incentives around performance can take many forms. For example, the CER may look to reduce leakage rates to a specific level or target the number of water meters installations per quarter. If the utility reaches the specific targets, or reaches above a certain threshold set by the CER, it will receive additional revenue in the following year's allowed revenue. Alternatively, if the utility fails to meet these targets, or falls below a certain threshold set by the CER, penalties (i.e. a reduction in the following allowed annual revenue) may occur.

The CER has to date (in the energy sector) placed performance based revenue-incentives on the energy companies. The CER recommends that a similar approach is applicable to the water services sector.

The CER does not suggest that the specific performance based revenue-incentives or their parameters for Uisce Éireann are defined at this time – again this will be consulted upon with stakeholders as part of the regulatory framework. The purpose here is to identify the principle upon which these incentives will be constructed - to improve Uisce Éireann's performance in the delivery of its responsibilities, particularly with regard to quality, efficiency and timeliness of service delivery to the water customer. The CER suggests that they are developed by the CER to complement the RPI-X framework.

3.11 The calculation of maximum allowable revenues

There are a number of ways in which to calculate the maximum revenues allowable at the start of the revenue control for the forthcoming period, the CER proposes to use the cash-flow approach. The cash-flow approach calculates the cash requirements for the utility over course of the revenue control period. This cash requirement essentially becomes the maximum allowable revenues that the utility can recover through charging.

It is calculated in two stages. The first stage is to derive the net present value (NPV) of the utility's cash requirements for its opex and capex over the revenue control, using the allowed WACC as the discounting factor. The second stage is to calculate the change in the NPV of the RAB over the course of the revenue control. This is the cash requirement to fund investment in the RAB over the period. It is calculated by subtracting the discounted value (again using the allowed WACC as the discounting factor) of the closing asset value of the RAB at the end the revenue control from the opening asset value of the RAB at the start of the revenue control.

Both are added together to get the total cash requirement of the utility in NPV terms.

The cash-flow approach has become the standard approach for regulators, largely because it provides the most accurate measure of the amount of cash required to allow the utility to finance its activities over the course of a revenue control. The CER has used this approach in the energy sector to date and proposes to use it for determining the maximum allowable revenues within a revenue control for the water

services sector.

The final step for the regulator in applying a revenue cap (RPI-X) framework is the choice of a formula to determine how the utility's tariffs can be adjusted from year-to-year within the revenue control. The chosen formula must allow for the NPV of the utility's revenue control's cash requirements (derived under the cash-flow approach above) to equal the NPV of the maximum annual revenues.

3.12 The form of the tariff adjustment

The CER recommends the adoption of the revenue-yield approach to the tariff adjustment calculation.

The revenue-yield approach works by limiting the maximum revenue a utility can earn from tariffs in a particular year of a revenue control. There are two stages to the revenue-yield approach.

The first stage is the profiling of maximum annual revenues by the regulator at the start of the revenue control. Maximum annual revenues, at this stage, is simply the product of the demand for the services and the average unit price of that service, as per the below formula.

$$MAR_t = Demand_r \times AUP_r$$

Where:

MAR_t = The maximum annual revenue in Year t of the revenue control;

$Demand_r$ = The demand for the service in Year t of the revenue control;
and

AUP_r = The average unit price of the service in Year t of the revenue control.

Forecasting of demand for the service will rarely equate exactly to actual demand, especially over the entire length of the revenue control (e.g. 5 years plus). If the regulator ignores year-on-year changes in demand for the service the utility may under, or over-recover on the maximum allowed revenues set by the regulator at the start of a revenue control. The regulator needs to include a correction factor (or K-factor) that has the effect of reducing (or increasing) the utility's maximum allowable revenues in one year if it over-recovers (or under-recovers) in the previous year.

As a result, the second stage of the revenue-yield approach is for the regulator to adjust the maximum allowable revenue within each year of the revenue control, to take account of changes in demand and other adjustments unforeseen at the start of the revenue control.

One of its advantages is that the regulator does not need to specify a list of tariff

schedules, or tariff amounts, in setting the revenue control of Uisce Éireann. The utility would be free to change the structure of tariffs or introduce more innovative tariff structures during the revenue control period subject to the appropriate regulatory approval¹⁵. This would be proper so long as the total revenues recovered from its regulated activities remained within the maximum level specified by the revenue-yield formula.

However, under this approach the utility has to set and publish its tariff schedule in advance of the new year of charging. It can only check that the revenues raised are within the control only after the end of that particular charging period year. Nevertheless this can be addressed by the inclusion of a k-factor in the following year to take account of under or over recoveries. This also shows the importance of effective working capital operation from year-to-year.

The revenue-yield approach (including the application of a k-factor) has been used to date by the CER in the energy sector. It is acknowledged that it is more complicated to design with assumptions around demand and unit price required at the start of the revenue control. However, the CER considers that a revenue-yield approach would best meet the principles identified earlier; it provides stability and predictability to both the water customer and the utility through the application of the 'k-factor'.

In addition, it protects the interests of all customers by allowing for innovation in tariff structure during the revenue control period.

¹⁵ Uisce Éireann must submit a water charges plan to the CER for approval under section 22 of the Act.

3.13 Summary of the CER's advice on the regulatory framework

In setting the revenue cap (RPI-X) framework for Uisce Éireann the CER estimates a level of revenue that would be sufficient to finance an efficient, well-run business. This allowed revenue should also include an adequate return on the capital employed in the business so as to allow continued efficient investment in the water services infrastructure. The above section has detailed the main areas for consideration in constructing the RPI-X framework and has arrived at a number of positions. The CER is proposing to:

- (1) Use benchmarking as an aid in determining the efficient levels of operational expenditure for IW, along with efficiency trends and advice from industry experts. It is also recommended that the CER engages in a 'line-by-line' approach in determining the respective spends for each operational expenditure item.
- (2) Use the IHC approach to valuing the assets being added to/within the Uisce Éireann RAB. The indexation factor proposed is general inflation.
- (3) Require Uisce Éireann to implement effective short and long-term planning of investment in the water services infrastructure. Investment should be correct, appropriate and fully justified. The CER is proposing to examine variances between estimated and actual capex during the revenue control review process.
- (4) Require that direct customer capital contributions and/or grants (but not government equity used for the purposes of funding capital projects) for the build of efficient assets are subtracted from gross capital expenditure figures in the relevant year.
- (5) Use the CAPM in deriving the cost of equity input of the WACC calculation. An assumption will be made on the optimal level of gearing in the WACC calculation, as opposed to the actual gearing of Uisce Éireann. It is also proposed that the WACC calculation is made on a pre-tax (real) basis.
- (6) Use a straight-line approach to the calculation of depreciation. Asset lives will be based on the average economic asset life of the asset category in question.
- (7) Use performance based revenue incentives to improve Uisce Éireann's performance in the delivery of its responsibilities, particularly with regard to quality, efficiency and timeliness of service delivery to the water customer.
- (8) Use the cash-flow approach in the calculation of the maximum allowable revenues of Uisce Éireann.

- (9) Use a revenue-yield approach to adjust tariffs within the revenue control period.

As this water reform programme involves the transfer of the water infrastructure assets from the State to Uisce Éireann as the semi-state company, the CER is of the view that any decision by Government should be taken in the context of (a) various assets and liabilities being transferred to Uisce Éireann from Local Authorities, (b) what effect it will have on the charges faced by the water services customer, (c) the equity investment in Uisce Éireann planned by the Government (and the subvention level) and (d) the ability of the water utility to raise debt to fund future investments in the water services infrastructure.

4. Transitional Matters

Section 3 sets out the CER view on the proposed enduring economic regulatory framework.

However the CER recognises that a transition toward this enduring economic regulatory framework is necessary given the nature of the fundamental reform in the water reform sector outlined in the DECLG Implementation Strategy, Government policy for the introduction of domestic water charges from 1 October 2014 and the fact that there are time constraints on Uisce Éireann and CER to undertake a normal multi annual revenue control review in advance of the introduction of domestic water charges. It is also noted that Exchequer support for Uisce Éireann will be required until such time as it is able to access sufficient third party finance and recover sufficient revenue from customer charges such that it is self-financing. Therefore in the short to medium term, the level of Exchequer support will be a constraint on the level of Uisce Éireann's capital investment programme and will continue to be so until such time as it can source a large portion of funding needs in the international capital markets. The CER also notes that there may be conditions attached to such Exchequer support. The Minister has powers under section 42 of the Act to issue a policy direction to the CER and this could include directions on elements of the transitional review particularly where they impact on important government policy issues.

As such it is likely that the transition toward the full operation of the proposed enduring economic regulatory framework will take some time. The CER therefore recommends the following as part of this transition process:

- an initial interim revenue control (October 2014 – end of 2016) is adopted before moving to a series of six year price reviews. The proposed timing aligns with the DECLG Implementation Strategy.
- The CER will perform a detailed analysis of Uisce Éireann's costs as part of the initial interim revenue control period seeking to ensure that only efficiently incurred costs are allowed. The outcome of the CER review of Uisce Éireann's costs will be published for public consultation in June, with the CER decision published in August 2014 in advance of the introduction of water charges from 1 October 2014.
- Uisce Éireann's capital investment submission as part of the initial interim revenue control period will primarily be based on the water services capital investment programme that was being carried out by the Local Authorities. The CER notes that these capital investment programmes have already been a rigorous assessed by DECLG and the majority of projects initiated by the Local Authorities will continue or be completed under Uisce Éireann. However the level of capital available to Uisce Éireann to fund such capital investments in the interim control period is likely to be constrained and insufficient to carry out the entire capital programme. Therefore a prioritisation of capital investment programme for the interim revenue period

will be necessary. In considering Uisce Éireann's capital investment programme, the CER proposes to engage with the EPA, as environmental regulator and the Government as the provider of state subvention to ensure as far as is possible that the prioritised capital investment programme provides the best value for money and is consistent with strategic needs and priorities.

Finally, the CER confirms that it is currently carrying out an in-depth review of Uisce Éireann's establishment costs, as requested by the Department. This follows the short high level review on such costs that the CER completed on 18 November 2013 in response to the Minister's request for advice on 23rd October 2013 under section 27 of the Water Services Act 2013 (No. 6 of 2013). Specifically the current in-depth review will consider whether the Uisce Éireann's establishment costs could be (i) considered reasonable (b) are of value/long term benefit to the water services customer; and (c) should be added to the opening value of the RAB where (a) and (b) are met. The CER will only allow efficiently incurred costs to be passed on to customers. The CER expects the in-depth review of establishment costs will be completed in June of this year.

Appendix A Background on Revenue Cap RPI-X Model and Sharing efficiencies under RPI-X

Background on Revenue Cap RPI – X Model

Revenue cap regulation involve a one-off setting of revenue linked to an indexing mechanism (such as inflation), beyond which all efficiently incurred gains are retained by the regulated company for a set period. Prices charged by the regulated utilities to their customers are set at a level to collect the allowed revenues as determined by the regulator.

Revenue capping with periodic reviews is a form of incentive regulation with profit sharing. It is also known as 'RPI-X' regulation. Under this form of regulation, the regulated business is required to keep the increase in its revenue to less than (or equal to) the increase in a specified general price index (e.g. the Harmonised Index of Consumer Prices in Ireland) - less X percent. If X is positive, this means that revenue will fall by X percent in real terms. The level of the cap on revenue reflects the anticipated levels of future operating costs and investment that might be incurred by the business and are set to provide a reasonable rate of return on assets, consistent with efficient performance. The revenue cap is therefore set at a cost-reflective level.

The distinguishing feature of this form of regulation is that the revenue cap applies for a pre-determined period. As a result, under revenue cap regulation the regulated business keeps all the profits associated with efficiency savings in the period between regulatory reviews. This is intended to mimic the desirable incentives for cost minimisation found in competitive markets. Customers benefit in the subsequent regulatory period under revenue-cap when the regulator (i) reduces revenues to capture those cost savings and (ii) removes any 'windfall' gains made by the regulated company that were not driven by efficiencies. The longer the interval between reviews the greater the incentive on the regulated company to reduce costs because it knows it can keep profits for a greater length of time.

Revenue cap regulation is considered to be more appropriate for businesses where there is a large element of fixed costs, e.g. electricity and gas network businesses. For example, the electricity network in Ireland is comprised mainly of fixed costs (e.g. wires, pylons, substations etc.). A small increase or decrease in the demand for electricity will have little or no effect on these costs incurred by the business in that it has already invested in these wires, pylons and substations. These sunk investments still need to be recovered from the energy customer over the lifetime of the asset.

A large portion of the costs incurred by the water services system are fixed costs, arising from expenditure on infrastructure assets and fixed operating cost, e.g. the water network and wastewater treatment plants have large sunk capital costs and a large portion of the operating costs are fixed, such as labour costs. Similar to the

example of the energy network businesses given above, small changes in demand for water services will not significantly affect these costs. The 'marginal cost', i.e. the extra cost to the water utility to deliver one extra unit of supply or treatment, is quite low.

Revenue-cap regulation is considered by the CER to be the most appropriate methodology as it reflects the characteristics of the water services sector. Interval revenue cap regulation (and the RPI-X mechanism within it) provides incentives to deliver efficiency savings on the part of the regulated business, while providing an assurance to customers that the benefits of these efficiency gains will be reflected in lower prices in the longer term.

Sharing efficiencies under RPI-X

Section 3 of the paper described the rationale for introducing incentive-based regulation. An important part of the approach is the set of rules determining how efficiency gains are shared with customers and when.

The CER believes that it is important to clarify the rules for sharing efficiencies as part of a credible long-term regulatory framework. While the prospect of extra profit in return for increased efficiency is a key part of the logic of RPI-X regulation, there is no clear theory or evidence behind how much above normal profit has to be left with the regulated utility to generate the required effort to reduce costs. Accordingly, judgement is required about the proportion of profit which can be left to accrue to the regulated utility, without risking unacceptable rates of profitability. Such unacceptably high levels could undermine the stability of the regulatory framework.

Once the appropriate judgements have been made, it will be important for the CER to develop rules for implementing them. These rules should achieve the desired level of profit sharing by means which are objective (i.e. they are based on observable data and statistical methods) and replicable (i.e. they are liable to be used for subsequent revenue controls). Broadly speaking, the sharing of cost savings comes in two parts:

- through an X-factor, which represents anticipated efficiency gains (cost savings) shared with customers during the current control period; and
- through the return to customers in the subsequent control period of unanticipated efficiency gains made by the regulated business in the current control period.

Clarifying the rules for sharing gains with the water customer at each review is an important step in protecting their interests and creating incentives for the regulated utility to find efficiencies.

A.1 *Sharing during the revenue control*

In a competitive market, prices are set by external forces and companies are forced to operate efficiently to cover their costs and make a return on capital. The X-factor

shares efficiency gains with customers during the review period. It could therefore be argued that the value for X for a regulated business should be set at the estimate of the total feasible efficiency gains, leaving no opportunity for above normal profits to be earned by the utility. Businesses will have an incentive to ensure they achieve efficiency gains, or they will not earn their cost of capital or meet their operating costs.

The problem with this approach is that it would be difficult for the CER to accurately forecast the total feasible efficiency gains that an individual business could make over the course of a revenue control. Pitching X at too high a level would expose the utility to the risk of not achieving a rate of return equal to or above its cost of capital. This uncertainty would discourage investment in the water services infrastructure, which would ultimately not be in the interests of the water services customer.

On the other hand, pitching the level of X too low could also affect the interest of the water customer. If the utility was to earn very large profits during the revenue control period, there would be substantial pressure to share the gains with customers before the next review. This may take the form of re-opening the revenue control, or introducing a windfall tax on profits. The regulatory framework loses credibility to the extent that there is an actual or perceived risk of profits being removed retrospectively – such a process would promote uncertainty on the part of the regulated utility. This uncertainty would discourage investment in the water services infrastructure, which again would ultimately not be in the interests of the water customer.

In addition, over the longer term, assuming the regulatory framework promotes incentives to make efficiencies, the regulated utility cannot be expected to make efficiency gains that are substantially and consistently above productivity gains in the economy as a whole. Therefore a general price index itself incorporates the broad efficiency gains in the economy (since general productivity gains will feed through to producer and consumer prices). So a positive X in the longer term implies that the efficiency of the utility will improve more rapidly than that in the economy as a whole..

A.2 *Sharing after the revenue control*

The CER considers it more appropriate to implement rules for sharing achieved efficiency gains in one control period with customers in the next revenue control period.

The general rule is that if the utility spends more than it is allowed; it bears the cost, unless there is a specific/identifiable development during the revenue control that was unforeseen at the time of its setting (e.g. a natural disaster trebling the input prices of chemicals used to treat water).

Equally, if the utility spends below what they are allowed during a revenue control period it can keep the surplus made in any one year for a rolling period where it can be shown that the surplus is due to efficiency gains and not forecast errors, windfall

gains or the avoidance of expenditure to the detriment of the water services infrastructure. The result of this process is that customers benefit in the medium term by the progressive decrease in allowed opex at subsequent price reviews.

A rolling retention of surplus of say five to six years could be put in operation, so that the utility remains neutral as to when in the regulatory cycle those efficiencies are gained. The rolling element is important because without it the utility may be incentivised to wait until the end of the revenue control period to meet the level set by the regulator, even though it could have achieved these savings in say Year 3. The below example provides an illustration of this process for a five year rolling retention.

Table 1: Opex savings with rolling retention

	Year 1	Year 2	Year 3	Year 4	Year 5	Total Savings
Allowed Opex	100	98	96	94	90	
Actual Opex	100	98	92	92	90	
Efficiency Saving (Allowed minus Actual)	0	0	4	2	0	6

Table 2: Opex savings without rolling retention

	Year 1	Year 2	Year 3	Year 4	Year 5	Total Savings
Allowed Opex	100	98	96	94	90	
Actual Opex	100	98	96	94	90	
Efficiency Saving (Allowed minus Actual)	0	0	0	0	0	0

In both situations the utility knows at the start of the revenue control period it can achieve an Opex level of 92 by Year 3 and 90 by Year 5 of the revenue control period. With the rolling retention in place (Table 1) the utility is incentivised to achieve 92 in Year 3 as it is allowed to retain those savings for a period of 5 years after Year 3. Without the rolling retention (Table 2) the utility is not incentivised to push its opex below the allowance in Year 3, but wait until the end of the revenue control to meet the efficiency level set by the regulator.

The customer has benefited from the utility being incentivised to push its opex below the level set by the regulator as quickly as possible (i.e. in Year 3). In the following revenue control period the regulator will set allowed opex at a level which reflects the rolling retention and an efficient level of opex.

The CER has operated this process of sharing efficiency gains with the customer after the revenue control in the energy sector to date and proposes to apply this process to the water sector.