CRU Discussion Paper
Irish Water Revenue Control 3
Public/ Customer Impact Statement

Irish Water is the single national utility responsible for public water and wastewater services in Ireland and is tasked with operating, improving and investing in the water and wastewater systems in order to provide safe, reliable and high-quality services to customers.

Irish Water is a regulated utility. In 2014, the CRU (then called the CER) was appointed as the independent economic regulator of Irish Water, which means that the CRU sets the level of revenue Irish Water can earn. The process to review the appropriate amount of revenue over a period is known as a revenue control. The coming revenue control period is called RC3, as it is the third revenue control period for Irish Water and will cover the period 2020-2024. The RC3 project plays a vital role in the development of the public water and wastewater sector for the coming period.

Irish Water has made significant strides as a regulated utility in the delivery of clean water and the removal of wastewater for its customers. It has a duty to its customers to provide the best possible service and the CRU acknowledges the progress that it has made since its inception in this regard.

However, recent extreme weather events have brought into focus how precious and vulnerable a resource water is. Ireland has recently experienced two major storm events (Ophelia and Eleanor), along with a prolonged dry spell in 2018, all of which have tested Irish Water’s ability to provide an adequate supply of clean water to the public. As regulator, the CRU must ensure that the needs of customers are met. We do this by balancing the need to drive the efficiency of Irish Water, with the need to ensure the appropriate level of investment is made by Irish Water, so that it can increase its resilience, meet future demand for water services and mitigate against the risks posed by extreme weather events.

This discussion paper outlines, and requests comments on specific aspects of the approach through which the CRU plans to set the level of revenue which Irish Water can recover over the next revenue control period. More general comments on other aspects are also welcome and will be considered by the CRU. Comments received in response to this discussion paper will help to inform the approach the CRU takes to the third revenue control. We will respond to the comments received in the RC3 public consultation paper, expected during 2019.

The approach to the revenue control is critical as it helps to ensure the following:

- there is an appropriate, fair and sufficient level of revenue which Irish Water can recover to finance its regulated activities and duties as the national water and wastewater service provider;
- the work carried out by Irish Water in IRC2 (2017 – 2019) represents value for money and improved service to customers;
• there is an appropriate level of regulatory stability; and
• the appropriate incentives are provided for Irish Water to improve its efficiency and reduce costs.
Executive Summary

The Commission for Regulation of Utilities (CRU) is the independent economic regulator of Irish Water, the provider of public water and wastewater services.

The Water Services (No. 2) Act 2013 ("the Act") sets out the functions and powers of the CRU as the economic regulator of Irish Water. Under legislation, the CRU is responsible for setting the total level of revenue which Irish Water can receive, through Government subvention and from customers, to cover its efficiently incurred costs. The CRU does this through a process, known as a revenue control, which involves reviewing Irish Water’s submissions, engaging with the utility, benchmarking its proposed costs against comparator companies, completing a public consultation process, and setting appropriate revenue allowances for operating costs, capital costs and other items thereafter.

Since the CRU began regulating Irish Water, it has periodically reviewed costs and set allowed revenues through short interim revenue controls. The first of these covered the period October 2014 - December 2016. The second revenue control (IRC2) (CER/16/342) covered 2017 - 2018 and was subsequently extended for 2019 (CRU/18/211).

The regulatory process that will be undertaken by the CRU in setting Irish Water’s Revenue Control 3 (RC3) revenue requirement is a recognised process which it is proposed will follow the same principles and approach\(^1\) as earlier revenue controls. The CRU proposes to engage with and review submissions from the utility and challenge it to deliver efficiencies in how it provides services to customers, as is standard. There are some aspects of this approach that may need to be considered, particularly in light of the changes to Irish Water’s funding model brought about by the Water Services Act 2017 and the recent Government decision that Irish Water will become a standalone publicly-owned, commercial, regulated utility separated from the Ervia Group during 2023.

This discussion paper provides stakeholders with an opportunity to feed into this process at an early stage by providing high-level information on key aspects of RC3 to facilitate discussion. The CRU will carefully consider all comments received in reaching a decision on its approach to RC3. It outlines and requests comments on certain aspects of the approach through which the CRU sets the level of revenue that Irish Water can recover over the period of RC3. General comments on all other aspects are welcome and will be considered.

The following bullet points set out areas that are under consideration at RC3 and which the CRU

\(^1\) See Section 2.2 and Section 7.4 of the Irish Water Second Revenue Control 2017-2018 Decision Paper (CRU/16/342) for the CRU’s proposed approach.
requests comments on:

- For IRC2, the CRU decided that a combination of reputational incentives (through monitoring and publication) and financial incentives (through payments/penalties), should be used to incentivise Irish Water to improve its performance in key areas. The CRU proposes to roll forward the current incentives for RC3\(^2\), and is considering, whether there are any additional areas, such as data availability and leakage reduction which may benefit from incentives during RC3.

- The CRU’s approach to assessing operating costs includes benchmarking Irish Water’s operating costs against those of utilities in other jurisdictions. The CRU also reviewed Irish Water’s operating costs on a line-by-line basis in the format provided by Irish Water in IRC2. Effectively, the CRU carries out a top-down and bottom-up review of operational costs and proposes to continue this approach for RC3.

- Certain items were excluded from the efficiency challenge at IRC2. The CRU did not apply an efficiency challenge to Design, Build, Operate (DBO) contracts. In the 2019 one-year extension decision, certain additional costs were also excluded from the efficiency challenge. The CRU will reconsider its approach to these costs for RC3 and may apply an efficiency challenge to some or all of these areas.

- The CRU invites parties to comment on measures Irish Water could take to improve its efficiency and the length of time it should take Irish Water to become fully efficient.

- Irish Water has proposed a transformation programme to manage the transition for delivery of water services from the local authorities to the single public utility. This is called the Water Industry Operating Framework (WIOF). The CRU accepts that WIOF’s implementation plays a crucial role in enabling Irish Water to meeting the challenges set by the CRU to become a leaner, more efficient utility. It must be acknowledged that Irish Water’s scope to achieve efficiencies is greatly enhanced through the delivery of WIOF. The CRU seeks comments on WIOF, the pace of its delivery and the impact on Irish Water’s ability to meet the efficiency challenge without its full implementation.

- The CRU proposes to continue to set the capital expenditure allowance based on a review of Irish Water’s capital investment plan (CIP) and non-network capital investment plan, which will include an audit of sample projects, capital maintenance programmes and national programmes. The CRU proposes to then apply an efficiency challenge and consider which areas within the CIPs will be targeted for efficiencies.

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\(^2\) See Irish Water Second Revenue Control 2017-2018 Decision Paper [(CRU/16/342)](CRU/16/342) for full details.
Due to changes to Irish Water's funding model brought about by the Water Services Act 2017, the domestic sector capital programme is now funded through equity (capital contribution) and Government subvention. Under the new model the only debt to be raised by Irish Water can be against the revenue stream from the non-domestic sector. As a result, the CRU is considering whether it is suitable to apply a Weighted Average Costs of Capital (WACC) to Irish Water's regulated asset base (RAB). The CRU is considering alternative approaches to a WACC and welcomes views from stakeholders on possible approaches. To facilitate discussion and engagement with stakeholders in this regard, the CRU has included some alternative approaches taken by regulators in other jurisdictions and sectors which may be appropriate for Irish Water. These are outlined in section 3.4 of this paper.

If the CRU continues to use a WACC for RC3, it proposes to continue to use the Capital Asset Pricing Model (CAPM) to determine Irish Water's cost of equity.

With regards to the regulatory regime, in setting the previous revenue controls, the CRU used a revenue-cap regime and a CPI-X model. The CRU proposes to continue this approach for RC3.

To calculate the value of the RAB, the CRU proposes to continue to use the acquisition cost, indexed with inflation, as a proxy for the replacement cost.

In setting the previous revenue controls, depreciation was calculated on a straight-line basis, to depreciate the assets over their expected useful economic life. The CRU proposes to continue this approach for RC3.

The CRU did not previously allocate specific water/wastewater infrastructure assets (e.g. pipelines, meters) to specific depreciation rates or asset lives. As part of the RC3 process, the CRU proposes to engage with Irish Water and consider the best approach to setting asset lives and welcomes views from stakeholders on the setting of asset lives and depreciation rates.

In addition, the below points are relevant for RC3. The CRU is not seeking comments on these:

The CRU proposes a five-year review period for RC3. The CRU has regulated Irish Water to date in short (interim) review cycles. These have spanned 2.25 years (IRC1) and two years (IRC2) (subsequently extended to three years). Now that Irish Water is moving out of its infancy, the CRU considers that the utility should be planning for a longer-term investment plan, with greater accuracy, like the electricity and gas utilities, which the CRU also regulates over five-year periods. The CRU also expects that Irish Water has now accumulated greater knowledge of its network and its assets and will be able to provide more detailed data both to the CRU and to the public during RC3. The
CRU must consider a process to update Irish Water’s annual revenue during RC3 as it does for the gas and electricity sectors. This will need consideration in the context of annual funding provided by the Department of Housing, Planning, and Local Government (DHPLG).

- The CRU proposes to continue to set an overall opex allowance at a global level as this allows Irish Water flexibility to make decisions regarding how it manages its activities, and use its own specialist knowledge and skills, to determine how and where to best deliver the improvements and efficiency.

The table below sets out the specific aspects which the CRU is seeking comments upon:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Query</th>
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</table>
| Cost of capital                   | Is it suitable to continue to apply a WACC due to the changes in the Irish Water funding model?  
<pre><code>                              | If not, what alternatives should be considered?                      |
</code></pre>
<p>| Incentives                        | Are the current incentives appropriate and are there additional areas (such as data availability and leakage reduction) which may benefit from incentives during RC3? |
| Benchmarking                      | Are there any changes the CRU should consider in its use of benchmarking? |
| Application of efficiency challenge | What areas of the operational cost base should be subject to an efficiency challenge during RC3? |
| Efficiency challenge             | What is an appropriate length of time for Irish Water to close the gap that exists between its current level of efficiency and the long-run efficient level of water utilities? |
| Capex allowance                   | Should the CRU continue the same proposed approach to setting the capital expenditure allowance? |
| Assessing cost of equity          | Should the CRU consider an alternative approach to the use of Capital Asset Pricing Model (CAPM) to determine Irish Water’s cost of equity? |
| Regulatory regime                 | Should consideration be given to an alternative approach to the revenue-cap regime and the use of a CPI-X model? |
| Valuation of the                  | Should consideration be given to an alternative approach to the use of |</p>
<table>
<thead>
<tr>
<th><strong>RAB</strong></th>
<th>acquisition cost, indexed with inflation, as a proxy for the replacement cost?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asset lives</strong></td>
<td>What approach should the CRU take to setting asset lives for water infrastructure asset categories?</td>
</tr>
<tr>
<td><strong>Depreciation</strong></td>
<td>Should consideration be given to an alternative approach to the use of straight-line depreciation?</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>The CRU welcomes any further comments which stakeholders have in relation to any RC3 matters.</td>
</tr>
</tbody>
</table>

Comments on the above points and any other aspects of the CRU’s revenue control methodology are invited as outlined in Section 1.7 of this paper.

The CRU intends to consider all submissions received prior to publishing a consultation paper on Irish Water’s third revenue control (RC3) in H1 2019, and a final decision in Q2 2019, having carefully considered the views of stakeholders. The CRU intends to provide a response to any submission received in relation to this paper within the RC3 consultation paper.
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# Glossary of Terms and Abbreviations

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<tr>
<td>Capex</td>
<td>Capital Expenditure</td>
</tr>
<tr>
<td>CER</td>
<td>Commission for Energy Regulation (now CRU)</td>
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<tr>
<td>CRU</td>
<td>Commission for Regulation of Utilities (formerly CER)</td>
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<tr>
<td>DBO</td>
<td>Design, Build, Operate</td>
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<tr>
<td>DHPLG</td>
<td>Department of Housing, Planning and Local Government.</td>
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<tr>
<td>IRC1</td>
<td>Interim Revenue Control 1</td>
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<tr>
<td>IRC2</td>
<td>Interim Revenue Control 2</td>
</tr>
<tr>
<td>Opex</td>
<td>Operational Expenditure</td>
</tr>
<tr>
<td>RAB</td>
<td>Regulated Asset Base</td>
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<tr>
<td>RC3</td>
<td>Revenue Control 3</td>
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<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
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<tr>
<td>WCP</td>
<td>Water Charges Plan</td>
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<tr>
<td>WSPS</td>
<td>Water Services Policy Statement</td>
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</table>
1 Introduction

1.1 The Commission for Regulation of Utilities

The Commission for Regulation of Utilities (CRU) is Ireland’s independent energy and water regulator. The CRU (formerly the Commission for Energy Regulation (CER)) was established in 1999 and has a wide range of economic, customer protection and safety responsibilities in energy and water.

The CRU is the regulator of Irish Water as the national utility for the provision of public water and wastewater services. The CRU's role is to protect the interests of water and wastewater customers, ensure water services are delivered in a safe, secure and sustainable manner and that Irish Water operates in an economical and efficient manner.

Further information on the CRU’s role and relevant legislation can be found on the CRU’s website at www.cru.ie.

1.2 Background

The CRU is responsible for setting the level of revenue that Irish Water can recover, through Government subvention and from non-domestic customers, to cover its efficiently incurred costs. The CRU does this by reviewing Irish Water’s submissions, engaging with the utility, benchmarking its proposed costs against comparator companies, completing a public consultation process, and setting appropriate revenue allowances for operating costs, capital costs and other items. This is known as a revenue control.

The CRU published its decision on Irish Water’s allowed revenues for 2017-2018 in December 2016 (CER/16/342). This decision outlined the allowed revenue that Irish Water could collect from (a) non-domestic customers and (b) domestic customers through Government subvention and charges for delivering services to customers.

After this decision, an Oireachtas Committee was established to examine the future funding of domestic water services. The Oireachtas Committee published a report on the future funding of domestic water services.

3 Irish Water can currently charge domestic customers for new connections, meter tests and meter reads. Irish Water does not recover significant amounts of revenue from these charges. Under the Water Services Act 2017, from 2019, domestic customers will also be charged for excessive usage of water.

4 Domestic charges were also suspended in 2016, and subsequently discontinued, which meant that a larger portion of the allowed revenue came from Government subvention instead of charges to domestic customers.
domestic water services in April 2017\(^5\). The report dealt with:

- funding;
- the role of regulators and compliance with EU law;
- equity and fairness;
- metering;
- conservation; and
- public engagement and transparency.

Legislation was then put in place to reflect the Committee’s report. To this end, the Water Services Act 2017 was enacted on 17 November 2017. This new legislation had an impact on the timing of the CRU’s regulatory review process. The CRU decided that a one-year extension to the current revenue control period was required (CRU/17/332).\(^6\) The CRU’s decision on Irish Water’s allowed revenues for 2019 (CRU/18/211) was published in September 2018.

In accordance with the Water Services Act 2017, the Minister published a Water Services Policy Statement (WSPS) 2018 - 2025 in May 2018, which clarifies the Government’s expectations for the delivery and development of water and wastewater services in the years ahead.\(^7\)

### 1.3 Purpose of this Discussion Paper

This discussion paper provides detail on the CRU’s high-level approach to setting the level of revenue which Irish Water can recover from 1\(^{st}\) January 2020 to 31\(^{st}\) December 2024. RC3 will be delivered in the context of the WPS’s policy objectives of quality, conservation, and future-proofing.

The purpose of this paper is to set out the CRU’s high-level proposals and invite comments from members of the public, the water industry, customers and all interested parties on certain aspects of this approach as highlighted in this discussion paper. These include the regulatory

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\(^6\)A detailed explanation as to why this extension was necessary can be found in Section 1.3 – 1.4 of the CRU’s 2019 Extension Information Paper (CRU/17/332).

approach in the context of the new funding arrangements brought about under the Water Services Act (WSA) 2017. General comments on all other aspects are also welcome.

This paper provides stakeholders with an opportunity to feed into RC3 at an early stage, prior to the publication of a consultation paper by the CRU in H1 2019.

1.4 Legislative Basis

Under Sections 39 to 43 of the Water Services (No. 2) Act 2013 (“the Act”), the CRU is responsible for the economic regulation of Irish Water. Those sections of the Act set out the functions and powers of the CRU as the economic regulator of Irish Water.

The primary duty of the CRU under legislation is to protect the interests of the customers of Irish Water. The CRU is responsible, under Section 39 of the Act, for ensuring that water services are provided by Irish Water in an economical and efficient manner and that the utility operates in a commercially viable manner.

Under Section 22 of the Act, Irish Water is required to prepare a Water Charges Plan (WCP), which is submitted to the CRU. The CRU then carries out its normal regulatory review process and approves revenue and charges by approving the WCP. This forms the legislative basis for the revenue control.

Further detail on how the CRU currently regulates Irish Water under IRC2 and proposes to regulate Irish Water under RC3 is provided in the remainder of this document.

1.5 Related Documents

Some related documents are provided below:

1.6 Structure of Paper

This discussion paper is structured in the following manner:

- Section 1 provides an introduction and background, the purpose of this paper, the legislative basis and how interested parties can respond to this discussion paper;
- Section 2 provides a background to the revenue regulation of Irish Water;
- Section 3 outlines the CRU’s approach to setting an allowed revenue. It also highlights areas that need further consideration ahead of the next revenue control period (RC3) and requests comments on these specific aspects.
- Section Error! Reference source not found. contains a short summary of the paper and highlights the next steps.

1.7 Responding to this Paper

The CRU invites responses to the specific aspects as set out in this paper, along with any general comments, by 11 January 2018, preferably by email to rc3@cru.ie. Alternatively, responses can be sent by post to:

Water Division
Commission for Regulation of Utilities
The Exchange
Belgard Square North
Tallaght
Dublin 24

Submissions on any of the points listed in this paper should be clear and specific, with analysis or rationale to support the views provided.

The CRU shall respect this request, subject to any obligations to disclose information. The CRU intends to publish all responses received on the CRU’s website. Respondents who wish to have their responses remain confidential should clearly mark the document to that effect and include the reasons for confidentiality.

Responses from identifiable individuals will be anonymised prior to publication on the CRU website unless the respondent explicitly requests their personal details to be published.

Our privacy notice sets out how we protect the privacy rights of individuals and can be found here.
2 Previous Irish Water Revenue Controls

2.1 Regulation of Irish Water to date

The CRU commenced economic regulation of Irish Water on 1st October 2014. In regulating Irish Water, the CRU seeks to ensure that Irish Water is run as efficiently as possible while providing appropriate water and wastewater services to its customers.

While it will take time for Irish Water to reduce its costs to a level that is comparable to established mature water utilities elsewhere, the CRU expects Irish Water to achieve this while in parallel improving the service which it provides. The CRU is responsible for setting the level of revenue which Irish Water can recover to cover its efficiently incurred costs. The CRU does this by reviewing Irish Water’s submission and thereafter setting appropriate revenue allowances for operating costs, capital costs and other items.

Since economic regulation of Irish Water commenced, there have been two interim revenue controls. The first interim revenue control (IRC1) ran from 1st October 2014 to 31st December 2016, with the second interim revenue control (IRC2) running from 1st January 2017 to the 31st of December 2019. Over these two periods, the CRU has challenged Irish Water to reduce its operating costs by 25%, while challenging Irish Water to provide a quality service to customers, efficiently.

2.2 Interim Revenue Control 1

For IRC1, the CRU decided to set total allowed revenue of €2,078m (2013 monies). This represented an 8.2% cut on Irish Water’s proposed costs for the period.

Subsequently, the Water Services Act 2014 was enacted. This postponed domestic water charges until January 2015 and waived Irish Water’s requirement to pay commercial rates. Irish Water’s proposed costs fell as a result and a new allowed revenue of €1,968m (2013 monies) was approved for the period 1st October 2014 to 31st December 2016.

The CRU considers IRC1 to have provided a good basis for economic regulation of water services, realising efficiencies and providing a framework for required capital investment in the network. It is recognised that there remains a long way to go in terms of delivering a quality standard of water and wastewater services to customers as efficiently as other benchmarked utilities.

The CRU set challenging efficiency targets for Irish Water to decrease its costs compared to its...
submitted costs, based on what was achieved in other jurisdictions in similar timeframes. Irish Water broadly met these targets while delivering key outputs. Irish Water also improved drinking water quality, reduced boil water notices, increased headroom (adequate spare capacity) at water treatment plants, upgraded water and wastewater infrastructure and increased compliance with legislation.

2.3 Interim Revenue Control 2

The CRU allowed Irish Water €1,843m (2015 monies) for the 2017-2018 period. This represented a reduction of €165m (or 8.2%) relative to Irish Water’s request. As stated in Section 1.2, the CRU decided to extend IRC2 by one year, so that it covered the period from the start of 2017 until the end of 2019. The CRU published its decision on 2019 revenues in September 2018, deciding to allow Irish Water €1,042m for 2019. This represented a reduction of €23m (or 2.2%) relative to Irish Water’s request after the CRU decided to fund additional unforeseen operating expenses and to allow all capex for 2019 subject to full review at RC3.

Most of the allowed revenue for IRC2 will be recovered through Government subvention and non-domestic charges, with domestic charges providing a small portion of revenue towards the end of IRC2.10

In IRC2, the CRU remained focused on ensuring that Irish Water operates in an efficient manner and provides an appropriate level of service to its customers. For operating costs, the CRU reviewed Irish Water’s submission and benchmarked its operating costs against comparable water and wastewater utilities elsewhere. Irish Water’s costs (inclusive of local authority costs) are significantly higher than those of established water utilities in other jurisdictions. The CRU expects Irish Water to drive efficiencies at a level that is broadly comparable to those achieved by other utilities at similar stages in their evolution. Over IRC1 and IRC2, the CRU has challenged Irish Water to reduce its operating costs by a cumulative 25% while providing a quality service to customers. Efficiencies have also been applied in respect of capital expenditure over the two interim periods.

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9 Irish Water can currently charge domestic customers for new connections, meter tests and meter reads. From 2019, customers that become liable for excess use charges may contribute a small portion of revenue.

10 For further detail on charges for excessive use, see the CRU Report to the Minister: Review of Demand for Water Services (CRU/17/339)
3 Regulatory Approach to RC3

3.1 Introduction

The CRU’s approach to economic regulation of Irish Water to date has generally been consistent with how it regulates electricity and gas networks in Ireland. In relation to water, the approach was previously consulted on by the CRU:

- prior to providing advice to the Minister on the matter in March 2014;
- as part of the CRU’s process to put in place the first revenue control for the period from 1st October 2014 to 31st December 2016; and
- as part of the CRU’s process to put in place the second revenue control for the period from 1st January 2017 to 31st December 2018.\(^\text{11}\)

The Government recently decided that Irish Water would become a standalone publicly owned, commercial, regulated utility separated from Ervia during 2023. Further information regarding the transformation process will become available in due course. Regarding this development, the CRU is of the view that the same principles of economic regulation will continue to apply to Irish Water after such a transformation. As further detail regarding the transformation process emerges, the CRU will assess its implications, aiming to ensure that it is carried out as efficiently as possible with least impact on customers of Irish Water.

In addition, Irish Water’s funding model has changed since the CRU’s last revenue control decisions as set out in section 2 of this paper. The nature of this change may challenge the CRU’s approach to certain aspects of how it regulates Irish Water, for example, in relation to assessing its cost of capital, which is covered in some detail in this paper. This matter and any comments received to this paper will be considered over the coming months.

The CRU is now providing interested parties with an opportunity to comment on the CRU’s proposed approach to RC3 in advance of the actual RC3 Consultation. This provides an opportunity for stakeholders to become involved at an early stage of the process. The remainder of this section covers the following:

- Section 3.2 provides a high-level outline of the general approach to setting a level of revenue that can be recovered by the utility.
- Section 3.3 provides a high-level outline of Irish Water’s revised funding model.

\(^\text{11}\) Subsequently extended to include 2019.
• Section 3.4 discusses the suitability of applying a WACC to Irish Water’s revenue allowance due to changes in Irish Water’s funding model.
• Section 3.5 sets out the CRU’s proposal on the duration of RC3.
• Section 3.6 discusses the CRU’s approach to incentivising improvements.
• Section 3.7 sets out the CRU’s proposed approach to assessing operating costs and setting an overall opex allowance.
• Section 3.8 discusses the CRU’s approach to assessing and setting a capital expenditure allowance.
• Section 3.9 provides a high-level outline of the CRU’s use of the Capital Asset Pricing Model (CAPM) to determine Irish Water’s cost of equity.
• Section 3.10 sets out the proposed approach of a Revenue Cap and CPI-X model and the use of the Irish Harmonised Index of Consumer Prices (HICP) to calculate inflation.
• Section 3.11 sets out the CRU’s proposed approach to the valuation and depreciation of Irish Water’s assets and to setting asset lives.
• Section 3.12 discusses the development and implementation of a change control process for RC3.

3.2 General approach to revenue control
The CRU is responsible for setting the level of revenue that Irish Water can recover to cover efficiently incurred costs. The CRU usually calculates this revenue using revenue-cap regulation. This provides the utility with an allowance during a given period that covers its operating costs in full, but only covers the financing costs and depreciation associated with capital expenditure. The full cost of capital expenditure is recovered over time, but not immediately, by the utility. This is consistent with how the CRU regulates energy utilities and regulatory practice in other jurisdictions. The treatment of capital expenditure reflects the fact that customers get the benefit of this expenditure (e.g. water treatment plants delivering clean water) over an extended period and therefore the expenditure is recovered over that extended period, rather than immediately. In the interim, the amount that remains to be recovered can be financed through borrowings (and in Irish Water’s case, through capital grants).

The individual components of the CRU’s general approach are discussed in further detail in the following sections. At a high-level, the suitability of this approach should be examined in light of the revision of Irish Water’s funding model, which is presented in the next section.

3.3 Irish Water’s funding model
In 2016, the Government established an Expert Commission to examine the future funding of domestic water services. Prior to the CRU’s IRC2 decision, the Expert Commission’s Report on the
Funding of Domestic Public Water Services in Ireland was published.\(^\text{12}\)

This report was then considered by the Joint Oireachtas Committee (JOC) on the Future Funding of Domestic Water Services. The JOC, formed of TDs and Senators, met in early 2017 to deliberate on the funding of the water services. It invited submissions and presentations from a range of stakeholders including the CRU.

The JOC published its report\(^\text{13}\) on future funding of domestic water services in April 2017. The report dealt with:

- funding;
- the role of regulators and compliance with EU law;
- equity and fairness;
- metering;
- conservation; and
- public engagement and transparency.

The recommendations of the JOC were accepted by the Oireachtas and legislation was then put in place to reflect the JOC’s report. To this end, the Water Services Act (WSA) 2017 was enacted on 17 November 2017.

The Department of Housing, Planning and Local Government (DHPLG) then established a working group comprising the Department of Finance, the Department of Public Expenditure and Reform, NewERA, the CRU, and Irish Water, to examine the implications of the JOC’s recommendations. A report\(^\text{14}\) was produced by the working group and published in September 2017. This report set out the enduring funding model for Irish Water post-enactment of the WSA 2017.

### 3.3.1 Previous funding arrangement

The arrangements underpinning the funding of Irish Water under the previous model are described in this section.

With the commencement of domestic water charges from 1st January 2015, Irish Water was to be funded through Government subvention, Government capital contributions, domestic customer

\(^{12}\) Available at: https://webarchive.oireachtas.ie/parliament/media/committees/futurefundingofdomesticwaterservices/report-of-expert-commission-on-domestic-public-water-services.pdf

\(^{13}\) Available at: https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_future_funding_of_domestic_water_services/reports/2017/2017-04-12_committee-on-the-future-funding-of-domestic-water-services-report_en.pdf

\(^{14}\) Available [here](#).
revenue, non-domestic customer revenue and borrowings.

The level of Government subvention was based on invoicing by Irish Water to the Department for Housing, Planning, and Local Government (DHPLG)\(^{15}\) for the purchase of water in respect of a free child allowance, subsidised tariff rate and the cost of capping charges. The non-domestic sector was funded by the revenue collected from non-domestic customers through non-domestic water charges. As in a typical regulatory model, the capital programme was funded through a mix of debt, equity (capital contribution) and cash from operations. Regarding debt, Ministerial consent was required for borrowing by Irish Water on a facility basis.

### 3.3.2 Post Water Services Act 2017

The current arrangements underpinning the funding of Irish Water are described below.

The domestic water sector will continue to be funded by Government subvention with some additional domestic revenue in the form of charges for new connections, meter tests, meter reads, and, from 2019, charges to customers that use water excessively. The non-domestic sector will continue to be funded by the revenue collected from non-domestic customers.

The capital programme is now to be funded through equity\(^{16}\) (capital contribution) and cash from operations. Under the new model, Irish Water can only raise debt against non-domestic operations. At IRC2, the non-domestic revenues accounted for approximately 20% of Irish Water’s allowed revenue. The Working Group on the Future Funding of Irish Water is now considering the appropriate nature and level of facilities for this debt and the approach to replacing the existing commercial debt.

All State funding (subvention and capital contributions) to Irish Water in respect of domestic water services will be channelled through the DHPLG budgetary process.

The JOC recognised the role of the regulators (CRU and EPA) in ensuring value for money, service delivery and compliance with the environmental objectives arising from EU and domestic law. Under the revised funding model, the CRU will continue to regulate Irish Water as before to ensure that the appropriate capital expenditure investments are made and that operating expenditure costs are driven down over time.

Given the changes to Irish Water’s funding model, the CRU has reviewed the regulatory framework applied to determine allowed revenues to ensure it remains fit for purpose. These components, along with the CRU’s proposed approach, are discussed in further detail in the sections below. For clarity, the below chart sets out how the CRU’s revenue decision ultimately results in Irish Water

\(^{15}\) At that time known as the Department of the Environment, Community and Local Government.

\(^{16}\) Note that ‘equity’ takes the form of capital contributions provided by the Government to Irish Water.
receiving its Government subvention.

Figure 1 Flowchart of Irish Water Revenue Figure feeds into budgetary process

3.4 WACC

In the previous revenue controls, the CRU has determined a Weighted Average Cost of Capital (WACC) for Irish Water using the Capital Asset Pricing Model (CAPM) approach as explained later in Section 3.9. This approach has been consistent with how the CRU regulates the energy sector. The WACC approach involves determining an allowance based on the weighted average of efficient debt and equity costs (where the weights are based on respective debt and equity amounts or gearing).

However, as highlighted in Section 3.3 there has been a revision of the Irish Water funding model. Irish Water does not have to compensate the shareholder (i.e. the Government) for the equity invested in the utility. Its only borrowings (debt) are in relation to the non-domestic sector, i.e. approximately 20% of its revenues.

Irish Water is also no longer required to raise debt to fund the provision of services to domestic customers. Instead a substantial portion of Irish Water’s activities are funded through Government equity, in the form of a capital contribution.

At IRC2, approximately 80% of Irish Water’s allowed revenues were funded through Government
subvention related to the domestic sector. Irish Water will not need to raise debt to finance this portion of expenditure under the current funding model, and as a result, will not have a significant cost of debt. It may only borrow, i.e. incur debt on the smaller non-domestic portion of its operations. As a result, Irish Water does not have an equity and debt structure in the same way as, for example, electricity and gas utility companies do. Under these circumstances the application of a WACC for Irish Water needs to be considered.

To facilitate discussion in this area, the CRU has set out some approaches in other jurisdictions to compare with the CRU’s standard WACC methodology. These approaches may be useful to consider in the context of how Irish Water is now funded.

However, it is also worth noting the broader implications of any change to the CRU’s approach to the financeability of Irish Water. In the standard regulatory model used by the CRU, WACC and depreciation are considered together, i.e. the approach to depreciating assets from the Irish Water RAB will need to be considered in tandem with any changes to setting an allowed rate of return. The CRU is examining the depreciation policy and asset lives for Irish Water as part of RC3. In considering the approach to setting a return and depreciation policy, the CRU acknowledges the importance of intergenerational equity, i.e. fairness to the current generation of Irish Water customers and future generations. The CRU will consider how any changes in this area may impact on future generations to ensure that all customers are treated equitably.

The CRU invites comments from interested parties on the approach to setting a cost of capital for Irish Water given its funding model. Comments are also invited on an alternative approach. The CRU will consider any responses to this Discussion Paper and will set out its view in the RC3 Consultation Paper.

3.4.1 Approaches in other jurisdictions

As noted above, it may be appropriate to consider alternative approaches to the WACC given Irish Water’s funding arrangements. The CRU has reviewed the approach taken by three economic regulators in other jurisdictions to examine if there may be a more appropriate manner of ensuring that Irish Water is adequately financed. The CRU examined the approach in neighbouring jurisdictions where data was accessible and comparison with Irish Water was possible. These utilities all bear certain similarities to Irish Water yet in each case the regulator takes differing approaches to the area of financeability. The CRU is of the view that this will facilitate stakeholder engagement on a possible alternative approach.

The approaches examined are:

- The Scottish water regulator, Water Industry Commission for Scotland (WICS), in its
regulation of Scottish Water;

- The Office of Rail and Road (ORR) regulator in the UK, in its regulation of Network Rail; and,
- The Northern Irish regulator, Utility Regulator (UR), in its regulation of Northern Irish Water.

A high-level summation of these approaches is outlined below while a more detailed note regarding the alternative approaches examined by the CRU is contained in Appendix A of this paper.

### 3.4.2 WICS approach to Scottish Water

For Scottish Water (SW), the WICS no longer determines revenues based on an allowed return on capital, and instead sets revenues to target rating agencies’ key financial ratios to ensure that Scottish Water is financially viable.

The WICS considers that an important advantage of this approach is that it provides clarity over SW’s performance, as the output financial metrics can be compared to those expected at the time of the review. The mechanism also includes trigger points, which provides for allowed charges to be reduced (or increased) where prescribed financial thresholds are breached (so-called ‘tramlines’).

The CRU sees merit in this approach in that it provides certainty that the utility is viable and financeable, provides an adequate buffer to ward against unforeseen events and does not overfund the utility by allowing a percentage-based WACC.

### 3.4.3 ORR approach to Network Rail

For Network Rail (NR), the ORR has adopted an adjusted WACC approach, which is an adjusted market-based cost of capital to reflect NR’s lower financing costs as a result of the government guarantee on its debt and absence of a shareholder dividend. This approach ensures that NR’s revenue requirement includes only costs of financing, and that any additional expenditure during the regulatory period unforeseen by the ORR at the time of determination must be financed with additional borrowings.

According to the ORR, the advantages of the adjusted WACC approach is that it recognises NR is not financed with equity and hence does not need an additional allowance corresponding to the required return on equity risk and provides NR stronger incentives to operate more efficiently due to the lower allowed revenue.
The CRU also sees merit in this approach in that it recognises a lower rate of return for a utility with significantly lower financing costs.

3.4.4 UR approach to Northern Irish Water

The approach taken in Northern Ireland is identical to that which the CRU has used at IRC1 and IRC2. The UR continues to set Northern Irish Water’s (NIW) allowed revenues based on an allowed return, adjusted to reflect NIW’s relative risks. Unlike Scottish Water and Network Rail, the shareholder, the Department for Infrastructure, requires a dividend payment, and the UR ensures that the cost of equity allowance aligns with the expected dividend payments.

Request for Comments

The CRU invites parties to comment on whether the standard regulatory approach of using a WACC to assess Irish Water’s cost of capital remains appropriate in the current circumstances, and what, if any, alternative approaches should be considered.

3.5 Duration of the revenue control

3.5.1 Introduction

In previous revenue controls dating back to 1999\textsuperscript{17}, the CRU consulted on the general principles that would be applied to electricity transmission and distribution revenue controls. One of the areas consulted upon was the length of the revenue control period. CER/99/04 stated, “\textit{that the longer the control period, the greater the short-term incentives for efficiency gains, but the greater the potential for forecasting errors}”.

The length of the review period for electricity and subsequently for gas or water therefore needs to be considered in the context of the overall regulatory package, including the revenue control formula and the review process. In principle, the length of the period should depend on the extent to which costs are predictable, and at the same time, an incentive can be provided to the regulated business to reduce its costs and become more efficient. It is these lower costs that can ultimately be passed on to the final customer.

It remains the CRU’s view that the principles of previous revenue controls in electricity and gas are

\textsuperscript{17} Draft principles for the regulation of Distribution and Transmission Revenues CER/99/04 – 13 October 1999.
broadly applicable to the water sector. The remainder of this section discusses the length of previous revenue control periods and the CRU’s proposed duration of RC3.

3.5.2 Previous Revenue Control Periods
The CRU set the initial interim review period to cover 1st October 2014 – 31st December 2016. When deciding that relatively short duration, the CRU was conscious that Irish Water was a newly-formed utility, and this could impact on its ability to provide relevant data to facilitate a longer revenue control period. This timeframe also aligned to the duration for which the Government was initially committed to providing subvention to Irish Water.

The CRU then put in place a second interim revenue control to cover the period from 1st January 2017 to 31st December 2018. The CRU considered that the shorter two-year period was appropriate as there was still a lack of available data to facilitate putting in place a robust revenue control for a longer duration.

Subsequently, the Water Services Act 2017 set out additional steps to be completed in advance of the CRU’s revenue control process. To allow time for the CRU’s process to be undertaken prior to the next revenue control, the CRU decided to extend IRC2, by one year, until the end of 2019.

3.5.3 RC3
For the reasons set out above, to date Irish Water has been subject to relatively short revenue control periods, compared to the electricity and gas sector. In the context of the upcoming revenue control (RC3), the CRU notes that in its other revenue controls, a longer revenue control period of five years has been employed. It is the CRU’s view that the length of the revenue control period in these sectors works well.

Now that Irish Water is moving out of its infancy, the CRU considers the utility should provide longer-term forecasts of expenditure with greater accuracy, similar to those provided by the electricity and gas utilities, which the CRU regulates. This longer duration has the benefit of providing greater certainty to the utility regarding its future revenues and allows the utility to realise efficiencies. It would also align the revenue control period with Irish Water’s five-year capital investment plan.

In addition, the Water Services Act 2017 has set out Irish Water’s funding model, which provides greater certainty about the source of Irish Water’s future revenue. As such, the CRU is of the view that a revenue control period of five years is appropriate for the period from 1st January 2020 onwards.

3.5.3.1 Extra Over Items
During the annual allowed revenue update and tariff setting process, regulated electricity and gas utilities can make requests for extra-over items. These requests relate to work items that were not
anticipated during the determination of the five-yearly revenue control. The CRU assesses these requests and may provide additional revenues during the revenue control period to fund this work if it is deemed necessary and could not have been foreseen during the revenue control process. As there is currently no annual allowed revenue update and tariff setting process for Irish Water, the CRU needs to consider the process whereby Irish Water may make requests for extra-over items. This is particularly relevant in the case of unforeseen expenditure over and above the CRU’s allowance. Irish Water is constrained by the fact that it is funded through the budgetary process on an annual basis and its ability to access funding over its budgeted allowance provided by the DHPLG is subject to approval through a further assessment process.

3.6 Incentives

3.6.1 Introduction

In October 2013, the CRU provided advice to the Minister which set out the CRU’s intention to introduce incentive-based regulation, using broadly the same regulatory framework as applied by the CRU to energy networks. Incentives are used by the CRU to encourage the utility to run its business in an efficient manner to reach targets set by the CRU. If targets are met, the utility would receive an incentive payment. However, if the utility fails to reach the target, in many cases an equivalent penalty would apply. The CRU outlined that an approach like the performance-based incentives the CRU applies to the energy sector would be appropriate for the water services sector.

Performance-based incentives are an important component of revenue control regulation. They complement and enhance the requirement for a regulated monopoly business to efficiently manage costs by ensuring that the business has an incentive in the delivery of its responsibilities, particularly with regard to quality, efficiency and timeliness of service delivery to the customer.

These can either be operational incentives, where performance against key metrics is published, or financial incentives or penalties. For financial incentives, 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).

For IRC2, the CRU decided that a combination of reputational incentives (through monitoring and publication) and financial incentives (through payments/penalties), should be utilised to incentivise Irish Water to improve its performance in key areas. The CRU’s approach to date is outlined in detail within the IRC2 decision (CER/16/342). While the CRU provides a summary of the current incentives below, for full details, please refer to the IRC2 decision.

The incentives introduced in the IRC2 decision are in the process of being implemented. The CRU
considers that incentives should be meaningful, measurable and implementable. The CRU, therefore, proposes that stakeholders comment on the CRU’s approach to incentives to date, and highlight areas, where they believe additional incentives to those already in place might be of benefit.

### 3.6.2 Financial Incentives

#### 3.6.2.1 Rolling retention of efficiency savings

For electricity and gas utilities, allowances for internal operating are fixed for a five-year period. If the regulated utility spends more than it is allowed, it bears the cost. On the other hand, if the utility spends below what it is allowed, it can keep the surplus made in any one year for a period of five years as a means of incentivising efficiency, as long as those savings have been made in an efficient manner. The utility cannot simply make apparent savings through the avoidance of expenditure, which could be to the detriment of the relevant network and its customers. Customers benefit in the medium term by the progressive decrease in operating costs allowed at subsequent revenue reviews.

The CRU decided to include a mechanism for the rolling retention of additional opex efficiencies for Irish Water’s controllable operating costs. In relation to the retention period, the standard approach is to match the retention period with the length of review. However, to increase the incentive on Irish Water to realise cost efficiencies, the CRU decided to use a retention period of three years rather than two years (which was the expected length of IRC2 at the time of the decision).

It should be noted that Irish Water is not a commercial entity in the same way that electricity and gas utility companies in Ireland are. Irish Water is majority-funded through voted Government expenditure. If the utility spends less than its allowance in a given year it may not be able to retain those savings in the manner that an electricity or gas utility company would. Therefore, the benefit of Irish Water having an incentive to retain savings achieved through efficiencies must be considered.

#### 3.6.2.2 Non-domestic billing incentives

The CRU decided to adopt three incentives related to the billing of non-domestic customers during IRC2. These incentives are described below.

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18 During the annual tariff setting process, the electricity and gas utilities can make requests for extra-over items. These requests relate to work items that were not anticipated during the five-yearly revenue control process. The CRU assesses these requests and may provide additional revenues during the revenue control period to fund this work if it is deemed necessary and could not have been foreseen during the revenue control process.
• The CRU introduced an incentive to encourage Irish Water to actively pursue outstanding debt amongst its non-domestic customers. An incentive payment will apply where Irish Water can reduce their bad debt to a level lower than the level set by the CRU and a penalty will apply where Irish Water’s actual bad debt ends up being higher than the level set by the CRU. The CRU understands that Irish Water has not progressed this incentive.

• An efficient billing scheme was introduced as an incentive to identify and correctly bill any non-domestic customers connected to the Irish Water network that do not receive a bill for the use of water and wastewater services. The intention is that if Irish Water bill more connected properties (i.e. above a baseline amount), it keeps a certain percentage of the additional revenue billed. In its IRC2 decision, the CRU noted that this incentive may be changed to a symmetrical incentive (i.e. to include a downside) and that this will be decided as part of the RC3 consultation process. The CRU understands that Irish Water has commenced work on this incentive and we will consult further on this in the RC3 Consultation Paper in H1 2019.

• A billing correction scheme was introduced to create an incentive for Irish Water to identify and correct instances where properties are being charged less than they should be charged. Under this incentive, if Irish Water identifies eligible non-domestic customers that have been under-billed and start to bill those customers correctly, it is allowed to keep a portion of the additional revenue collected. In its IRC2 decision, the CRU noted that this incentive may be changed to a symmetrical incentive and that this will be decided as part of the RC3 consultation process. The CRU understands that Irish Water has commenced work on this incentive and we will consult further on this in the RC3 Consultation Paper in H1 2019.

3.6.2.3 Leakage Reduction incentive

The CRU recognises the progress that Irish Water has made in water conservation and leakage reduction since it was established as the sole public water and wastewater utility. For example, the CRU’s analysis indicates that the average annual demand to a metered dwelling reduced from 131m³ in 2015 to 125m³ in 2016, with customer-side leakage repair contributing to this decrease.¹⁹

For RC3, the CRU recognises the need for Irish Water to accelerate its progress in leakage reduction. The severe weather events of the past year have highlighted the need for Irish Water to increase its efforts to fix leaks, reduce and then maintain leakage at lower levels than is currently the case.

¹⁹ CRU Report to the Minister: Review of Demand for Water Services (CRU/17/339)
At IRC1 and IRC2, Irish Water was allocated funding for the first fix programme to fix customer-side leaks. The CRU is of the view that this is an important area for Irish Water to target and will continue to support this programme. The CRU also acknowledges that significant progress will need to be made on public-side leakage to improve security of supply, particularly in the Greater Dublin region.

The River Basin Management Plan, published in April 2018, noted that in the period up to 2021, Irish Water plans to invest around €73 million per annum to reduce leakage. It noted that a range of interventions are being implemented, including pressure-management activities, active leakage-control measures, watermains renewals and continued customer-side savings.

Leakage is monitored as part of the CRU’s Performance Assessment metrics. However, the CRU is considering introducing an incentive which may act to accelerate a reduction in leakage. Comments are invited from interested parties on how this might be achieved.

### 3.6.2.4 Data Quality

As a general approach, the CRU also recognises the need for Irish Water to provide good quality data to the public on its plans and its activities. One of the findings of the Joint Oireachtas Committee report on domestic water services (published in 2017) was that “the principle of open data should be adopted for water research purposes and the data collected by the water utility, the CRU and the EPA should be provided to the Public Water Forum and society for analysis and decision making purposes”.

The CRU supports this position and expects the provision of data by Irish Water in an open and transparent manner, both to the regulator and to the public. The CRU also notes the report of the Expert Commission, which recommended that Irish Water renew its efforts to develop a positive engagement with consumers and put in place further initiatives to engage consumers in a positive and proactive way at the national, regional, and local level. That report also noted that Irish Water should commit to the provision of extensive open-access data, for research purposes and so that consumers can easily monitor and manage consumption.

The CRU is of the view that this will be an important principle for RC3. Specifically, as Irish Water is no longer a newly-established utility, the CRU expects that the quality of data that it can provide to the regulator and knowledge that it has on its asset base will improve significantly at RC3. In the past, the CRU has encountered difficulties in obtaining information from Irish Water either due to lack of available data or lack of data available in a useful format.

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The CRU is therefore considering whether it might be appropriate to apply a financial incentive and/or penalty to Irish Water for the provision and publication of data. This could be linked to Irish Water’s provision of information under the CRU’s Performance Assessment Framework. The CRU welcomes the views of stakeholders in this regard. Furthermore, the CRU welcomes comments as to whether this incentive should be extended to information published and provided to other organisations, such as the EPA.

3.6.2.5 Commercial Rates

In accordance with the WSA 2017, the CRU understands commercial rates may be payable during RC3. As a result, the CRU may consider the application of an incentive, similar to the incentive it currently applies to Gas Networks Ireland (GNI), whereby, commercial rates are treated as a pass-through (uncontrollable) cost with a 50% sharing factor (between GNI and the customer) on the Value of the Asset.\footnote{21} This would ensure that the customer would only bear the cost of half the commercial rates.

### Request for Comments on Financial Incentives:

#### Leakage

In the context of the above, the CRU invites comments on the following points:

- How might the CRU place a financial incentive on Irish Water to reduce leakage?
- How could Irish Water accelerate its leakage repair over RC3?

#### Data Quality

The CRU welcomes comments on how it might go about introducing a financial incentive and/or penalty to ensure that Irish Water provides good quality data to the CRU and other entities (e.g. the EPA), as required and publishes data as required in a timely manner.

\footnote{21} Commercial rates are estimated as the product of the Value of the Asset (with a Global Valuation every five years) and the Annual Rate on Valuation (ARV) from each local authority. GNI reference that they have some limited control over the Value of the Asset through participation in determination and right to appeal, but none over local ARVs due to the dissolution/merger of councils and no right to appeal. As such, a 50-50% sharing factor is set on the Value of the Asset, with a full pass-through on the ARV.
General
The CRU invites parties to comment on the financial incentives, as set out above, and highlight areas, where they believe additional financial incentives to those already in place might be of benefit.

Furthermore, comments are invited on whether penalties should be applied where Irish Water does not seek to avail of an incentive.

3.6.3 Reputational incentives

3.6.3.1 The Irish Water Performance Assessment
The CRU developed a set of key performance indicators that measure the performance, progress and efficiency of Irish Water. The monitoring and reporting of these metrics will enhance transparency regarding what service improvements are being delivered to customers for the money that is spent. The metrics cover several areas relating to the performance of Irish Water – customer service, environmental performance, quality of service for water supply, security of water supply and sewerage service.

The CRU has published two Irish Water Performance Reports and CRU commentary papers to date, which set out the CRU’s view of Irish Water’s performance at this early juncture.\(^{22}\) The CRU notes that it will take time for Irish Water to be in a position to report on all metrics under the Performance Assessment. The CRU would expect significant progress in the early part of RC3 to bring Irish Water to a point where it can report on all metrics. The CRU invites comments on whether the reputational incentives of publishing data in relation to their performance is an effective incentive for Irish Water. The CRU also welcomes comments on any additional metrics which stakeholders consider should be included in the Performance Assessment.

3.6.3.2 Customer handbook
The Irish Water Customer Handbooks were developed by the CRU. There are two handbooks – one for domestic customers and one for non-domestic (business) customers.\(^{23}\) The Irish Water Customer Handbooks detail the required levels of customer service and customer protection measures that Irish Water must include in its various codes of practice. The CRU regularly engages with Irish Water and monitors the company’s implementation of the customer handbook.

\(^{22}\) Available here: https://www.cru.ie/document_group/irish-water-performance-assessment/
\(^{23}\) Available here: https://www.cru.ie/document_group/irish-water-customer-handbook/
requirements.

3.6.3.3 Capital Investments Monitoring

Finally, the CRU determined that an appropriate regime would be advanced during IRC2 to facilitate the monitoring of Irish Water’s Capital Investment Programme. The CRU monitors and reports on the delivery of Irish Water’s Capital Investment Plan and the outputs and outcomes of Irish Water’s capital investment on an ongoing basis. The CRU published its first Capital Investments Monitoring Report in April 2018, outlining Irish Water’s delivery of its Capital Investment Plan for the period January – June 2017.

Request for Comments

The CRU invites parties to comment on the reputational incentives, as set out above, and highlight areas, where they believe additional reputational incentives to those already in place might be of benefit.

3.7 Approach to assessing operational expenditure

3.7.1 Introduction

In the advice that it provided to the Minister in 2014, the CRU referenced using benchmarking as an aid in determining the efficient levels of operational expenditure (opex) for Irish Water, along with efficiency trends and advice from industry experts. The CRU also referenced engaging in a ‘line-by-line’ approach in determining the respective spends for each operational expenditure item.

The CRU’s approach to date is outlined in detail within the IRC2 decision. The CRU provides a short comprehensive summary below and for full details, please refer to the IRC2 decision (CER/16/342).

3.7.2 Benchmarking and line-by-line review

As part of each revenue control, the opex incurred by the utility over the previous control period is reviewed to assess cost efficiency, whether the utility’s actual opex spend was inside the limits of the opex allowed by the CRU, deliverables for opex incurred and to inform decisions for the coming revenue control period.

The CRU’s approach to assessing future allowances during IRC1 and IRC2 has included benchmarking of Irish Water’s opex against those of mature utilities in other jurisdictions. This work has shown that Irish Water’s costs (inclusive of local authority costs) are significantly higher than those of established water utilities in other jurisdictions. To minimise any negative impact on service to customers, the CRU’s decisions to date have reflected an expectation that Irish Water should drive efficiencies at a level that is broadly comparable to those achieved by other utilities at similar stages in their evolution.

However, it must be noted that Irish Water is not funded in the same commercial manner as water utilities in other jurisdictions or indeed electricity and gas network utility companies in Ireland. The fact that Irish Water receives Government funding for a large portion of its costs and this funding is committed on an annual basis, there may be less of an incentive for it to achieve efficiencies and to outperform the targets set for it by the CRU.

The CRU also reviewed Irish Water’s opex on a line-by-line basis in the format provided by Irish Water in IRC2. The CRU issues queries to Irish Water at each revenue control seeking a breakdown of opex in a manner that facilitates comparison with utilities in other jurisdictions.

The CRU proposes to adopt the same approach to benchmarking for RC3 and use benchmarking techniques to assess efficient operating expenses.

### Request for Comments

The CRU invites parties to comment on its approach to benchmarking, and the use of both benchmarking and a line-by-line review to assess operational costs.

#### 3.7.3 Setting an overall opex allowance

In general, the CRU sets an overall level for Irish Water’s total operating costs. While the CRU’s assessment includes, where appropriate, examination of costs on a line-by-line basis, the CRU does not usually set opex on a line-by-line basis. Rather the CRU, in general, sets an overall opex allowance within which the utility must manage its expenditure.

This allows the utility flexibility to manage its expenditure appropriately within this total, while maintaining or improving the service that is provided to customers. There are some exceptions to

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this approach, which include an innovation fund (which was ring-fenced for purposes linked to innovation) and pass-through costs (which are ring-fenced for certain expenditure not within Irish Water’s control), but for the majority of operating expenditure, the CRU does not mandate that it is reserved for a specific purpose. This allows Irish Water flexibility to make decisions regarding how it manages its activities, and using its own specialist knowledge and skills, determine how and where to deliver the improvements.

3.7.4 Applying an efficiency target to opex
The CRU’s benchmarking against utilities in other jurisdictions showed that Irish Water’s costs (inclusive of Local Authority costs), are significantly higher than those of established water utilities in other jurisdictions. Requiring Irish Water to move towards an efficient level, the CRU decided to apply an efficiency target to the majority of Irish Water’s operating cost base. For IRC1, it was applied to all costs except for pass-through costs (regulatory licences and levies, rates). For IRC2 it was applied to all costs except for pass-through costs, Design Build Operate (DBO) costs, and additional allowances to cover certain activities. Not applying an efficiency target to DBO costs is a similar approach to that adopted by the regulator in Scotland, which excluded the equivalent contracts for Scottish Water from the main efficiency challenge.

The CRU outlined that the treatment of DBO costs would be considered further for the RC3 period. The CRU understands that the DBO contract life (inherited from Local Authorities) is approximately 20 years. Over time these contracts will come to an end and the CRU may expect Irish Water to realise greater efficiencies upon renegotiation (or by taking operations in-house). This may provide a reason to apply efficiency reductions on DBOs at the next review (RC3), particularly if the review period is longer than the current two-year timeframe. The CRU will engage further with Irish Water on this matter but is also interested in any comments from stakeholders in this regard.

The intention of the one-off allowance (of €19.8m) for IRC2 was, by its nature, to provide an allowance for the IRC2 period only. However, Irish Water stated in its response to the IRC2 consultation that the capabilities required are long term needs to address critical gaps in areas such as Wastewater Source Control and Licensing and regional monitoring and analysis of plant operation. Irish Water stated that the requirement for these skills and resources will endure beyond IRC2. This came to the fore during the 2019 extension work, with the CRU proposing an additional expenditure allowance of €29.9m in 2019 for Irish Water to address additional compliance

26 These related to investing in capabilities relating to wastewater sources control and licensing, asset delivery, data capture, and regional monitoring. See Section 5.2.7 of the IRC2 decision paper (CER/16/342) for details. See Section 3.2.8.3 of the 2019 Extension Consultation Paper (CRU/18/097) for details on the proposed additional allowance for 2019.
requirements, any essential additional expenditure gaps and continue investing in capabilities. The CRU expects that the costs associated with this work should, in time, either reduce or become offset by reductions in costs in other areas. In addition, the CRU does not foresee any additional allowances being granted for items that Irish Water does not present as part of its full RC3 submission. The CRU expects that all Irish Water’s controllable opex requests for the RC3 period will be one single submission.

Request for Comments

The CRU invites parties to comment on the application of benchmarking to set efficiency targets, and the applicability of these efficiency targets to DBO costs.

3.7.5 Appropriate length of time to close the efficiency gap

As set out above, the CRU intends to complete a benchmarking analysis of the expenditure proposed by Irish Water (i.e. as part of the process to put in place the revenue control) to determine how it compares to mature utilities in other jurisdictions. The CRU accepts that it will take time for Irish Water to drive its costs down to an efficient level without affecting the service provided to customers. As a result of the CRU’s decisions to date, the efficiency challenge can deliver cumulative savings to the customer of 25% over the period 2015-2019. The CRU set an operating cost efficiency target of 5% per annum during 2017-2018 and has decided to maintain this efficiency challenge for 2019.

The CRU’s benchmarking exercise for IRC2 found that Irish Water is at least 70-80% inefficient compared to the long-run efficient level for comparator companies, i.e. its costs were at least 70-80% higher than those of benchmarked companies at IRC2. The CRU has challenged Irish Water to close this efficiency gap through the application of an efficiency challenge each year and considers this approach to provide a steady glide path to efficiency.

The CRU acknowledges that Irish Water is constrained by an operating model which may impede the costs reductions that can be achieved in comparison to those realised by the best performers elsewhere. As Irish Water delivers services through a Service Level Agreement (SLA) with the Local Authorities, it may take more time for efficiencies to be delivered than through a unified model given the increased level of co-ordination required. This is not evident to the same extent in other jurisdictions. The CRU is supportive of this process and acknowledges that the pace of delivery of the Water Industry Operating Framework (WIOF) is being determined by a wide range of stakeholders. However, the CRU is of the view that its implementation is essential to enable Irish Water to deliver significant cost efficiencies in the provision of water services.
Request for Comments

- The CRU invites parties to comment on the appropriate length of time to close the efficiency gap.

In addition, the CRU is interested in parties’ views on how the CRU should consider Irish Water’s ability to realise substantive efficiencies under the SLA model while WIOF is being implemented.

3.8 Approach to assessing capital expenditure

3.8.1 Introduction

In the advice that it provided to the Minister in 2014, the CRU proposed that like opex, the CRU would engage in a review of the required capital expenditure (capex). The CRU’s objective of the review is to ensure that the capex is necessary, consistent with the legal obligations placed on Irish Water under relevant legislation, consistent with stakeholder and customer expectations, and represents value for money for the water services customer.

The CRU’s approach to date is outlined in detail within the IRC2 decision. While the CRU provides a short comprehensive summary below, for ease of reference, for full details, please refer back to the IRC2 decision (CER/16/342).

3.8.2 Setting a capex allowance

To set an allowance for the coming period, the CRU examines Irish Water’s capital investment plan (CIP) and non-network capital investment plan (NNC). This is done to ensure value for money on upgrading and improving water and wastewater infrastructure to meet quality standards and environmental obligations, satisfy demand, improve security of supply and increase efficiency in operations. An audit of a sample of projects, capital maintenance programmes and national programmes was conducted as part of the review of proposed IRC2 capex. These audits were supplemented by the CRU’s review of Irish Water’s approach to the development of the CIP submission, including ‘plan balancing’ and costing of the various aspects of the submission, capital programme management and governance.

The CRU intends to use this approach again at RC3. The CRU acknowledges that Irish Water is faced with many competing priorities in terms of capital investment and where best to upgrade and improve infrastructure. The CRU will consider Irish Water’s prioritisation of capital expenditure over RC3.
3.9 Suitability of the Capital Asset Pricing Model (CAPM)

For the previous revenue controls for water, it was decided that, in common with economic regulators of utilities in comparable regulated sectors in Ireland, the CRU would use the Capital Asset Pricing Model (CAPM) to determine Irish Water’s cost of equity. This cost of equity is an input to the methodology for determining the Weighted Average Cost of Capital (WACC) for Irish Water. This method is used by regulators internationally and well-understood by investors globally. The CRU considers this to be an appropriate approach to determining cost of equity, if indeed such an approach is taken in light of Irish Water’s new funding model (see Section 3.3 above). It should be noted that if any changes are made in the CRU’s approach to setting a WACC (see Section 3.4 of this paper) CAPM may no longer be required.

The CRU has previously considered a range of different options for calculating the cost of equity, such as the Multifactor Model and the Dividend Growth Model or Dividend Discount Model approaches.

The CAPM states that the cost of equity should give shareholders a risk premium above the risk-free return according to a business’s systematic risk, which depends on whether the return to that business is more or less risky than the market return. This is measured by the beta coefficient, which does not measure specific risk (assumed to be eliminated by portfolio diversification). The CRU notes that the CAPM is a forward-looking model, i.e. it is intended to model future rather than historic returns.

The model specification of the CAPM for the cost of equity (Re) is as follows:

\[ Re = \text{Risk-free rate} + \beta \times \text{equity risk premium} \]

Consistent with the approaches taken by regulators internationally, such as Ofwat in the UK, it was the CRU’s view for the past Irish Water revenue controls that, while other methodologies had their own specific advantages and disadvantages, none provided a compelling case for its use in place of the CAPM. Therefore, for those revenue controls the CRU followed regulatory precedent and used the CAPM to determine equity costs.

The CRU notes that it is now considering the suitability of a WACC for Irish Water for RC3 as outlined above in Section 3.4 and in Appendix A in greater detail. Naturally, any deviation from a
WACC approach may result in the CRU no longer using the CAPM.

However, if the CRU continues to apply a WACC approach to RC3, in the interest of regulatory certainty for Irish Water and in the absence of a clear reason for moving away from the CAPM, the CRU is of the view that a consistent approach with the previous revenue controls should be maintained.

**Request for Comments**

The CRU invites parties to set out if the CRU should consider an alternative methodology to the one proposed here, particularly in the context of Irish Water’s new funding model, along with the reasons why alternative approaches should be considered.

### 3.10 Revenue Cap and CPI-X Model

In setting the previous revenue controls, the CRU used a revenue-cap regime and a CPI-X model to ensure that Irish Water could finance efficient investments, operating costs and financing costs.

Under the revenue-cap regime, the CRU determines the maximum allowed revenues that Irish Water will be allowed to recover from its customers during a revenue control period.

The use of CPI-X means that changes in the revenues (for example on an annual basis) under the control of Irish Water are limited to the increase in inflation minus an “X” factor determined by the CRU. The “X” factor is intended to reflect anticipated efficiency gains or productivity growth, which will lower the cost of producing the regulated services, ultimately to the benefit of the end-customer.

The revenue-cap regime and the CPI-X model are also used as the basis for the revenue control for electricity and gas transmission and distribution businesses. The CRU considers that this framework provides a regulated business with strong incentives for efficiency and an assurance to the final customer that they will receive benefits from those efficiency gains.

For the next revenue control, the CRU intends to continue to use a revenue-cap regime and a CPI-X model of a similar form to that currently applied to electricity and gas utilities and as employed to set the first two Irish Water interim revenue controls.

It is intended that the revenue control will continue to contain indexation based on a CPI-X approach. “X” will be set to reflect the year-on-year efficiency improvements the CRU expects Irish Water to achieve or improve upon. The indexation factor will reflect inflation as outlined below in Section 3.10.1 of this paper.
It is important to note that the “X” value will be subject to review and comment in the RC3 consultation phase, for Irish Water.

It is also intended that a rolling retention of benefits achieved through capital and operating costs being lower than target levels will be utilised for the upcoming period. This means that where costs were reduced below the target levels for reasons of increased efficiency, Irish Water could still receive the target level of revenue for a number of years\(^{27}\). This incentivises the utility to achieve efficiencies above that required by the CRU and means that customers would benefit from reduced costs in future years.

Such a regime, coupled with the rolling incentive outlined above, would provide strong incentives for a utility to deliver services at least cost as the utility retains the benefits of any cost outperformance or incurs the cost of underperformance in the period between revenue reviews. Revenue-cap regimes are widely used by other regulators internationally, as well as by the CRU for regulating the energy sector in Ireland. The CRU intends to apply a total revenue cap for the Irish Water business, as opposed to separate revenue caps for the different services (i.e. water and wastewater) that Irish Water provides.

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**Request for Comments**

The CRU invites parties to set out if the CRU should consider an alternative methodology to the one proposed here along with the reasons why alternative methodologies should be considered.

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**3.10.1 Inflation**

As outlined in detail above, the CRU has used a revenue-cap regulatory regime and a CPI-X model to determine the revenue of the network utilities that it regulates. The model uses a base allowed revenue, which is indexed to take account of inflation.

In addition, when valuing regulated asset bases for the utilities which it regulates, the CRU has used a methodology whereby the acquisition cost is indexed upwards to allow for inflation. Further detail is provided in Section 3.11.3.

The application of inflation is intended to take into account the change in costs faced by utilities from year to year. Therefore, the inflation index used should reflect the changes in costs faced by the network utility, such as wage inflation or materials inflation, etc. The inflation index needs to be

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\(^{27}\) The number would be decided through this consultation process.
practical to implement, robust and transparent.

In earlier revenue controls for electricity and gas, the CRU has used a consumer-focussed index and for recent controls has moved towards using the Irish Harmonised Index of Consumer Prices (HICP) to calculate inflation.

**Request for Comments**

The CRU currently uses the HICP for the utilities it regulates and remains of the view that the indexation value used for RC3 should be calculated using the Irish HICP.

However, the CRU invites parties to highlight why the CRU should consider an alternative index to the one proposed here.

### 3.11 Asset Value and Depreciation Methodology

#### 3.11.1 Introduction

The approach to valuing Irish Water’s Regulated Asset Base (RAB) is a crucial decision within the revenue control process. The RAB plays a key role in establishing the value of the business and hence its ability to cover capital expenditure and provide an adequate return on capital employed. Specifically, the RAB should be such that it can provide sufficient revenue when applying the cost of capital to it, to ensure that the business is able to fund appropriate new investments.

The remainder of this section sets out the composition of Irish Water’s opening RAB along with considerations which the CRU used in the previous Irish Water revenue controls regarding the RAB.

#### 3.11.2 Opening RAB on 1st October 2014

When putting in place the first revenue control for Irish Water, the CRU set the opening RAB equal to efficiently incurred expenditure up until October 2014, as well as the amounts of any liabilities transferred from local authorities to Irish Water. Irish Water’s opening RAB comprises:

- New operational expenditure incurred up until October 1\textsuperscript{st} 2014;
- Costs in relation to the establishment of Irish Water incurred up until October 1\textsuperscript{st} 2014;
- Metering capital expenditure (capex) incurred up until October 1\textsuperscript{st} 2014;
- Any other efficiently incurred capex;
- Liabilities transferred from the Local Authorities to Irish Water;
- Efficient cost of financing this expenditure in the period up to October 1\textsuperscript{st} 2014; and,
• Irrecoverable VAT associated with efficiently incurred expenditure associated with the above expenditure classes.

3.11.3 Valuation of assets
In setting the RAB, the use of some form of replacement value has a very strong economic foundation. Taking a replacement cost approach is more likely to result in the correct level of network investment. Using a replacement cost approach therefore helps to ensure a utility’s assets are not undervalued or overvalued.

For previous electricity and gas revenue controls, and the previous Irish Water revenue controls, the CRU used the acquisition cost, indexed with inflation, as a proxy for the replacement cost.\textsuperscript{28} The CRU intends to continue this approach for the next Irish Water revenue control.

3.11.4 Asset lives
It was decided in the previous revenue controls that the use of average lifetimes in line with expected economic lives informed by current international practice would be appropriate. The CRU considers this method a reasonable representation of the working life of assets.

The CRU did not allocate specific water/wastewater infrastructure assets (e.g. pipelines, meters) to specific depreciation rates or asset lives. Instead, the CRU allocated the total capital expenditure to different categories of asset lives using percentages based on what has been evident in other jurisdictions.

The below table sets out the asset life categories and the percentage allocation of total capex to each asset life used in the past two interim revenue controls.

<table>
<thead>
<tr>
<th>Category</th>
<th>Asset life</th>
<th>Allocation to asset categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very short</td>
<td>5 years</td>
<td>5%</td>
</tr>
<tr>
<td>Short</td>
<td>10 years</td>
<td>7%</td>
</tr>
<tr>
<td>Medium</td>
<td>20 years</td>
<td>23%</td>
</tr>
<tr>
<td>Medium-long</td>
<td>40 years</td>
<td>0%</td>
</tr>
<tr>
<td>Long</td>
<td>60 years</td>
<td>19%</td>
</tr>
<tr>
<td>Land</td>
<td>Infinite</td>
<td>0%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>100 years</td>
<td>46%</td>
</tr>
</tbody>
</table>

As part of the RC3 process, the CRU will engage with Irish Water and consider alternative approaches to setting asset lives. The CRU may allocate specific asset types with a useful

\[\text{28} \text{ Information on this and other approaches is outlined in documents such as the CER decision on electricity distribution revenues for 2011 to 2015, CER/10/198.}\]
economic life (e.g. meters, pipelines), like how asset lives are set in the electricity and gas sectors.

Request for Comments
The CRU welcomes views from stakeholders on the appropriate asset lives applicable to various water infrastructure items.

3.11.5 Depreciation Methodology
It was decided for the previous revenue controls for Irish Water that depreciation would be calculated on a straight-line basis to depreciate the assets over their expected useful economic life. This is consistent with the CRU’s approach to calculating allowed depreciation for the energy networks in Ireland.

The CRU intends to continue this approach in the next revenue control. However, the CRU will have to consider the impact of any new asset life allocations before making such a decision.

Request for Comments
The CRU invites parties to comment on the approach to RC3 regarding valuation of assets, setting of asset lives and the depreciation methodology.

3.12 Change Control Process
3.12.1 Introduction
As set out earlier in this paper, the Minister approved Irish Water’s Strategic Funding Plan, which set out Irish Water’s funding requirements for a specified period. Irish Water then provided its RC3 submission to the CRU. Over the coming months, the CRU will consider Irish Water’s revenue control submission and determine an allowed revenue for each year of the revenue control period. However, given that the revenue control period is expected to be five years in duration, it is possible that during the period the project may be affected by some form of change. The CRU therefore proposes to put in place a change control process to deal with such occurrences.

In developing this process, it is important to balance the flexibility of meeting unforeseen requirements with the integrity of the revenue control process. The CRU will implement its change control process in the event of unforeseen changes in Government policy which affect Irish Water.
# 4 Conclusion

Within Section 3 of this paper, the CRU provided a high-level overview of its approach to economic regulation of Irish Water. Although the CRU has highlighted the proposed approach it intends to take regarding some aspects of the RC3 methodology, it will consider responses from stakeholders on all aspects of the RC3 methodology. In the table below, the CRU provides a summary of topics for which the CRU requests comment from parties.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Query</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of capital</td>
<td>Is it suitable to continue to apply a WACC due to the changes in the Irish Water funding model? If not, what alternatives should be considered?</td>
</tr>
<tr>
<td>Incentives</td>
<td>Are the current incentives appropriate, and, are there additional areas (such as availability of data and reduction in leakage rates) which would benefit from incentives during RC3?</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>Are there any changes the CRU should consider in its use of benchmarking in the context of the new funding model for Irish Water?</td>
</tr>
<tr>
<td>Application of efficiency challenge</td>
<td>What areas of the operational cost base should be subject to an efficiency challenge during RC3?</td>
</tr>
<tr>
<td>Efficiency challenge</td>
<td>What is an appropriate length of time for Irish Water to close the gap that exists between its current level of efficiency and the long-run efficient level of water utilities?</td>
</tr>
<tr>
<td>Capex allowance</td>
<td>Should the CRU continue the same proposed approach to setting the capital expenditure allowance?</td>
</tr>
<tr>
<td>Assessing cost of equity</td>
<td>Should the CRU consider an alternative approach to the use of Capital Asset Pricing Model (CAPM) to determine Irish Water’s cost of equity?</td>
</tr>
<tr>
<td>Regulatory regime</td>
<td>Should consideration be given to an alternative approach to the revenue-cap regime and the use of a CPI-X model?</td>
</tr>
<tr>
<td>Valuation of the RAB</td>
<td>Should consideration be given to an alternative approach to the use of acquisition cost, indexed with inflation, as a proxy for the replacement cost?</td>
</tr>
<tr>
<td><strong>Asset lives</strong></td>
<td>What approach should the CRU take to setting asset lives for water infrastructure asset categories?</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Depreciation</strong></td>
<td>Should consideration be given to an alternative approach to the use of straight-line depreciation?</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>The CRU welcomes any further comments which stakeholders have in relation to any RC3 matters.</td>
</tr>
</tbody>
</table>

Comments are invited as outlined in Section 1.7 of this paper.

### 4.1 Next Steps

As set out earlier, the Water Services Act 2017 set out additional steps to be completed in advance of the revenue control process through which the CRU decides on the level of revenue Irish Water can recover through charges and Government subvention. The following provides a summary of the sequence of these steps, brought about by the Water Services Act 2017:

- Following the publication of the Minister’s Water Services Policy Statement in May 2018\(^{29}\), Irish Water prepared a Strategic Funding Plan. This plan detailed costs likely to be incurred in the provision of water and wastewater services, the recovery of these costs, estimated income of Irish Water and estimated opex and capex.
- The Minister subsequently approved this plan.
- Irish Water will then prepare a Water Charges Plan (WCP) which is submitted to the CRU. The CRU, through the revenue control process, will determine, after consulting with stakeholders, efficient levels of cost and income and will approve a Water Charges Plan which reflects that efficient level.

At this stage, the Water Services Policy Statement has been published by the Minister and the Strategic Funding Plan has been approved by the Minister. The CRU therefore is commencing its process for developing its approach to RC3. This paper has set out that approach and seeks comments from interested parties on certain aspects of that approach.

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Appendix A

As outlined in Section 3.4 above, the CRU is currently considering alternative approaches to the setting of an allowed rate of return, having used the WACC methodology at IRC1 and IRC2. The below note was prepared by the CRU’s economic consultants (NERA) and explores in detail some alternatives. It examines how a cost of capital is addressed by WICS in Scotland, ORR in the UK and UR in Northern Ireland.

Interested parties are requested to consider these scenarios and provide comment on their applicability in the context of the current funding model for Irish Water.

Executive Summary

At previous reviews, the CRU has set an allowed revenue for Irish Water (IW) that has included an allowed rate of return, drawing on the weighted average cost of capital methodology (WACC). The WACC methodology involves determining an allowance based on the weighted average of efficient debt and equity costs, where the weights are based on respective debt and equity amounts or gearing.

However, where publicly owned utilities do not have to compensate the shareholder (i.e. the State) for the equity invested in the business, as is currently the case of IW, setting a market-based cost of capital may provide for an allowed return which is higher than actual financing costs.

UK regulators have considered alternative approaches to setting a market-based cost of capital for publicly-owned utilities. The prominent examples that we have reviewed are Scottish Water (SW), regulated by the Water Industry Commission for Scotland (WICS), Network Rail (NR), regulated by the Office of the Rail Regulator (ORR), and Northern Ireland Water (NIW), regulated by the Utility Regulator for Northern Ireland (UR).

31 IW (2016) Irish Water Financial Statements, p.5. IW states that “The policy direction from the shareholder is that Irish Water should not pay a dividend, rather any surplus generated from its operations should be reinvested in fixing water infrastructure.”
In the case of SW and NR, the respective regulators have adopted alternative approaches to the standard WACC methodology. For NIW, the regulator continues to use a WACC methodology, which may be explained by the requirement for NIW, in this instance, to pay a dividend to its shareholder.

**WICS no longer determines a cost of capital, and instead sets revenues with reference to financial ratios**

For Scottish Water (SW), the WICS no longer determines revenues based on an allowed return on capital, and instead sets revenues to target rating agencies’ key financial ratios to ensure that Scottish Water is financially viable. The WICS considers that an important advantage of the approach is that it provides clarity over SW’s performance, as the outturn financial metrics can be compared to those expected at the time of the review. The mechanism also includes trigger points, which allow for allowed charges to be reduced (or increased) where prescribed financial thresholds are breached.

**For NR, the ORR has adjusted the WACC estimate to reflect lower financing costs**

For Network Rail (NR), the ORR has adopted a so-called adjusted WACC approach, which is an adjusted market-based cost of capital to reflect NR’s lower financing costs because of the government guarantee on its debt and absence of a shareholder dividend. The approach ensures that NR’s revenue requirement includes only costs of financing, and that any additional expenditure during the regulatory period unforeseen by the ORR during the determination has to be financed with additional borrowings. To estimate the adjusted WACC approach, the ORR undertakes the following steps:

- Estimate the NR full cost of capital to calculate the revenue requirement;
- Identify the efficient financing costs, i.e. the cash cost of debt interest and, if appropriate, including an in-year buffer;
- Subtract the equity surplus from the NR’s revenue requirement, i.e. the portion of the revenue requirement not used to finance debt costs. ORR then makes an additional allowance for amortisation, equal to its forecast of renewals expenditure, to address financial sustainability problems.

According to the ORR, the advantages of the adjusted WACC approach is that it recognises NR is not financed with equity and hence does not need an additional allowance corresponding to the required return on equity risk; and, provides NR stronger incentives to operate more efficiently due to the lower allowed revenue.
The UR continues to set NIW’s allowed revenues based on an allowed return, adjusted to reflect NIW’s lower risks

In NI, the UR continues to set NIW’s allowed revenues based on an allowed return, adjusted to reflect NIW’s relative risks. Unlike SW and NR, the shareholder, the Department for Infrastructure, requires a dividend payment, and the UR ensures that the cost of equity allowance aligns with the expected dividend payments.

All three approaches have potential merit for Irish Water

Of the three approaches, the WICS approach avoids the need to estimate a market-based cost of capital. This appears to us to be a key advantage: it means the price control process can focus on other key issues, such as determining the optimal level of outputs and efficient level of costs. At the same time, the WICS approach ensures a financial viable business by setting allowed revenues to achieve rating agencies’ key ratios. It also facilitates monitoring of performance against these ratios, e.g. weaker outturn ratios would imply that IW has not achieved the level of cost efficiency assumed at review at RC3, although there could also be other reasonable explanations, e.g. over-delivering on outputs.

The potential downside with applying the WICS approach is that it does not specifically identify the excess or equity surplus (or excess of the allowed return over actual financing costs) that arises from setting allowed revenues in excess of IW’s actual financing costs. That said, the surplus should be readily identifiable, i.e. in CRU’s financial regulatory model.

By contrast, the adjusted WACC approach employed by ORR would explicitly identify the actual financing costs faced by IW and set revenues on this basis. However, in the case of NR, the ORR is then obliged to make an adjustment to the depreciation charge to ensure sufficient financial headroom, and the CRU may also need to make a similar adjustment for IW. Thus, although the ORR approach would improve transparency as to IW’s actual financing costs, it may require an adjustment to the depreciation charge to ensure financeability. The ORR has also considered alternative approaches where NR is allowed to retain some of the excess of the market-based cost of capital relative to its actual financing costs, as an equity buffer, or to finance additional outputs. These modifications would avoid changes to the depreciation lines and could also be implemented by CRU.

The UR has retained the WACC methodology for setting NIW’s allowed return, reflecting the requirement for NIW to pay dividends to its shareholder. The approach also provides for market-based charges. In the case of IW, the retention of a WACC methodology for setting the return element would lead to charges that are closer to market-based charges for non-domestic customers. In the absence of a dividend payment to the State, the arrangements could also be
designed to identify the *excess surplus or equity surplus* available to finance the capital investment programme.

Table 0.1: Key pros and cons of the different approaches to setting allowed revenues

<table>
<thead>
<tr>
<th>Utility/ approach</th>
<th>Pro's</th>
<th>Cons</th>
</tr>
</thead>
</table>
| Scottish Water (SW)/ “financial tramlines” | - Avoids estimation of the WACC which reduces regulatory costs; allows stakeholders to focus on other priorities, e.g. efficient costs and outputs  
- Provides greater transparency as to financial performance | - Does not explicitly identify excess surplus available to finance investment plan  |
| Network Rail (NR)/ “adjusted WACC” | - Sets allowed revenues based on actual financing costs, and thus enhances transparency and efficiency incentives  
- Explicitly identifies the excess surplus, the difference between allowed and actual costs, available to fund the capital programme | - Requires adjustment to depreciation building block to provide buffer, although ORR has proposed modifications to allow for retention of some excess surplus as buffer to avoid this  |
| Current WACC methodology | - Aligns allowed revenues with market-based costs, contributing to market-based charges (for non-domestic customers, in the case of IW)  
- Standard approach which may provide greater investor confidence | - Requires estimation of WACC, although not strictly required for IW in absence of dividend payments  |
1. Scottish Water


The Water Industry Commission for Scotland (WICS) sets allowed revenues for Scottish Water (SW) based on SW remaining within prescribed “financial tramlines”. The WICS adopted this approach at the Strategic Review of Charges 2015-2021 (SRC15). Prior to SRC15, the WICS had set allowed revenues based on an allowed rate of return using the weighted average cost of capital (WACC) methodology.

1.1.1. Method

In the SRC10 determination, the WICS set an allowed rate of return on the asset value, determining an average post-tax real allowed return for SW of 2.8 per cent. At the same time, and in line with common practice by UK regulators, the WICS considered whether the overall revenue allowance enabled SW to meet defined financial ratio thresholds.

In 2012, the WICS introduced a financial tramlines mechanism to monitor SW’s financial strength and creditworthiness. The mechanism sets out symmetric financial tramlines and critical values that when reached requires certain actions. Figure 1.1 sets out the mechanism to monitor SW ratios and defines the financial critical values initially applied.

Figure 1.1: Financial Tramlines Mechanism

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32 Equivalent to 4.2 per cent if adjusted for the level of SW depreciation and 4.3 per cent to account for the non-household retail business.

33 The WICS states that the allowed revenues is consistent with SW “maintaining the level of financial strength (...) consistent with a solid investment grade rating, (...) on par with that of the stronger companies south of the border”. WICS (26 November 2009), The Strategic Review of Charges 2010-15: The final determination, p.11-12. WICS, Price Setting 2010-2014, Methodology information paper 4: Setting a cost of capital, p.6. WICS, Price Setting 2010-2014, Staff Paper 3, p.5.
Table 1.1: Measures of Financial Strength in the SRC 2010-15 applied in 2012-13

<table>
<thead>
<tr>
<th>Line</th>
<th>Cash interest cover II</th>
<th>Ratio of funds flow from operations to debt</th>
<th>Gearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper limit</td>
<td>2.20</td>
<td>13.0%</td>
<td>50%</td>
</tr>
<tr>
<td>Discussion line</td>
<td>2.05</td>
<td>12.4%</td>
<td></td>
</tr>
<tr>
<td>Middle line</td>
<td>1.90</td>
<td>11.75%</td>
<td></td>
</tr>
<tr>
<td>Warning line</td>
<td>1.75</td>
<td>11.1%</td>
<td></td>
</tr>
<tr>
<td>Lower limit</td>
<td>1.60</td>
<td>10.5%</td>
<td>55%</td>
</tr>
</tbody>
</table>

Note: The cash range between the upper and lower limit is around £100 million a year.

The financial tramlines mechanism established that:

- Gains above the upper limit must be shared with consumers;
- Gains consistently above the discussion line but below the upper limit must be discussed with the Customer Forum and can result, for example, in lower tariffs, customer service improvements, assets improvements, or financial reserves;
- SW performance between the warning line and the discussion line is in the range defined by WICs and therefore requires no action;
- Losses below the warning line but above the lower limit trigger an interim determination and a Delivery Plan on how to overcome the performance issue; and
- Losses below the lower limit prompt the implementation of an appropriate action to improve the ratio, examples range reduction in capex, increase in charges, or revision of the financial tramlines.

For SRC15, the current regulatory period, the WICS no longer determines an allowed rate of return based on the WACC. Instead, the WICS has retained the financial tramlines approach used to monitor SW performance over the previous review. As before, the financial ratios and targets are based on rating agencies' key metrics, and to provide for a shadow credit rating of
An illustration of the financial tramlines boundaries over the SRC15 period is shown in Figure 1.2 below.

Figure 1.2: Financial Tramlines Boundaries


\[34\] WICS (20 March 2014), The Strategic Review of Charges 2015-21: The draft determination, p.26
1.1.2. **WICS reasons for adopting financial tramlines instead of RAB*WACC**

The WICS considered that although “the [financial] tramlines approach may be perceived to increase the regulatory risk,” given the WICS will no longer determine an explicit cost of capital, an overall revenue requirement that allows SW to achieve rating agencies’ financial metrics ensures SW is financially sustainable from an investor’s perspective. The strong rating then enables the company to access the credit markets and raise debt at a relatively low cost, granting the business some protection against adverse shocks.

In 2013, the WICS argued that the tramlines also have other benefits in addition to greater transparency:

- “strengthen the incentive for Scottish Water to outperform — if the company, rather than the regulator, delivers extra benefits for customers then its reputation will be enhanced;
- allow customers to share in any significant outperformance more quickly, rather than having to wait until the next time prices are set; and
- provide greater certainty on the financial resources that will be available — allowing for better long-term planning.

For SRC21, the Regulator intends to maintain the financial tramlines approach outlining further benefits such as: provides transparency regarding SW’s financial performance; as monitoring is on the basis of cash-flow, it avoids WICS focussing on opex and capex performance in isolation and potential capital solutions bias; and, provides flexibility to manage the existing resources while complying with the government “hard budget constraint”.

At SCR21, the WICS intends to examine more accessible ways to present tramline boundaries, which are currently expressed as financial ratios and the WICS considers are difficult to understand by all stakeholders.

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38 WICS states: “The increased financial flexibility was intended to help remove any bias towards capital expenditure and promote lower cost and more innovative solutions. Our financial performance monitoring is on the basis of cash flow and, as such, it avoids arbitrary splits between capital and operating expenditure. This should remove any potential (economic regulatory) barrier to Scottish Water identifying the lowest whole-life cost solutions.” WICS (April 2017), Innovation and Collaboration, Methodology for the Strategic Review of Charges 2021-2027, p.69
39 WICS (April 2017), Innovation and Collaboration, Methodology for the Strategic Review of Charges 2021-2027, p.69
40 WICS (April 2017), Innovation and Collaboration, Methodology for the Strategic Review of Charges 2021-2027, p.70
1.2. Other Approaches Considered

1.2.1. Strategic Review of Charges 2006-2010

For SRC06, the WICS set revenues based on an allowed return on the asset base, where the return reflected SW’s lower financing costs as opposed to a market based cost of capital. The cost of debt was based on SW’s embedded debt costs and on an estimate of future borrowing costs. The cost of equity was, in absence of private equity, relabeled as a "cost of customer retained earnings", and the pre-tax cost of equity was set equal to the post-tax cost of debt, that is, below a market based cost of equity.

At SRC06 the WICS also considered other approaches to calculate the allowed return, including:

1. A market based cost of capital, e.g. as provided for by Ofwat. The WICS disregarded this approach noting the required return for the private companies regulated by Ofwat may be different to the cost of funding faced by SW, which is provided by the Scottish Executive; and, SW does not compete for private funding unlike companies regulated by Ofwat;

2. Discount rate of HM Treasury’s “Green Book”, or rate of social time preference (required return to foregone present consumption for future consumption), of 3.5 per cent, which although sufficient to fund SW’s efficient operations, was higher than SW’s observed cost of new debt and could exceed SW needs.

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41 WICS (30 November 2005), The Strategic Review of Charges 2006-10: The final determination, p.270.
2. Network Rail

2.1. Periodic Review 2013: Adjusted WACC

The current approach for setting Network Rail (NR) allowed return is an adjusted weighted average cost of capital (WACC). The regulatory body, the Office of Rail and Road (ORR), decided on the adjusted WACC approach for estimating the allowed return in the Periodic Review 2013 (PR13) for the regulatory Control Period 5 (CP5), which set allowed charges for the period 2014 to 2019.\(^{43}\)

2.1.1. Method

The adjusted WACC approach is an adjusted market based cost of capital. The adjustment is designed to reflect the fact that the NR is a company limited by guarantee, with members in place of shareholders, that benefits from lower financing costs due to the financial indemnity mechanism on its debt (i.e. a government guarantee).\(^{44}\)

For CP5, the ORR claimed the adjusted WACC methodology would allow NR to access capital debt markets despite the economic uncertainty,\(^{45}\) the pressure on the government finances from the difficult economic climate, and the planned, or in progress, industry reforms (e.g. "devolution, alliencing, concessions and REBS").\(^ {46}\) The approach seeks to ensure that NR’s revenue requirement includes only its actual costs of financing, and that any additional expenditure during the regulatory period unforeseen by the ORR during the determination has to be financed with additional borrowings. To estimate the adjusted WACC approach, the ORR undertakes the following steps (see Figure 2.1):\(^ {47}\)

1. Estimate the NR full cost of capital to calculate the revenue requirement;
2. Identify the efficient financing costs, i.e. the cash cost of debt interest and, if appropriate, including an in-year buffer;
3. Subtract the equity surplus from the NR’s revenue requirement, i.e. the portion of the revenue requirement not used to finance debt costs.\(^ {48}\) ORR then makes an additional

\(^{43}\) ORR (October 2013), Periodic Review 2013: Final determination of Network Rail’s outputs and funding for 2014-19, p.491.
\(^{44}\) ORR (October 2013), Periodic Review 2013: Final determination of Network Rail’s outputs and funding for 2014-19, p.64.
\(^{45}\) Although the adjusted WACC approach can be changed in following periods to consider unsupported debt.
\(^{46}\) ORR (October 2013), Periodic Review 2013: Final determination of Network Rail’s outputs and funding for 2014-19, p.446.
\(^{47}\) ORR (October 2013), Periodic Review 2013: Final determination of Network Rail’s outputs and funding for 2014-19, p.447.
\(^{48}\) Equity surplus is the difference between NR efficient financing and the notional cost of capital. If the NR is allowed the full cost of capital as return, then it will generate an equity surplus.
allowance for amortisation, equal to its forecast of renewals expenditure, to address financial sustainability problems.

2.1.2.  The ORRs reasons for adopting adjusted WACC approach

According to the ORR, the advantage of the adjusted WACC approach is that it recognises NR is not financed with equity and hence does not need an additional allowance corresponding to the required return on equity risk. According to the ORR, this approach also provides NR stronger incentives to operate more efficiently due to the lower allowed revenue.

However, the adjusted WACC does not provide for any “equity surplus”, and therefore limits NR ability to manage cash-flow volatility without resorting to additional borrowings.49

In CP5, some train operating companies (TOCs) welcomed the lower cost of capital.50 However, if the adjusted WACC is to be continued into CP6, the ORR recognised it must reconsider including additional amortisation allowances in the revenue requirement to protect NR long term financial sustainability.51

Figure 2.1: The ORR’s Adjusted WACC Approach

| Determine WACC percentage Network Rail would incur if financed by a mix of private sector debt and equity50 | 100 |
| Multiply WACC percentage by RAB to get £m component of revenue requirement, say: |  |
| Determine cash cost of debt interest, say: | 60 |
| Deduct ‘equity surplus’31 over cash cost of debt interest | (40) |
| Revenue reserve | 0 |

Source: ORR (January 2017), Consultation on the financial framework for PR18, p.30.

2.2.  Other Approaches Considered

2.2.1.  Periodic Review 2018, Control Period 6

In the Price Review 2018 (PR18), Control Period 6 (CP6), the ORR is considering whether to modify the currently in place adjusted WACC approach. The four modifications include: a full WACC/rebate approach, an adjusted WACC with revenue reserve approach, a

49 ORR (January 2017), Consultation on the financial framework for PR18, p.29
50 ORR (October 2013), Periodic Review 2013: Final determination of Network Rail’s outputs and funding for 2014-19, p.489.
51 ORR (January 2017), Consultation on the financial framework for PR18, p.29
WACC/ring-fenced fund approach (previously used in CP4), and the adjusted WACC approach, currently in use. We describe the first three options as follows:\(^{52}\)

- **The full WACC/rebate approach**: The starting point is to estimate the revenue requirement through the RCV and the full notional cost of capital (or in other words, RAB*WACC). If NR’s expenditure falls below the revenue requirement, the surplus can then be used as a rebate to the Department of Transportation or Transport Scotland, which the ORR expects will happen regularly. However, the excess cash can also be used to pay debt or act as a buffer to manage cost shocks. This approach is closer to the regulatory framework of the private sector and hence is consistent with NR aim to behave similarly to private companies.

Figure 2.2: The ORR’s Full WACC/Rebate Approach

\[\text{Determine WACC percentage Network Rail would incur if financed by a mix of private sector debt and equity} \]
\[\text{Multiply WACC percentage by RAB to get £m component of revenue requirement, say:} \quad 100\]
\[\text{Determine cash cost of debt interest, say:} \quad 60\]
\[\text{Potential rebate to DfT/Transport Scotland (or to absorb cost shocks, or pay down debt) } \quad 40\]

Source: ORR (January 2017), Consultation on the financial framework for PR18, p.32.

- **The adjusted WACC with revenue reserve approach**: The adjusted WACC with revenue reserve approach, is similar to the existing CP5 adjusted revenue approach,\(^ {53}\) but instead of netting the full excess surplus from the revenue requirement, it nets only a proportion of this surplus. The remaining of the surplus is kept as a revenue reserve to absorb costs or pay down debt.

\[^{52}\text{ORR (January 2017), Consultation on the financial framework for PR18, p.29-33}\

\[^{53}\text{The adjusted WACC approach mentioned in Section 2.1.1, estimates the revenue requirement by multiplying the notional WACC and the RCV, and then nets the excess surplus, i.e. the value of the revenue requirement that is not necessary to cover the financing costs, from the required revenue.}\]
Figure 2.3: The ORR’s Adjusted WACC with Reserve Revenue Approach

| Determine WACC percentage Network Rail would incur if financed by a mix of private sector debt and equity |
| Multiply WACC percentage by RAB to get £m component of revenue requirement, say: | 100 |
| Determine cash cost of debt interest, say: | 60 |
| Deduct ‘excess surplus’ over cash cost of debt interest, say: | 20 |
| Revenue reserve available to absorb cost shocks, or pay down debt, say: | 20 |

Source: ORR (January 2017), Consultation on the financial framework for PR18, p.33.

- **Full WACC/ ring-fencing approach**: In the Periodic Review 2008 (PR08), Control Period 4 (CP4), ORR changed the allowed return approach from the WACC to a full WACC/ring-fenced fund approach. For the estimation of the allowed return full WACC/ring-fenced fund approach, the ORR first estimated NR’s revenue requirement (RCV times the full WACC), and then divided the allowed return element into three pots: 54
  - NR’s financing costs including the financial indemnity mechanism fee payable to the Department of Transportation;
  - Additional cash buffer to face volatility in cash flows, with discretion over the use of the buffer in case of surpluses; and
  - Ring-fence investment fund, implemented to fund high level output specification. If profits were below expected, the NR could decide to defer capex instead of financing the business.

54 ORR (October 2008), Periodic review 2008, Determination of Network Rail’s outputs and funding for 2009-14, p.227-235.
In the absence of unsupported debt and with a low debt cost because of the government guarantee, the ORR found that the full WACC/ring-fenced approach better reflected NR’s risk adjusted cost of capital. This approach aimed to strengthen NR’s financial incentives, balance maintenance and renewals, and implement a level playing field for enhancements delivery.

2.2.2. Stakeholders’ views on the modifications

Currently, the ORR is consulting on the most appropriate allowed return approach. In the responses to the first consultation on the preferred allowed return approach, stakeholders highlighted that:

- The full WACC/ring-fenced approach could reduce NR’s borrowing requirements, provide certainty for delivering certain outputs, and give NR a “Network Grant” to pay for enhancements instead of having to use loans;
- NR could manage enhancement project costs with sufficient borrowing headroom;
- To engage private investors in the industry, NR should be allowed enough profit to absorb risk and have a “healthy balance sheet”;

The second consultation proposes that at PR18, ORR will use a notional vanilla WACC to calculate the payments by third parties “who have promoted enhancements financed by the

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55 ORR (October 2008), Periodic review 2008, Determination of Network Rail’s outputs and funding for 2009-14, p.227-235.
56 ORR (March 2018), Second consultation on the PR18 financial framework, p.61.
57 Go Ahead Group (13 April 2017), Response to ORR’s first consultation on the financial framework for the 2018 periodic review of Network Rail (PR18), Chapter 3.
58 NR (13 April 2017), Network Rail response to ORR’s detailed PR18 financial framework consultation questions, p.6.
governments through NR’, and to provide the benchmark discount rate for investment appraisal. However, the Regulator states that “the WACC value will not be used in our revenue requirement calculations.”

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59 ORR (March 2018), Second consultation on the PR18 financial framework, p.28-29.
3. Northern Ireland Water

3.1. Price Control 2015-2021: WACC

The current approach for setting Northern Ireland Water’s (NIW) allowed revenues is based on an allowed return using the WACC approach. The regulatory body, the Utility Regulator for Electricity, Gas and Water (UR), decided on the WACC approach for estimating the allowed return in the Price Control 2015 (PC15) for the period 2015 to 2021.

The Northern Ireland Department for Infrastructure, the shareholder, can require NIW to pay a dividend, and the UR allows for dividend payments in its determination. The explicit payment of a dividend potentially explains the UR’s use of a standard WACC methodology, as unlike NR for example, NIW’s allowed revenues need to provide for equity financing costs.

3.1.1. Method

The current PC15 WACC approach for setting NIW’s allowed revenues has also been employed at all previous price controls. The UR calculates the allowed return as follows:

- Cost of debt estimated based on the cost of embedded debt, UR forecasts of the nominal rate for new debt, and the retail price index (RPI) inflation adjustment.
- Cost of equity is based on market returns adjusted for the perceived risk exposure of NIW, and regulatory precedent.
- Gearing computed as debt to RCV ratio.

The final WACC decisions for PC15 and previous price controls are shown below in Table 3.1.

<table>
<thead>
<tr>
<th>Components of the allowed rate of return</th>
<th>PC10</th>
<th>PC13</th>
<th>PC15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Debt</td>
<td>2.88%</td>
<td>2.30%</td>
<td>1.41%</td>
</tr>
<tr>
<td>Cost of Equity</td>
<td>7.1%</td>
<td>6.28%</td>
<td>5.65%</td>
</tr>
</tbody>
</table>

Table 3.1: UR Water decision on real vanilla WACC and its components (%)


62 To estimate the asset beta, UR examined the range of existing betas for listed companies with market data available and non-listed companies based on other regulator’s determinations. UR then weighted these betas considering NIW’s low to moderate risk exposure, sizeable regulatory asset base-to-revenues ratio that grants resilience towards shocks, and cash-flows volatility due to the price cap approach, and concluded on asset beta at the upper end of the conventional utilities range.
In determining the allowed return at PC15, the UR considered the risks associated with NIW volatile revenue stream due to the absence of domestic charging; the risk of the business that the government transfers to taxpayers; the profit of NIW shareholder (the government); the lack of performance scrutiny from external providers; the less stringent credit rating requirement; and the additional risk of cash-flows volatility from a price cap approach.  

3.1.2. Advantages and disadvantages

The advantage of UR’s WACC approach is that it mimics the approach used by regulators of private sector companies, but modified to account for the risk exposure of a public company. The UR specifically checks for the consistency between the cost of capital and the assumed dividends, and therefore ensures that allowances align with costs.

3.2. Other Approaches Considered

PC10 was UR’s first Price Control determination for NIW. In PC10, UR considered the same alternatives to the hybrid approach as WICS in SRC06.

- Ofwat’s allowed cost of capital for England and Wales, which was not aligned with the government priorities of lower tariffs; the budgetary constraint; and the market expected returns for a public-sector company. According to the UR, granting NIW the allowed return for private companies regulated by Ofwat would be too generous and could diminish NIW’s incentives to efficiency;  
- Long-term average real borrowing rates, which the UR does not discuss further; and

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64 UR (February 2010), Water and Sewerage Service Price Control 2010-13, Final Determination Main Report, p.149 and 152.  
67 UR (February 2010), Water and Sewerage Service Price Control 2010-13, Final Determination Main Report, p.150-151.
Discount rate of HM Treasury’s Green Book\textsuperscript{68} that provided an estimate of the society’s social time preference, i.e. how much higher value the present consumption has over future consumption. Unlike WICS, UR felt the 3.5 per cent return was too low for NIW.

\textsuperscript{68} As referred by UR in PC10 Final determination (February 2010), p.151, HM Treasury’s Green Book is a “guide to commit funds to the achievement of objectives and evaluate the past and present activities.”