Irish Water
Second Revenue Control
2017-2018

Decision Paper

Reference: CER/16/342  Date Published: 12/12/2016  Closing Date: N/A

Regulating Water, Energy and Energy Safety in the Public Interest

The Exchange, Belgard Square North, Tallaght, Dublin 24, Ireland
+353 1 4000 800  |  info@cer.ie  |  www.cer.ie
Executive Summary

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

This is a period of major change in the water services sector, a time when investment is needed to modernise an aging water system to meet compliance standards. In regulating Irish Water, the CER seeks to ensure that Irish Water is run as efficiently as possible while providing appropriate water and waste water services to the public. 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 CER expects Irish Water to do this while in parallel improving the service which it provides. The CER is responsible for setting the level of revenue which Irish Water can recover in order to cover its efficiently incurred costs. The CER does this by reviewing Irish Water’s submission and thereafter setting appropriate revenue allowances for operating costs, capital costs and other items.

This decision paper sets out the CER’s decisions regarding Irish Water’s revenue for the next revenue control, from 1 January 2017 to 31 December 2018. The paper also includes a review of the utility’s costs and performance over the first revenue control period, October 2014 to December 2016.

Context

Irish Water faces significant challenges with respect to improving the quality and security of the public water and wastewater services in Ireland and providing an appropriate level of service to its customers.

From an environmental perspective, fundamental issues remain to be resolved following the transfer of water services assets from the local authorities to Irish Water in 2014. On the wastewater side, for example, raw sewage is being discharged without any meaningful treatment in 44 different areas in Ireland. For water, there are also compliance issues, for example, relating to boil water notices, E. coli and lead.

Issues such as these are compounded by poor quality data on the location and performance of assets that were transferred to Irish Water. This increases the difficulty associated with operating and improving the water services system.
From an organisational perspective, a unified approach to operating water and wastewater services under one utility will lead to greater efficiencies and improved services to customers over time. However, this consolidation presents challenges for Irish Water in the early years. This work was previously the responsibility of 34 (and then 31) local authorities and a significant amount of work is still completed by the local authorities on behalf of Irish Water through Service Level Agreements (SLAs). This operating model may impede Irish Water’s ability to deliver cost reductions in the short term as it will take time to implement a unified approach and common systems and processes.

In the wider context, Irish Water has faced challenges with respect to a lack of public support to its operating model and associated issues from a financing perspective (in relation to domestic water charges). Irish Water is required to improve services and drive efficiencies within this challenging environment.

**Regulatory Process**

In May 2015, the CER published a discussion paper on issues associated with the next revenue control and invited comments on its proposals to put in place a revenue control for Irish Water for the 2017-2018 period. Comments received in response to that discussion paper were broadly supportive of the CER’s proposals in relation to the duration of the revenue control (two years) and the proposed methodology framework to be used (RPI-X).

In July 2015 the CER began a lengthy period of engagement with Irish Water. This involved detailed analysis of submissions by Irish Water, meetings with Irish Water to clarify those submissions and the benchmarking of Irish Water’s costs and performance against international best practice. The CER has also audited certain aspects of Irish Water’s costs and the process through which it develops those costs. The CER has supplemented its internal expertise on such reviews with specialist advice where needed.

The process followed by the CER in completing a revenue review for Irish Water is similar to that undertaken by the CER in electricity (since 1999) and gas (since 2002) and by other utility regulators worldwide.

Having fully considered the request from Irish Water, the CER published a consultation paper on Irish Water’s proposed revenue allowance in September 2016. Following a six-week consultation period, the CER received six responses. The CER sought views on a wide range of issues relating to Irish Water’s revenue. Comments were sought on Irish Water’s proposed operating and capital expenditure, the calculation of Irish Water’s revenue requirement,
performance incentives and proposals to monitor the utility. Having considered responses received and issues raised in the consultation paper, the CER has now reached a decision on Irish Water’s revenue allowance for 2017 and 2018 and associated matters.

**Allowed Revenue**

The CER has decided to allow €1,843m for the 2017-2018 period. This represents a reduction of €165m (or 8.2%) relative to Irish Water’s request. This includes allowances for operating costs, depreciation and return on capital costs, and an adjustment for revenue relating to the two and a quarter years of the first revenue control period, October 2014 to December 2016.

<table>
<thead>
<tr>
<th>Revenue Allowance</th>
<th>IW request</th>
<th>CER decision</th>
<th>Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenue for 2017 to 2018, €m</td>
<td>2,008</td>
<td>1,843</td>
<td>165</td>
</tr>
</tbody>
</table>

For the previous two and a quarter years, October 2014-2016, revenue was recovered through a combination of domestic charges, non-domestic charges and Government subvention. For the coming revenue control, it is noted that domestic water and wastewater charges are suspended until at least 31 March 2017. The CER is working on the basis that the revenue for 2017 and 2018 will be recovered through a mix of funding sources. In this context, the CER acknowledges the work recently completed by the Expert Commission following the publication of its report on domestic public water services. The enduring funding model for Irish Water will be determined by the Oireachtas and is expected to be decided in the near future.

**Operating Costs**

The CER 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. To minimise any negative impact on service to customers, the CER 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. Therefore, the CER has decided to allow €1,395m for the two-year period. This includes a one-off expenditure of €20m to cover certain activities during the 2017-2018 period.

This represents a reduction of €128m (or 8.4%) relative to Irish Water’s request and means that Irish Water is now required by the CER to deliver efficiencies of circa 20% within its base controllable operating expenditure over the period from the start of 2015 to the end of 2018.
Operating cost allowance

<table>
<thead>
<tr>
<th>IW request</th>
<th>CER decision</th>
<th>Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>€1,523</td>
<td>€1,395</td>
<td>€128</td>
</tr>
</tbody>
</table>

Capital Costs

Irish Water has outlined a proposed capital expenditure of €1,288m for the 2017-2018 period. This is comprised of expenditure of €1,176m associated with the first two years of Irish Water’s five year Capital Investment Plan (CIP) and non-network capital investment of €112m. The CER considers that Irish Water has adopted an appropriate approach to the development of its CIP.

The approach is risk-based, seeks to objectively optimise for defined constraints, such as cost, and incorporates customers’ preferences as surveyed. In August Irish Water updated the CIP submitted to the CER in April. The CER has reviewed the updated CIP and understands the drivers for the updates and the process undertaken by Irish Water to update the CIP. This decision is based on the updated CIP and associated targets as submitted by Irish Water.

However, the CER considers that Irish Water should be challenged to deliver the outputs and outcomes of its proposed investment plan more efficiently in the interests of customers. This is discussed further in this decision paper.

The CER has decided on an efficiency challenge of €132m in relation to Irish Water’s capital costs for the period. A scope cut of €4m has also been applied. The CER will monitor Irish Water’s delivery of outcomes and outputs for customers for the allowed capital expenditure.

<table>
<thead>
<tr>
<th>IW Submission (€m)</th>
<th>Scope Reduction (€m)</th>
<th>Efficiency Challenge (€m)</th>
<th>CER Allowance (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects Total</td>
<td>793</td>
<td>86</td>
<td>707</td>
</tr>
<tr>
<td>Capital Maintenance</td>
<td>123</td>
<td>0</td>
<td>123</td>
</tr>
<tr>
<td>National Programmes</td>
<td>260</td>
<td>43</td>
<td>217</td>
</tr>
<tr>
<td>Non-Network Capital</td>
<td>112</td>
<td>3</td>
<td>104</td>
</tr>
<tr>
<td><strong>Total Capital Expenditure</strong></td>
<td><strong>1,288</strong></td>
<td><strong>4</strong></td>
<td><strong>132</strong></td>
</tr>
</tbody>
</table>

Other

This paper also outlines the CER’s decision regarding the Weighted Average Cost of Capital (WACC) for Irish Water for the 2017-2018 period. This is intended to cover the financing cost associated with capital expenditure. The WACC is used to derive a fair return for Irish Water on the efficiently incurred capital investments in the Regulated Asset Base (RAB).

The CER carried out a review of the performance of Irish Water in the previous revenue control period, October 2014-2016, in order to assess the efficiency of spend and review outputs delivered for revenues received. Irish Water has broadly met efficiency targets while delivering
key outputs. The CER has reduced Irish Water’s request for an adjustment relating to the 2014-2016 period by approximately €21m.

The CER has decided, in line with the regulatory framework employed by the CER in the regulation of electricity and gas utilities, to put in place a number of incentives and penalties for the 2017-2018 period. Incentives are used in regulation in order to promote a greater level of performance by the utility.

This paper also outlines the high-level approach the CER will follow to put in place an appropriate system for the monitoring of Irish Water’s capital expenditure and delivery of associated outputs and outcomes.
Public/ Customer Impact Statement

Irish Water is a regulated utility, which means that the CER sets the level of revenue it can earn. The process to review the appropriate amount, conducted by the CER as the independent economic regulator, is called IRC2. The current revenue control will end on 31 December 2016. From 1 January 2017 a new revenue control period (IRC2) for Irish Water will take effect. The IRC2 revenue control project plays a vital role in the development of the public water and wastewater sector for the coming revenue period. The main objective of this revenue control is to assess and approve an appropriate, fair and sufficient level of revenue which Irish Water can recover in order to finance its regulated activities and duties as the national water and wastewater service provider.

For the duration of the IRC2 period, 2017-2018, Irish Water has been allowed to recover revenue from customers and through Government subvention to finance its regulated activities in the provision of the public water and wastewater services to customers. At present the billing of domestic customers has been suspended until at least 31 March 2017. However, as Ireland’s national water utility, Irish Water still has the responsibility for the development and delivery of water and wastewater services to homes and businesses. Whether domestic charges are in place or suspended, any property that is connected to and supplied by the public water main for water supply and connected to and uses the public sewer for wastewater removal is a customer of Irish Water and should have a certain level of service. The CER intends to monitor Irish Water’s performance across a wide range of metrics. This is to ensure that the utility targets service improvements, efficiency and effectiveness of water and wastewater service delivery to customers for revenues received. In revenue controls conducted by the CER for the electricity and gas networks efficiency benefits are delivered to customers through reduced customer tariffs. For the IRC2 period, domestic and non-domestic customers of Irish Water will realise benefits through:

- The delivery of continuous improvements in how Irish Water handles customer queries and complaints;
- The supply of clean, safe and reliable drinking water to customers;
- Improved compliance with the highest environmental standards as set out by the Environmental Protection Agency (EPA);
- A more robust security of supply of water to homes and businesses;
- Effective management of the wastewater system;
• Scope for social and economic growth within communities in relation to water and wastewater services; and
• Irish Water’s investment in the future of the water and wastewater networks.
# TABLE OF CONTENTS

**EXECUTIVE SUMMARY** .............................................................................................................. 1  
**PUBLIC/ CUSTOMER IMPACT STATEMENT** ....................................................................................... 6  
**GLOSSARY OF TERMS AND ABBREVIATIONS** ........................................................................... 10  

1. **INTRODUCTION** ......................................................................................................................... 12  
   1.1 **THE COMMISSION FOR ENERGY REGULATION** ................................................................. 12  
   1.2 **PURPOSE OF THIS PAPER** ................................................................................................... 12  
   1.3 **LEGISLATIVE BASIS** ............................................................................................................. 13  
   1.4 **CONTEXT OF THIS REVENUE CONTROL** .......................................................................... 13  
   1.5 **OBJECTIVES FOR THIS REVENUE CONTROL** ................................................................. 17  
   1.6 **STRUCTURE OF THIS PAPER** ............................................................................................... 18  

2. **THE REGULATORY REVIEW PROCESS** ...................................................................................... 20  
   2.1 **INTRODUCTION** ................................................................................................................. 20  
   2.2 **REGULATORY FRAMEWORK** ............................................................................................ 20  
   2.3 **PROCESS TO DATE** ............................................................................................................. 24  
   2.4 **CER DISCUSSION PAPER** .................................................................................................. 26  

3. **OVERVIEW OF IRISH WATER’S REQUEST** ............................................................................... 27  
   3.1 **INTRODUCTION** .................................................................................................................. 27  
   3.2 **IRISH WATER OPEX PROPOSALS** .................................................................................... 27  
   3.3 **IRISH WATER’S CAPEX PROPOSALS** .............................................................................. 29  
   3.4 **SUMMARY** .......................................................................................................................... 30  

4. **REVIEW OF 2014-2016 COSTS** ............................................................................................... 32  
   4.1 **INTRODUCTION** .................................................................................................................. 32  
   4.2 **REVIEW OF OPERATIONAL EXPENDITURE, 2014 - 2016** .............................................. 32  
   4.3 **IRISH WATER’S OPENING REGULATED ASSET BASE** ................................................ 42  
   4.4 **ADDITION OF SPECIFIC ITEMS TO IRISH WATER’S RAB** ......................................... 44  
   4.5 **REVIEW OF CAPITAL EXPENDITURE, 2014 -2016** ......................................................... 46  
   4.6 **SUMMARY OF REVIEW OF IRC1 EXPENDITURE** ............................................................ 54  

5. **REVIEW OF 2017-2018 COSTS** ............................................................................................... 56
5.1 INTRODUCTION .......................................................................................................................... 56
5.2 REVIEW OF OPERATIONAL EXPENDITURE, 2017 - 2018 ......................................................... 56
5.3 OPERATING EXPENDITURE BENCHMARKING 2017–2018 ........................................................... 70
5.4 REVIEW OF CAPITAL EXPENDITURE, 2017 – 2018 ................................................................. 79
5.5 SUMMARY OF REVENUE 2017-2018 ......................................................................................... 114

6. INCENTIVES AND MONITORING ................................................................................................. 117
   6.1 INTRODUCTION .......................................................................................................................... 117
   6.2 ROLLING RETENTION OF ADDITIONAL OPEX EFFICIENCIES ............................................. 118
   6.3 NON-DOMESTIC BILLING INCENTIVES .................................................................................... 119
   6.4 MONITORING OF IRISH WATER PERFORMANCE ASSESSMENT ........................................... 122
   6.5 MONITORING OF CUSTOMER HANDBOOK ............................................................................. 123
   6.6 IRC2 CAPITAL EXPENDITURE MONITORING ....................................................................... 123
   6.7 SUMMARY OF INCENTIVES AND MONITORING ................................................................... 125

7. CALCULATION OF REVENUE REQUIREMENT ............................................................................. 127
   7.1 OVERVIEW ................................................................................................................................ 127
   7.2 IRISH WATER REGULATED ASSET BASE .............................................................................. 127
   7.3 IRC2 COST OF CAPITAL ............................................................................................................. 134
   7.4 ADJUSTMENTS RELATED TO 2014-2016 ............................................................................. 145
   7.5 ALLOWED REVENUE ................................................................................................................. 152
   7.6 SUMMARY OF REVENUE REQUIREMENT ................................................................................. 157

8. CONCLUSION ................................................................................................................................. 159
   8.1 OVERVIEW ................................................................................................................................ 159

APPENDIX A: IRISH WATER’S CIP TARGETS ................................................................................ 160
# Glossary of Terms and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation or Term</th>
<th>Definition or Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWN</td>
<td>Boil Water Notice</td>
</tr>
<tr>
<td>Capex</td>
<td>Capital Expenditure</td>
</tr>
<tr>
<td>CBA</td>
<td>Cost Benefit Analysis</td>
</tr>
<tr>
<td>CER</td>
<td>Commission for Energy Regulation</td>
</tr>
<tr>
<td>CIP</td>
<td>Capital Investment Plan</td>
</tr>
<tr>
<td>ComReg</td>
<td>Commission for Communications Regulation</td>
</tr>
<tr>
<td>DBO</td>
<td>Design Build Operate</td>
</tr>
<tr>
<td>DHPCLG</td>
<td>Department of Housing, Planning, Community and Local Government</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>GNI</td>
<td>Gas Networks Ireland</td>
</tr>
<tr>
<td>GWS</td>
<td>Group Water Schemes</td>
</tr>
<tr>
<td>HICP</td>
<td>Harmonised Index of Consumer Prices</td>
</tr>
<tr>
<td>HSQE</td>
<td>Health &amp; Safety, Quality and the Environment</td>
</tr>
<tr>
<td>IRC1</td>
<td>Interim Revenue Control 1 (Q4 2014-2016)</td>
</tr>
<tr>
<td>IRC2</td>
<td>Interim Revenue Control 2 (2017-2018)</td>
</tr>
<tr>
<td>K-factor</td>
<td>A revenue adjustment relating to a previous period.</td>
</tr>
<tr>
<td>NIW</td>
<td>Northern Ireland Water</td>
</tr>
<tr>
<td>NNC</td>
<td>Non-network Capital investment</td>
</tr>
<tr>
<td>Nominal prices</td>
<td>Nominal prices are not adjusted for inflation, and so reflect the value in the year the cost item relates to.</td>
</tr>
<tr>
<td>OFGEM</td>
<td>Economic regulator of the electricity and gas sectors in England and Wales</td>
</tr>
<tr>
<td>OFWAT</td>
<td>Economic regulator of the water sector in England and Wales</td>
</tr>
<tr>
<td>Opex</td>
<td>Operational Expenditure</td>
</tr>
<tr>
<td>PBT</td>
<td>Plan Balancing Tool</td>
</tr>
<tr>
<td>PMO</td>
<td>Project Management Office</td>
</tr>
<tr>
<td>Present value</td>
<td>The value at the present point in time of a sum of money, in contrast to some future value it will have when it has been invested at compound interest and consideration has been given to inflation.</td>
</tr>
<tr>
<td>RAB</td>
<td>Regulated Asset Base</td>
</tr>
<tr>
<td>RAL</td>
<td>Remedial Action List</td>
</tr>
</tbody>
</table>
### Real prices

Real prices are prices that have been adjusted for inflation. This removes the effect of inflation from year to year allowing monies to be compared in same-year terms. For example, for this paper when prices are quoted in ‘2015 monies’, this means that inflation has been removed from figures referring to later years.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCADA</td>
<td>Supervisory Control and Data Acquisition</td>
</tr>
<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
</tr>
<tr>
<td>TOM</td>
<td>Target Operating Model</td>
</tr>
<tr>
<td>UWWTD</td>
<td>Urban Waste Water Treatment Directive</td>
</tr>
<tr>
<td>WACC</td>
<td>Weighted Average Cost of Capital</td>
</tr>
<tr>
<td>WCP</td>
<td>Water Charges Plan</td>
</tr>
<tr>
<td>WFD</td>
<td>Water Framework Directive</td>
</tr>
<tr>
<td>WICS</td>
<td>Water Industry Commission for Scotland</td>
</tr>
<tr>
<td>WIOF</td>
<td>Water Industry Operating Framework</td>
</tr>
<tr>
<td>WSIP</td>
<td>Water Services Investment Plan</td>
</tr>
<tr>
<td>WSSP</td>
<td>Water Services Strategic Plan</td>
</tr>
<tr>
<td>WTP</td>
<td>Water Treatment Plant</td>
</tr>
<tr>
<td>WWTP</td>
<td>Wastewater Treatment Plant</td>
</tr>
</tbody>
</table>
1. Introduction

1.1 The Commission for Energy Regulation

The Commission for Energy Regulation (CER) is Ireland’s independent energy and water services regulator. The CER was established in 1999 and has a wide range of economic, customer protection and safety responsibilities in energy. The CER is the regulator of Irish Water as the national utility for the provision of public water and wastewater services.

The CER’s primary economic responsibilities in energy cover electricity generation, electricity and gas networks, and electricity and gas supply activities. The overall aim of the CER’s economic role is to protect the interests of energy customers. The CER has an important related function in customer protection by resolving complaints that customers have with energy companies and Irish Water.

The CER’s core focus in safety is to protect lives and property across a range of areas in the energy sector. This includes safety regulation of electrical contractors, gas installers and gas pipelines. In addition the CER is the safety regulator of upstream petroleum safety extraction and exploration activities, including on-shore and off-shore gas and oil.

In 2014 the CER was appointed as the economic regulator of Irish Water in the provision of water and wastewater services to its customers. The CER’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 economic and efficient manner.

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

1.2 Purpose of this Paper

This decision paper sets out the CER’s decision on the revenue that Irish Water is allowed to recover over the period 2017-2018. This revenue allows Irish Water to finance its activities as the public water and wastewater services provider in Ireland.

This decision sets a total efficient level of revenue for recovery by Irish Water. During the previous two and a quarter years (Q4 2014-2016), revenue was recovered by Irish Water through a combination of domestic charges, non-domestic charges and Government subvention.

For the coming revenue control (2017-2018), it is noted that domestic water and wastewater charges are suspended until at least 31 March 2017. The CER is working on the basis that the revenue for 2017 and 2018 will be recovered through a mix of funding sources. In this context,
the CER acknowledges the work of the Expert Commission and its recently published recommendations for the sustainable long-term funding model for the delivery of domestic water and wastewater services by Irish Water. The enduring funding model for Irish Water will be determined by the Oireachtas and is expected to be decided in the near future.

### 1.3 Legislative Basis

Under Sections 39 to 43 of the Water Services (No. 2) Act 2013 (“the Act”), the CER is tasked with the economic regulation of Irish Water. Those sections of the Act set out the functions and powers of the CER as the economic regulator of Irish Water. The CER’s role is to protect the interests of water customers, ensure public water services are delivered in a safe, secure and sustainable manner and that Irish Water operates in an economic and efficient manner.

Section 22 of the Act provides information on the approval of a Water Charges Plan (WCP) for the delivery of water and wastewater services, following submission of the WCP from Irish Water to the CER. That section outlines that, in doing so, the CER would have regard to the costs likely to be incurred by Irish Water in the performance of its functions. This decision paper is part of the process to set an appropriate level of costs, which feeds through into the approved Water Charges Plan (WCP) for the 2017-2018 period. An updated WCP for 2017-2018 is published alongside this decision paper (CER/16/347).

Subsequent to the Water Services (No. 2) Act 2013, further legislation firstly capped the level of domestic water and wastewater charges until 31 December 2018 and then suspended domestic charges until 31 March 2017. This suspension does not impact on the requirement to have an approved WCP in place for the 1 January 2017 to 31 December 2018 period and the need for the CER to set an efficient level of costs relating to that period.

### 1.4 Context of this Revenue Control

Following a submission from Irish Water and a review of same by the CER, this decision paper sets out the revenue that Irish Water is allowed to recover over the 2017-2018 period. As stated, this is the second such revenue control to be carried out by the CER for Irish Water.

#### 1.4.1 Scale of the challenge

Irish Water has faced significant challenges since it commenced operations in 2013 having taken over responsibility for water and wastewater services from 34 local authorities. Some of the challenges which influence the context of this revenue control are outlined below.
From an environmental perspective, many of Irish Water’s assets are no longer fit for purpose and are under severe stress. There is a recognised legacy of underinvestment and deficiencies in Ireland’s water and wastewater assets over many years and this has impacted negatively on the ability of Irish Water to deliver adequate service and meet environmental requirements in the short term.

Reports by the Environmental Protection Agency (the EPA), the environmental regulator, relating to 2014 highlight issues such as, for example, the following:

- 199 boil water notices and 15 water restriction notices were issued, affecting 205,516 people;¹
- E. coli was detected in at least one in 8 supplies, down two on 2013; and
- The trihalomethane limit was exceeded in 59 supplies.

These issues are compounded by poor quality data on the location and specific performance of water assets. With some of the infrastructure dating back to the 19th Century, data on the exact length of the network and condition of some assets is not known. Irish Water continues to work to identify and collect data on all of its existing assets.

Irish Water also faces challenges from an organisational perspective. As stated, Irish Water assumed control of water and wastewater services that were previously the responsibility of 34 (and then 31) local authorities. Now Irish Water has full responsibility for this work, with a significant element being carried out by local authorities on behalf of Irish Water through a Service Level Agreement (SLA).

Management of these responsibilities within one utility will undoubtedly lead to greater efficiencies in the longer term and improved services to customers but in the early years it presents challenges for Irish Water. Transferring data from each authority and unifying the approach to delivery of services nationwide will take some time.

In the wider context, Irish Water has faced challenges with respect to a lack of public commitment to its operating model and associated issues from a financing perspective (in relation to domestic water charges). Irish Water was required to improve services and driving efficiencies within this challenging environment.

It is within this context that Irish Water is working to improve the provision of public water and wastewater services in Ireland for its customers.

¹ Of these, 158 were short-term, precautionary boil notices related to Storm Darwin. Further information available here.
1.4.2 First revenue control period (IRC1) – October 2014 to December 2016

In October 2014, the CER decided Irish Water’s revenue requirement for the period from October 2014 to the end of 2016. This was intended to support the substantial new investment required in this period while at the same time incentivising efficiency improvements in the provision of water and wastewater services by Irish Water.

The CER considers the IRC1 revenue control to have been satisfactory in providing the 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 adequate water and wastewater services for customers, but some achievements by Irish Water during the IRC1 period include:

- **Operating expenditure:** This is the day-to-day costs of running the Irish Water business, such as responding to service outages, etc. The CER set challenging efficiency targets for Irish Water to decrease their costs compared to their submitted costs, based on what was achieved in other jurisdictions in similar timeframes. Irish Water broadly met these targets while delivering key outputs.

- **Drinking water quality:** As of December 2015, the number of on boil water notices (BWNs) has been reduced from over 23,000 to circa 6,900 following the provision of new infrastructure. Irish Water has said that it expects this figure to drop to circa 4,000 by the end of 2016.

- **First Fix Leak Repair Scheme:** Irish Water has said that over 65 megalitres per day of drinking water is being saved through its water conservation and First Fix Leak Repair Scheme.

- **Headroom of water treatment plants:** The headroom of water treatment plants in the Greater Dublin Area has increased from a margin of approx. 1-2% to approximately 8-10% currently. This is critical for immediate needs but will need to increase to meet future requirements.

- **Water main replacement:** Over 700km of existing poor quality water mains has been replaced/rehabilitated. This is in addition to repair works on the customer side and backyard lead services.

- **Wastewater treatment plants:** Major upgrades to wastewater treatment plants throughout the country are underway or completed. These include upgrades to large population centres such as Galway, Leixlip, Swords, Clonakilty and Naas.

- **Asset maintenance:** A major programme of asset maintenance has commenced to repair known defects across the network, and targeted programmes of work that have
been initiated to reduce risks and optimise water treatment (disinfection, pH correction), as well as replacing over 700km of the worst performing water mains from a leakage viewpoint.

- **Plant upgrades**: Major water and wastewater treatment plant upgrades are in train at Ringsend, Vartry Reservoir and Cork Lower Harbour.
- **Compliance**: The number of agglomerations compliant with the Urban Wastewater Treatment Directive (UWWTD) has risen from 120 in 2013, to 136 in 2015.
- **Consumption monitoring**: Irish Water has provided customers with water usage and customer-side leakage information from the meter reading process. The continuous flow alarms on properties in the meter reading cycles have fed directly into for the First Fix Free programme. Irish Water has also launched an online tool to allow metered customers to monitor their consumption from quarter to quarter.

### 1.4.3 Second revenue control period (IRC2) – 2017 to 2018

The first Irish Water revenue control ends in December 2016. The next revenue control period, IRC2, covers the 2017-2018 period. Decisions in relation to this time period are contained in this paper.

Irish Water has made improvements over the IRC1 period as highlighted above in Section 1.4.2. The utility has also consolidated information on the condition of its assets and this has allowed it to develop a deeper understanding of the challenges that it faces from an environmental and organisational perspective.

Over the next two years, significant issues with water quality and security remain to be resolved and common procedures need to be rolled out. For example, while improvements have been made in IRC1 in relation to boil water notices there remains room for improvement in this area. Improvements in this area is of particular importance to customers and it is important that Irish Water works towards addressing this issue for all affected customers.

Similarly while Irish Water has carried out work in IRC1 on capital projects, there remains a significant body of work to be completed to ensure compliance with requirements. Underlying these issues is the fact that the systems currently in place do not in all cases allow adequate recording or monitoring of assets and compliance. Irish Water continues to become aware of new issues relating to assets that fall within its responsibility.

Irish Water proposed a significant capital investment programme of €1,288m to work towards addressing these issues. Irish Water sets out the targets it is committing to achieve in the periods to 2018 and to 2021 in the CIP published alongside this paper.
From a cost perspective, Irish Water has worked to reduce costs over the IRC1 period and as mentioned has broadly achieved the efficiency target put in place by the CER. However, Irish Water’s cost base (inclusive of the SLA costs) remains significantly higher than those of established mature utilities in other jurisdictions.

The CER is conscious that Irish Water cannot reduce its costs in the short term to a level that is comparable with established mature utilities elsewhere while providing an adequate level of service to customers. Setting unachievable efficiency targets for Irish Water could ultimately impact on customers through deteriorating service levels. Therefore, for the previous revenue control, the CER examined the efficiencies achieved in other jurisdictions following the introduction of regulation and set a similar challenge for Irish Water. The CER has taken a similar approach for IRC2. This means that Irish Water has been set challenging but achievable targets. Therefore, Irish Water will need to reduce its costs while delivering the benefits to customers that are outlined in its capital investment submission.

Irish Water submitted a CIP to the CER in April of this year as part of the IRC2 process. This was the basis of the CER’s consultation in September (CER/16/267). However, regulated utilities commonly reprioritise capital investment plans within allowed revenues to achieve objectives for the investment period. Irish Water submitted an update to the April CIP to the CER on 19 August 2016. Irish Water has advised that this update is necessary mainly to accommodate additional interventions in response to Government policies, notably those set out in the recently published Action Plan for Housing and Homelessness. The total value of the CIP has not been impacted by the updates made by Irish Water in August. The CER’s decision on the allowed revenues for the IRC2 period is based on the updated CIP. In 2017 the CER will establish a monitoring framework in relation to capital expenditure by Irish Water during IRC2. This process will afford appropriate flexibility to Irish Water to rebalance and reprioritise the CIP where necessary within the allowed revenues.

1.5 Objectives for this Revenue Control

The CER’s objectives for this revenue control are detailed below:

- To ensure that the work being carried out by Irish Water in IRC2 represents value for money and improved service to customers;
- To document the decision making process in a transparent manner with full and adequate consultation with interested parties;
- To maintain regulatory certainty;

---

2 Action Plan for Housing and Homelessness, July 2016 can be found [here](#).

---
To ensure that Irish Water is able to maintain and upgrade the water and wastewater network to an appropriate standard;

To ensure that the interests of final customers are protected, in the short and long term. This involves ensuring that costs are contained to the maximum extent possible, while at the same time delivering efficient investment in water and wastewater infrastructure and supporting services;

To ensure that Irish Water is able to complete the necessary level of capital investment to support the approved level of upgrading of water and wastewater systems. In doing so, the CER wishes to ensure that Irish Water’s investment plans provide value for money in terms of the benefits they add;

To ensure appropriate incentives are provided for Irish Water to improve its efficiency and reduce costs; and

To seek the views of Irish Water customers and other stakeholders, including the Public Water Forum, on the appropriate costs and revenues of Irish Water for 2017-2018.

1.6 Structure of this Paper

The structure of this decision paper is outlined in this section.

Section 1. details background information on the CER and the context for this review along with information on the objectives and structure of this paper. Also in this section are the objectives for this review period and key assumptions and the responses received to the consultation paper;

Section 2. outlines the process through which this review has been conducted to date;

Section 3. provides an overview of Irish Water’s revenue proposals for the IRC2 period alongside an overview of outturn IRC1 costs against allowed costs;

Section 4. outlines a review of and decision on Irish Water’s operational and capital expenditure for the October 2014 to December 2016 period and the RAB relating to the pre-Q4 2014 period;

Section 5. outlines a review of and decision on Irish Water’s operational and capital expenditure proposals for the 2017-2018 period;

Section 6. outlines measures for assessing the performance of Irish Water and outlines incentives decided by the CER;

Section 7. provides information on how the Irish Water Regulated Asset Base (RAB) has been derived for the 2017-2018 period and the cost of capital that is applied to Irish Water’s RAB over this period. This section also provides information on how the decisions outlined within the previous sections feed through into the revenue that will have to be collected each year by Irish Water; and
Section 8. provides a conclusion and outlines the next steps.

The CER has also published the following documents alongside this decision paper:

- A CER Response to Comments paper (CER/16/343) to address the responses to the CER’s consultation paper and provide the CER’s view on the matters which attracted comment.
- An information note summarising the decisions in this paper (CER/16/341).
- The CER revenue model used to calculate the revenue requirement for the 2017-2018 period (CER/16/344).
- Irish Water’s Water Charges Plan (CER/16/347) for 2017-2018.
- Irish Water’s Capital Investment Submission (CER/16/345).
- A report by Europe Economics on the appropriate cost of capital for Irish Water (CER/16/346).

In September 2016, the CER published the following documents alongside its consultation paper:

- The two responses received to the discussion paper published by the CER in May 2015; and
- Irish Water submission documents.

Reports provided by two advisors engaged by the CER to assist with this project were also published alongside that consultation paper. These are:

- Two reports by NERA on Irish Water’s operating and capital costs for both the IRC1 and the IRC2 periods, and a supporting document on benchmarking; and
- A report by Europe Economics on the appropriate cost of capital for Irish Water.

All responses to the consultation paper (CER/16/267) have been published on the CER’s website alongside this document and the CER Response to Comments paper (CER/16/343).

---

3 This discussion paper (CER/15/106) is available here.
4 Further information on the role of these advisors is provided in Section 2.3.1.
2. The Regulatory Review Process

2.1 Introduction

This section provides information on how the revenue control for Irish Water has been put in place by the CER. The regulatory regime adopted is similar to that used by the CER in regulating the electricity and gas sectors and is considered best practice by both the CER and international regulators. This section outlines:

- The framework and methodology adopted by the CER;
- Information on how the process has been carried out to date;
- A summary of the expertise used; and
- A summary of the discussion paper on the approach for the IRC2 2017-2018 revenue control. This was published by the CER in March 2015 and invited comments on the approach to be followed in completing this revenue control.

Each of the above are discussed in turn below.

2.2 Regulatory Framework

2.2.1 Introduction to regulatory framework and revenue caps

The CER has established an economic regulatory framework which is intended to ensure that:

- Only reasonable and appropriate costs for the provision of water and wastewater services by Irish Water would be recovered from customers;
- Irish Water, as the single water utility in Ireland, would have a strong incentive to improve service and reduce costs from the outset of regulation;
- All water services customers are provided with secure supplies of high-quality water, as well as excellent customer service;
- Irish Water would operate, and provide water services, in an environmentally-friendly and sustainable manner;
- Irish Water, operating efficiently, could raise finance from private sources for investment in the medium to longer term.

The economic framework takes into account the evolution of the sector and the need for interim measures.
The CER proposed to use a revenue-cap regulatory regime for 2017 to 2018 in its discussion paper “Discussion Paper on Irish Water’s Interim Revenue Control 2 (2017-2018)”, published by the CER in May 2015. The CER has now decided to continue to use this regulatory regime for the 2017 to 2018 period. A revenue-cap regime is where the regulator sets the maximum allowed revenue that the utility can recover for the duration of the revenue control. Revenue-cap regimes are widely used by other regulators internationally to drive down costs and improve outputs, as well as by the CER for regulating the energy and water sectors in Ireland.

Cost efficiency is one of the four key principles that informed the development of the economic regulatory framework that the CER is applying in the case of Irish Water. Stability, predictability and sustainability of the framework make up the other three key principles that guide the development and operation of the water services regulatory framework. The regulatory framework must drive Irish Water to constantly look, year-on-year, for economic efficiencies to the benefit of customers. Essentially Irish Water must provide more for less; it must constantly look to provide greater service and quality to its customers at a lower cost. The necessity for cost efficiencies must be balanced with the other principles underlying the economic regulatory framework, namely stability, predictability and sustainability. In setting efficiency targets in relation to Irish Water’s capital investments, the CER seeks to strike an appropriate balance between what is achievable by Irish Water in its efficiency drive and to continually challenge Irish Water in this regard.

### Building blocks

Under the revenue cap regulatory regime, the CER puts in place a revenue control to apply to the utility. The CER determines the appropriate level of revenue that is required to run the utility. There are a number of components required to estimate a level of revenue that will be sufficient to finance the utility while also imposing challenging but achievable targets for cost reduction over the period. The building blocks of the regime are as follows:

- The operating cost associated with operating the water and wastewater business;
- The capital costs of investment in infrastructure; and
- The value of the assets in Irish Water’s regulated asset base.

In addition to the key building blocks of the revenue cap regime, there are other essential components that feed into the determination of the overall allowed revenue pot. These elements and the above components of the revenue control are discussed in turn below.

---

5 The discussion paper (CER/15/096) is available [here](#).
6 This approach was also discussed when the CER consulted on and provided advice to this Minister on the topic. This advice (CER/14/076) is available [here](#).
7 Please see CER/14/076 Advice to the Minister on the Economic Regulatory Framework for the public water services sector in Ireland.
Operational Expenditure

The first building block is the allowance for Operational Expenditure (Opex) – the day to day running expenditure of the utility. Opex costs are made up of line items such as staff costs, customer operations, asset management, insurance and licences amongst others. It is important that the utility is provided with a level of revenue that is sufficient enough to operate its business efficiently and to high standards so as to provide value to the customer through improved service levels and a high standard of customer service. The overall revenue figure for opex that has been put in place by the CER is the result of rigorous scrutiny of Irish Water’s proposals and is based on a level that is considered equivalent to efficient costs of a utility similar to Irish Water at a similar stage of development. In carrying out this review, the CER used a combination of approaches in setting the opex costs. These include the review and assessment of the information provided by the utility through business planning questionnaires, Q&A sessions and written reports. It also includes benchmarking Irish Water against other comparable companies. The CER has also utilised the advice of industry experts to assist with completing the review. The combination of these methods alongside continuous engagement with the utility over the course of the project ensures that Irish Water’s opex allowance has been thoroughly analysed.

Capital Expenditure

Another building block is the allowance for the capital expenditure (capex) to be undertaken by Irish Water over the course of the revenue control period. The capex category relates to Irish Water’s physical assets i.e. the water and wastewater network, treatment plants, vehicles, IT systems, as well as the upgrade, repair and maintenance of the existing network and treatment plants. The allowance approved by the CER must be sufficient to promote a degree of investment in the water services infrastructure that is appropriate and justified while also encouraging the utility to drive efficiencies. In reviewing Irish Water’s capex proposals the CER analysed whether the proposals were appropriate, fully justified, deliver benefits to the customer and whether estimated costs are realistic. Industry experts assisted the CER in assessing the technical merit of the capital programme and whether the projects proposed reflect the best value solution. The in-depth review of the utility’s proposed capex submissions coupled with audits of individual project ensures that the revenue set by the CER is fair and appropriate.

Determining the Regulated Asset Base

A third important building block is the Regulated Asset Base (RAB) of Irish Water. In simple terms, a RAB is a measure of the net value of the assets allowed to Irish Water in the operation of its regulated activities at any point in time. The RAB allows Irish Water to receive a proper and fair return on the efficiently incurred capital investments it has made in water and wastewater services infrastructure. The rate of return that Irish Water can earn on assets in the
RAB is set by the CER for the duration of the revenue control period. The CER monitors and approves what assets and costs are added to the RAB over the course of the revenue control. This is addressed in greater detail in Section 7 of this decision paper.

**Determining the appropriate rate of return**

As mentioned above the CER sets the rate of return that Irish Water can earn on the efficiently incurred capital investments in its RAB. This is known as the Weighted Average Costs of Capital or WACC. This is essentially a weighted average of the cost of debt and the cost of equity (as most businesses are financed with a combination of debt and equity). The CER, assisted by economic advisors, sets a WACC that is used to derive a fair return on the capital investments made by the utility while also endeavouring to ensure that the utility is in a position to achieve an investment grade credit rating. This is addressed in greater detail in Section 7 of this decision paper.

**Determining appropriate incentives**

Incentives are an important area of regulation for monopoly entities. Incentives are intended to align the interests of the regulated companies with those of their domestic and non-domestic customers, by encouraging the utility to deliver better-than-required services. The CER has to date, in the regulation of the energy sector, placed financial and reputational incentives on energy companies. Incentives for the IRC2 period are discussed in Section 6 of this decision paper.

**Determining the allowed revenue**

Combining all the component parts, as described above, the CER generates an overall revenue allowance for Irish Water for the duration of the revenue control. This will be recovered from customers and through government subvention. This is discussed in greater detail in Section 7 of this decision paper.

For the previous two years, revenue was recovered through a combination of domestic charges, non-domestic charges and Government subvention. For the coming revenue control, it is noted that domestic water and wastewater charges are suspended until at least 31 March 2017. The CER is working on the basis that the revenue for 2017 and 2018 will be recovered through a mix of funding sources. In this context, the CER acknowledges the work recently completed by the Expert Commission and its recently published recommendations for the sustainable long-term funding model for the delivery of domestic water and wastewater services by Irish Water. The enduring funding model for Irish Water will be determined by the Oireachtas and is expected to be decided in the near future.
2.3 Process to date

In order to ensure that there is clarity as to the underlying data and assumptions of Irish Water’s submission as well as the analysis itself, this project has involved, as is usual, a high level of interactions with Irish Water. The high-level steps associated with this process are outlined below.

The first part of public consultation was undertaken in May 2015 when the CER published a discussion paper requesting comments on the proposed scope of the second revenue control for Irish Water. Further detail on the content of, and comments received in response to, the discussion paper is provided below in Section 2.4.

In parallel with the discussion paper the CER procured specialist advisors for the provision of economic, technical and financial advice over the course of the project. This supplements internal expertise within the CER. Detail on this is provided below in Section 2.3.1.

To ensure that the CER attained an adequate understanding of Irish Water’s IRC2 submission, the CER engaged with the utility to ensure that relevant data was provided in a useable format. A questionnaire was issued to Irish Water outlining the technical, economic and financial data required by the CER. Irish Water then completed the questionnaire in two stages: providing historic data first and then progressing to forecast information. Following submission there was a period of interaction between the CER and Irish Water during which further information and clarifications were sought.

As part of each revenue control the opex incurred by the utility over the previous control period is reviewed in order to assess cost efficiency, whether the utility’s actual revenue outturn was inside the limits of the revenue allowed by the CER, deliverables for revenue incurred and also to help inform decisions for the coming revenue control period. Following this methodology, the opex incurred by Irish Water over the Q4 2014-2016 period was reviewed. This involved assessing improvements in efficiency made by Irish Water during that period, bearing in mind developments that occurred over the period.

For the 2017-2018 period, the opex which Irish Water forecasts it will incur was reviewed, with particular focus on ensuring value for money and efficiency improvements.

A benchmarking study was conducted in order to compare Irish Water’s current position to that of established utilities in other jurisdictions. Irish Water’s glide path to efficiency, which is the

---

8 It should be noted that 2016 values are forecast.
length of time that is deemed reasonable for Irish Water to move towards achieving the same costs as an efficient comparator utility, is also determined through benchmarking studies.

Similar to the review of operating costs, the capex incurred by Irish Water over the 2014-2016 period was also reviewed. The appropriateness and efficiency of the investments made during that period were assessed. This analysis included an assessment of actual versus allowed capex over the period, in terms of the volume of, cost of, and need for the investment.

The capex programme required for the 2017-2018 period as forecast by Irish Water was examined with particular focus on ensuring value for money on upgrading and improving water and wastewater infrastructure in order 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 a review of Irish Water’s approach to the development of the Capital Investment Plan (CIP) submission, including ‘plan balancing’, the approach to the costing of the various aspects of the submission, capital programme management and governance arrangements. The CER engaged with Irish Water during the consultation period regarding the updates to the CIP as submitted in August.

This interaction allowed the CER to complete a comprehensive review of Irish Water’s historic and forecast performance, leading to the decisions outlined in this paper.

The CER also engaged with the Public Water Forum (PWF) during the IRC2 review process.

2.3.1 The Expertise Used

The CER has completed numerous reviews of regulated utilities since its foundation in 1999 and has developed its internal expertise during that period. To augment these skills, and reflecting the range of analysis required, the CER acquired the services of economic experts to assist in the review of Irish Water’s historic and forecast costs as well as its performance in IRC1, where required.

NERA Economic Consulting was procured to provide advice on the technical and economic aspects of the review. This includes reviewing Irish Water’s capital and operational expenditure and providing advice on the regulated asset base. NERA also advised on efficiency and engaged CH2M Hill to provide expert technical engineering and project delivery advice.

---

9 It should be noted that 2016 values are forecast.
Europe Economics was procured to provide advice on the financial aspects of the review. The main body of work being completed by Europe Economics is the provision of advice on the approach to and the appropriate cost of capital for Irish Water for the two-year period from 2017 to 2018.

The advice put forward by the CER’s advisors has fed into the decisions reached by the CER in this paper. In addition, the reports by both NERA and Europe Economics were previously published alongside the consultation paper in September 2016. To avoid repetition, the CER’s decision paper does not repeat all details of the analysis carried out by NERA and Europe Economics but focuses on the main points and their conclusions. Accordingly, the CER’s decision paper can be read in conjunction with the NERA and Europe Economics’ reports in order to gain fuller understanding of all aspects of the CER’s review of and decision on Irish Water’s IRC2 proposals.

2.4 CER Discussion Paper

In May 2015, the CER published a discussion paper outlining its proposals for the revenue control and how it intended to set allowed revenue to meet Irish Water’s efficiently incurred business costs. The purpose of the discussion paper was to provide information on the high-level approach to a number of key aspects of IRC2. These include matters such as:

- The duration of the revenue control, which is intended to cover the period from 1 January 2017 to 31 December 2018;
- The use of the Capital Asset Pricing Model;
- The use of a revenue-cap regulatory regime and CPI-X;
- The use of the Harmonised Index of Consumer Prices (HICP) to calculate inflation; and,
- The use of performance incentives.

As stated in the consultation paper, the CER received two responses to the discussion paper with both responses broadly supporting the CER’s proposals for the IRC2 revenue control. The responses addressed the areas of incentives, inflation and the suitability of the revenue-cap regime, asset valuation and depreciation methodology. The responses can be viewed in Appendix B of the consultation paper (CER/16/267).
3. **Overview of Irish Water’s Request**

3.1 **Introduction**

As part of the revenue control process, Irish Water requested an amount of funding to run its business for the IRC2 review period 2017-2018. This included revenue to cover costs associated with delivering capital projects and carrying out day-to-day operational activities. It also provided information on its performance during the previous revenue control. As economic regulator, the CER carefully examines this request, makes recommendations, consults on its proposals and then reaches a decision.

This section provides an overview of Irish Water’s request relating to adjustments for the first revenue control period, covering October 2014 to December 2016, and its proposals for the second revenue control period, covering 2017-2018. The CER issued business planning questionnaires to Irish Water at the outset of the revenue control and the information contained in this section is an overview of Irish Water’s requested costs.

Sections 4 and 5 outline the CER’s review of those requests and its decision.

3.2 **Irish Water opex proposals**

3.2.1 **Q4 2014 – 2016 Opex**

The CER approved an opex spend of €1,679m for the period October 2014 to December 2016. Irish Water’s actual spend\(^\text{10}\) for the period was slightly higher, at €1,681m or 0.1% higher than allowed. The CER reviewed this spend in detail to assess if it had been incurred efficiently while delivering the outputs agreed at the last determination.

Irish Water largely met or expects to meet its allowance over the IRC1 period. It noted that this was achieved through a combination of efficiency savings and activity deferrals. It contended that the allowance provided was not sufficient to undertake all of the initiatives required to effectively operate and maintain the network.

For a full review of Irish Water’s IRC1 opex, see Section 4.2.

\(^{10}\) It should be noted that actual cost figures are used for the period to October 2015. Figures used from November 2015 to December 2016 are estimated costs.
The table below sets out the opex incurred over the first revenue control, October 2014 to December 2016. All costs are in yearly nominal values and are rounded where appropriate.

**Table 3.1: CER opex allowance vs. IW outturn 2014-2016**

<table>
<thead>
<tr>
<th>Operating Expenditure</th>
<th>CER allowance (€m)</th>
<th>IW Actual/Outturn (€m)</th>
<th>Variance (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations and Maintenance</td>
<td>1,254</td>
<td>1,255</td>
<td>1</td>
</tr>
<tr>
<td>Target Operating Model</td>
<td>289</td>
<td>294</td>
<td>5</td>
</tr>
<tr>
<td>Shared Services</td>
<td>39</td>
<td>43</td>
<td>4</td>
</tr>
<tr>
<td>Group Centre</td>
<td>28</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>Irrecoverable VAT and Insurance</td>
<td>29</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>Uncontrollable costs</td>
<td>36</td>
<td>23</td>
<td>-13</td>
</tr>
<tr>
<td>R&amp;D Innovation Fund(^{11})</td>
<td>4</td>
<td>0</td>
<td>-4</td>
</tr>
<tr>
<td><strong>Total Opex 1 October 2014 – 31 December 2016</strong></td>
<td><strong>1,679</strong></td>
<td><strong>1,681</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>

Under revenue cap regulation the CER sets the level of costs for recovery. Adjustments are then made afterwards to correct for items such as inflation, actual billing levels, etc. Irish Water made a request for additional revenue of €106m related to the IRC1 Q4 2014-2016 period.

### 3.2.2 Irish Water forecast IRC2 (2017-2018) operating expenditure

Irish Water proposed a total opex of €1,523m over IRC2. It noted that this was inclusive of its annual efficiency target and opex growth forecast for the period. Irish Water proposed an increase of €29m from 2016 to 2017 and another €5m from 2017 to 2018. Irish Water’s proposal for 2017-2018 amounts to a projected 6% increase in opex on the IRC1 period.

The table below sets out Irish Water’s forecast opex for 2017-2018. All costs presented below are in real 2015 values and are rounded where appropriate.

For a full review of Irish Water’s IRC2 opex see Section 5.2.

**Table 3.2: IW proposed opex costs 2017-2018 (€m, 2015 prices)**

<table>
<thead>
<tr>
<th>Operating Expenditure</th>
<th>2017 (€m)</th>
<th>2018 (€m)</th>
<th>Total IRC2 (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations and Maintenance</td>
<td>546</td>
<td>547</td>
<td>1,093</td>
</tr>
<tr>
<td>Target Operating Model</td>
<td>153</td>
<td>152</td>
<td>305</td>
</tr>
<tr>
<td>Shared Services</td>
<td>21</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Group Centre</td>
<td>15</td>
<td>16</td>
<td>31</td>
</tr>
<tr>
<td>Uncontrollable costs</td>
<td>24</td>
<td>29</td>
<td>52</td>
</tr>
<tr>
<td><strong>IW’s view of total opex requirement</strong></td>
<td><strong>759</strong></td>
<td><strong>764</strong></td>
<td><strong>1,523</strong></td>
</tr>
</tbody>
</table>

\(^{11}\) Irish Water’s outturn TOM costs include €4m related to R&D.
3.3 Irish Water’s Capex Proposals

3.3.1 Opening RAB at 1 October 2014

The Water Charges Policy Direction 2014\(^{12}\) directed that Irish Water’s opening RAB, the net value of Irish Water’s assets, at 1 October 2014 should include efficiently incurred pre-Q4 2014 expenditure. As a result, Irish Water’s opening RAB was set at €1,040m. In its historic submission to the CER, Irish Water has stated that it incurred expenditure of €757m. The CER has set a minor reduction to this and recognises Irish Water’s pre-Q4 capex and opex outturn. The CER has decided to set Irish Water’s opening RAB on 1 October 2014 as €757m.\(^{13}\)

For a review of Irish Water’s pre-Q4 expenditure see Section 4.3.

Table 3.3: Irish Water’s Opening RAB 1 October 2014

<table>
<thead>
<tr>
<th></th>
<th>Allowed (€m)</th>
<th>Outturn (€m)</th>
<th>Variance (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Q4 2014 Establishment Costs - Total</td>
<td>191</td>
<td>190</td>
<td>-1</td>
</tr>
<tr>
<td>Pre-Q4 2014 Capex</td>
<td>525</td>
<td>464</td>
<td>-61</td>
</tr>
<tr>
<td>2013 Opex</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Pre-Q4 2014 New Opex</td>
<td>103</td>
<td>74</td>
<td>-28</td>
</tr>
<tr>
<td>Allowed financing cost</td>
<td>14</td>
<td>13</td>
<td>-1</td>
</tr>
<tr>
<td>Local Authority transferred liabilities</td>
<td>201</td>
<td>10</td>
<td>-190</td>
</tr>
<tr>
<td><strong>Total IW Opening RAB 1 October 2014</strong></td>
<td><strong>1,040</strong></td>
<td><strong>757</strong></td>
<td><strong>-283</strong></td>
</tr>
</tbody>
</table>

3.3.2 Q4 2014-2016 capital expenditure

The CER allowed Irish Water €1,396m for capital expenditure during the IRC1 period in the IRC1 decision of 2014. In its submission to the CER in December 2015, Irish Water provided an updated forecast capex of €1,365m for the period to the end of 2016.\(^{14}\) The CER has decided to allow Irish Water’s updated forecast capex for IRC1.

For a review of Irish Water’s IRC1 capex see Section 4.5.

---

\(^{12}\) Available [here](#).

\(^{13}\) The adjustment made amounts to €0.4m. Both Irish Water’s request and the CER’s decision round to €757m.

\(^{14}\) The updated IRC1 capex figures provided by Irish Water in October 2015 consist of actual cost figures for the period to October 2015 and updated forecast figures for November 2015 to December 2016.
Table 3.4: Irish Water’s IRC1 Capital Expenditure

<table>
<thead>
<tr>
<th></th>
<th>CER Allowance Q4 2014 – 2016 (€m)</th>
<th>IW Actual/Forecast Q4 2014 – 2016 (€m)</th>
<th>Variance (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water CIP Total</td>
<td>131</td>
<td>207</td>
<td>76</td>
</tr>
<tr>
<td>Wastewater CIP Total</td>
<td>296</td>
<td>400</td>
<td>104</td>
</tr>
<tr>
<td>Capital Maintenance &amp; Other</td>
<td>511</td>
<td>381</td>
<td>-130</td>
</tr>
<tr>
<td>Metering costs</td>
<td>388</td>
<td>290</td>
<td>-98</td>
</tr>
<tr>
<td>Non-Network costs</td>
<td>46</td>
<td>66</td>
<td>19</td>
</tr>
<tr>
<td>Establishment costs</td>
<td>24</td>
<td>22</td>
<td>-2</td>
</tr>
<tr>
<td>Total Capex</td>
<td>1,396</td>
<td>1,365</td>
<td>-31</td>
</tr>
</tbody>
</table>

3.3.3 Irish Water Forecast IRC2 (2017-2018) Capex

For a review of Irish Water’s proposed capital expenditure for the period 2017-2018 see Section 5.4.2.

Irish Water’s IRC2 submission to the CER includes two key documents. The CIP sets out Irish Water’s proposed spend in relation to core water and wastewater capital investments such as water and waste water treatment plants and networks, national programmes such as the disinfection programme and the national lead programme and capital maintenance. The non-network capital investment document (NNC) addresses proposed expenditure for the IRC2 period on associated matters such as information technology (IT) and fleet and facilities. Together these two documents are referred to as the Irish Water capital investment submission in this paper. To supplement the CIP, Irish Water submitted a Business Planning Questionnaire providing a detailed breakdown of Irish Water’s proposed project and programmes including yearly capital expenditure profiles, investment drivers and associated outcomes for projects and more developed programmes. Note that the CER’s IRC2 consultation paper (CER/16/267) was based on the CIP submitted by Irish Water in April. Irish Water subsequently submitted an updated CIP to the CER on 19 August which the CER reviewed during the consultation period. The updated CIP forms the basis for this decision and is published alongside this paper (CER/16/345).

3.4 Summary

Irish Water’s actual opex for the period Q4 2014-2016 was €1,681m, which was broadly in line with its allowance for the period of €1,679m.

In 2014 the CER allowed Irish Water €1,396m of capex during the IRC1. In its submission to the CER in December 2015, Irish Water submitted a revised forecast of €1,365m for capex for the IRC1 period.
Looking ahead to 2017 and 2018, Irish Water requested opex of €1,523m for IRC2 and proposed a total capex of €1,288m for the IRC2 period.

A detailed examination of the opex and capex spend for IRC1 can be found in Section 4, while 2017-2018 expenditure is considered in Section 5.
4. Review of 2014-2016 Costs

4.1 Introduction

In October 2014 the CER published a decision on the revenue that Irish Water would be allowed to recover during the 1 October 2014 to 31 December 2016 period. This included the CER’s decisions on allowances for:

- Irish Water’s capital expenditure for the 1 October 2014 to 31 December 2016 period;
- Irish Water’s expenditure prior to 1 October 2014 (i.e. the opening regulated asset base); and
- Irish Water’s operating expenditure for the 1 October 2014 to 31 December 2016 period.\(^\text{15}\)

As part of the project to set an appropriate revenue allowance for the 2017-2018 period, the CER has reviewed Irish Water’s expenditure relating to the above items. This review is covered in Sections 4.2 to 4.5 of this document.

In some cases the CER has decided to make adjustments relating to these allowances. The mechanism through which these adjustments feed through into the revenue allowance for 2017 and 2018 is explained in Section 7 of this document.

4.2 Review of Operational Expenditure, 2014 - 2016

4.2.1 Introduction

In its IRC1 decision the CER approved a level of operating costs for the period 1 October 2014 to 31 December 2016. As part of this IRC2 decision, Irish Water provided information on its performance relative to that allowance.

This section examines the information provided by Irish Water relating to its operating costs over the 1 October 2014 to 31 December 2016 period. The outturn expenditure has been assessed and compared to the revenue allowed by the CER as part of the IRC1 determination.

Section 4.2.2 provides the CER’s objectives in reviewing Irish Water’s IRC1 operating costs;

\(^{15}\) That decision was subsequently modified to reflect the fact that Irish Water was no longer required to pay commercial rates.
Section 4.2.3 provides information on the CER’s original IRC1 decision. It discusses each operating cost item in turn and reviews the information provided by Irish Water on each item; Section 4.2.4 provides a conclusion on the CER’s view on Irish Water’s performance against its operating cost allowance for IRC1; and, The key principles used by the CER in reviewing Irish Water’s performance against its operating cost allowance are referred to in Section 7.4.2 of this document.

Irish Water has reduced its operating costs over the IRC1 period broadly in line with the targets set by the CER. It reports an overspend of €6m or 0.4% relative to the IRC1 allowance. These targets have been met while delivering savings in operating expenditure, carrying out significant repairs and upgrades to the public water and wastewater systems and increasing capacity and quality of water and wastewater.

4.2.2 Objectives for the review of IRC1 operating expenditure

The main objective of the review of Irish Water’s historical operational expenditure is to assess whether Irish Water’s expenditure has been incurred efficiently while delivering the expected outputs in line with the package agreed as part of the IRC1 determination.

The CER set challenging operating cost efficiency targets for the IRC1 October 2014-2016 period i.e. 7% per annum. It is important that these cost reductions are achieved through measures which do not impact negatively on the level of service provided by Irish Water. This review of IRC1 operating expenditure assists the CER in ensuring that this is the case. In future this will be complemented by a review of key performance indicators (under an Irish Water performance assessment as outlined in Section 6 of this paper) once that framework is in place.

The review of IRC1 performance assists in the CER’s determination of the appropriate allowed operational expenditure for the 2017-2018 period, as detailed within Section 5 of this paper.

4.2.3 Review of IRC1 operational cost categories

4.2.3.1 OVERVIEW

Table 4.1 below provides a high level summary of:

- The operational costs approved by the CER for the 1 October 2014 to 31 December 2016 period;
- The operational costs incurred by Irish Water during that period; and,
- The variance between the two.
Within the table, costs are divided into those over which the CER considers Irish Water has control (‘controllable’) and those over which it does not have control (‘uncontrollable’). Controllable costs are described within Sections 4.2.3.4 to 4.2.3.9 below. Uncontrollable costs are described within Section 4.2.3.3.

### 4.2.3.2 BACKGROUND AND INTRODUCTION

As part of the process to put in place the IRC1 decision, the CER decided to impose an average annual efficiency challenge of 7% in the years 2015 and 2016. Noting that Irish Water’s submitted costs were high when benchmarked against established utilities in other jurisdictions, the CER considered that a 7% challenge was reasonable in the context of what other water utilities have achieved at a comparable stage. The efficiency challenge was an annual average 7% challenge, set cumulatively to achieve a 13.5% reduction in operating costs by the end of IRC1.

The efficiency target was set globally, for all controllable operational costs, and so it was up to Irish Water to determine how it delivered the efficiencies from the different cost categories while continuing to deliver an adequate level of service.

While the narrative included within Sections 4.2.3.3 to 4.2.3.8 below provides more detail, Table 4.1 below provides a high-level summary of:

- **Column A**: The operational cost allowance approved in advance by the CER for the 1 October 2014 to 31 December 2016 period (in its IRC1 decision);
- **Column B**: The operational costs incurred by Irish Water during that period;
- **Column C**: The CER’s revised IRC1 allowance;
- **Column D**: The variation between the allowed operational costs and the CER’s revised allowance;
- **Column E**: The variation on over/underspend by Irish Water against the revised allowance.

The following points should assist in explaining the below table:

- The CER has decided to reduce original allowance by €12.7m reflecting a lower allowance for uncontrollable costs.
- Taking into account the reduction in its IRC1 allowance, Irish Water expects to incur an overspend of €15m. This equates to approximately 1% of its IRC1 allowance indicating that Irish Water has marginally underperformed against the efficiency challenge set by the CER at IRC1.
- Irish Water outturn costs for the IRC1 period are referred to as actuals in this section. However, they are based on actual expenditure up to and including October 2015 and a forecast of expenditure thereafter.
- Unless otherwise stated, all monies quoted in this section are in nominal prices.

### Table 4.1: Ex-post review of IRC operating cost allowance – summary

<table>
<thead>
<tr>
<th>Operating Expenditure</th>
<th>A IRC1 allowed (€m nominal)</th>
<th>B IRC1 outturn (€m nominal)</th>
<th>C IRC1 allowance ex-post (€m nominal)</th>
<th>D Variation in allowance (€m nominal)</th>
<th>E Over/Under spend (€m nominal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service level agreements</td>
<td>1,254</td>
<td>1,255</td>
<td>1,254</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Target operating model</td>
<td>289</td>
<td>294</td>
<td>289</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Shared service centre</td>
<td>39</td>
<td>43</td>
<td>39</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Group allocation</td>
<td>28</td>
<td>30</td>
<td>28</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Irrecoverable VAT and insurance</td>
<td>29</td>
<td>36</td>
<td>29</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>R&amp;D innovation¹¹</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total controllable opex</strong></td>
<td><strong>1,643</strong></td>
<td><strong>1,658</strong></td>
<td><strong>1,643</strong></td>
<td><strong>0</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td>Uncontrollable opex</td>
<td>36</td>
<td>23</td>
<td>23</td>
<td>-12.7</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total opex</strong></td>
<td><strong>1,679</strong></td>
<td><strong>1,681</strong></td>
<td><strong>1,666</strong></td>
<td><strong>-12.7</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

### 4.2.3.3 UNCONTROLLABLE EXPENDITURE (ALLOWED €35.9M; OUTTURN €23.3M²⁶)

**Introduction**

Operating costs are the day-to-day costs incurred by the business. This can be broken down into two categories: controllable and uncontrollable:

- Controllable operating costs are those over which the CER considers the utility has control, such as staff costs, consumable materials, etc.
- Uncontrollable operating costs are by definition not directly controllable by the utility, such as levies and rates.

This is an important differentiation as generally once the CER accepts that a cost is uncontrollable, the CER will include a placeholder (or estimate of the cost) within the forecast costs for the period, but will correct for the actual costs when completing the ex-post review. This ensures that if these costs are higher than expected the utility’s revenue is adjusted upwards to ensure it covers these costs.¹⁷ On the other hand if these costs are lower than

---

¹⁶ These uncontrollable expenditure figures relate to licences, levies and commercial rates only.
¹⁷ This adjustment is completed through a k-factor mechanism outlined in Section 7 of this paper.
expected the utility’s revenue is adjusted downwards to ensure it only receives enough revenue to cover these costs.

This approach is consistent with that outlined in the CER’s advice to the Minister regarding the Economic Regulatory Framework for the public water services sector in Ireland. It is also consistent with the approach taken by the CER for the regulated gas and electricity network utilities.\textsuperscript{18}

**Outline of IRC1 decision**

As part the process to put in place the IRC1 decision the CER reviewed all opex allowances, and the cost allocation between controllable and uncontrollable allowances.

The CER decided that the following costs were not within Irish Water’s control, and were therefore deemed to be uncontrollable costs:

- The levies payable to the CER and the EPA;
- Rates payable to local authorities.\textsuperscript{19}

At the time of the IRC1 decision, Irish Water also requested that irrecoverable VAT and insurance costs should be treated as uncontrollable. However, it was noted that while the rate of VAT is outside of Irish Water’s control, the cost level to which it is applied is within its control. Therefore the CER did not agree that this cost was uncontrollable. The CER also did not agree that insurance costs should be treated as uncontrollable. This is consistent with the CER’s approach to insurance in the electricity and gas sectors.

**Lookback at IRC1 period**

Within its lookback submission, Irish Water included “irrecoverable VAT” and “insurance” under the heading uncontrollable opex, despite these items being considered controllable by the CER at IRC1. Across all items which Irish Water classifies as uncontrollable, it reports an underspend of €6.3m (9.7%):

- Licences and levies: This comprises the CER levy and EPA licence fees for which Irish Water has limited control. Outturn expenditure over IRC1 was €10.3m lower than allowed for at the CER’s decision.

\textsuperscript{18} The CER can also implement a cost-sharing mechanism if it considers that some costs are partially, but not fully, uncontrollable.

\textsuperscript{19} Commercial rates were originally set at €131.1m (NPV 2013 prices) in the CER’s water charges plan decision of October 2014 (CER/14/746). Following the introduction of the Water Services Act 2014, Irish Water was no longer required to pay commercial rates for 2015 and 2016. This reduced its rate-paying obligation during IRC1 to the element related to Q4 2014, of €13.1m (NPV 2013 prices). Irish Water’s lookback submission contains actual rates of €10.7m (nominal prices).
- **Commercial rates:** This reflects the fees that Irish Water must pay to the local authorities. For rates, expenditure over IRC1 in Irish Water’s lookback submission was €2.4m lower than its allowance in the CER’s decision. 19

- **Irrecoverable VAT:** Irish Water has spent €5.5m less than allowed for at the IRC1 decision on irrecoverable VAT. The CER deemed this expenditure to be within Irish Water’s control in its IRC1 decision. The CER understands from Irish Water’s look-back submission that some of this underspend may result from a reallocation of VAT costs to the specific service lines.

- **Insurance:** Irish Water’s insurance costs are almost twice the IRC1 allowance resulting in an overspend of €11.8m. Irish Water has explained that the apparent increase reflects a reallocation of insurance costs that had previously been managed by the local authorities and which is now managed centrally by Irish Water.

Irish Water’s classification of uncontrollable expenditure items within its lookback submission is not consistent with the IRC1 decision, which classified “licences and levies” and “commercial rates” only as uncontrollable expenditure items.

In its response to the CER’s initial view of its IRC1 expenditure, Irish Water restated its assertion that insurance should be considered as uncontrollable cost. It noted that: “Given our start-up nature, it will be a number of years before we have access to sufficient information to fully understand our insurable risks and hence the optimum insurance strategies. We request the CER to treat Insurance costs as uncontrollable in IRC2”.

**CER decision**

The CER remains of the view that only licences, levies and rates should be treated as uncontrollable cost items. That decision at IRC1 was consistent with the CER’s approach to defining uncontrollable costs in its regulation of the energy sector.

Therefore, the CER has not recognised the additional items as uncontrollable cost items or recognise any variation in the allowance relative to IRC1, as requested by Irish Water.

The CER is of the view that cost variations relating to the two uncontrollable expenditure lines (licences and levies and commercial rates) should be recognised in full but there should be no recognition of variation for the other items (irrecoverable VAT and insurance). Over the course of the IRC1 period this amounts to a total cost variation of -€12.7m.

Overall, the variation implies an aggregate cost allowance of around €23.3m (€35.9m IRC1 initial allowance minus €12.7m variation) which is equal to IRC1 outturn expenditure. This is summarised in the below table.
Table 4.2: IRC1 allowed, outturn and adjustment for uncontrollable operating costs (nominal outturn prices)

<table>
<thead>
<tr>
<th></th>
<th>A Allowed (nominal prices; €m)</th>
<th>B Outturn (nominal prices; €m)</th>
<th>C Difference (outturn – allowed; €m)</th>
<th>D Recommended cost variation (nominal prices; €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licences and levies</td>
<td>22.8</td>
<td>12.5</td>
<td>-10.3</td>
<td>-10.3</td>
</tr>
<tr>
<td>Commercial rates</td>
<td>13.1</td>
<td>10.8</td>
<td>-2.4</td>
<td>-2.4</td>
</tr>
<tr>
<td>Uncontrollable opex</td>
<td>35.9</td>
<td>23.3</td>
<td>-12.7</td>
<td>-12.7</td>
</tr>
</tbody>
</table>

4.2.3.4 GROUP CENTRE (ALLOWED €28.1M; OUTTURN €30.2M)

Summary

As a subsidiary of Ervia, group centre costs refer to those related to managing governance, key stakeholder management, access to external finance and risk.

Ervia allocated costs between Irish Water and Gas Networks Ireland (GNI) on a 50:50 basis for 2014 and on a 65:35 split between the companies in the subsequent years reflecting the greater relative size of the water network, e.g. in terms of customers served.

Irish Water reported an overspend on the group centre of €2.1m (7.4%). Irish Water stated that some of this cost relates to the creation of two new functions within Irish Water, namely the appointment of a Chief Operating Officer and the establishment of an Organisational Alignment and Change Management Unit. Irish Water has deemed these roles necessary following a greater than expected involvement in the day to day delivery of Irish Water’s priorities, such as the rollout of domestic metering and the introduction of a national billing capability.

CER decision

While the CER notes the rationale provided by Irish Water, the CER expects that Irish Water would manage such risks within the overall expenditure allowance and the CER has not made an adjustment to the original allowance.

4.2.3.5 SHARED SERVICE CENTRE (ALLOWED €38.8M; OUTTURN €42.7M)

Summary

Shared services costs are also allocated on a 50:50 basis for 2014 and a 65:35 basis for 2015 and 2016 between Irish Water and GNI. The costs related to support across the Ervia group in the areas of finance, procurement, facilities, HR, IT and transactional services.
Irish Water has provided evidence that its outturn activity levels have been higher than expected (e.g. number of payslips processed, square metres managed, no of support calls etc.). It cites this as a reason for the increase in costs relative to the allowance. It also offers a report on pay structures and headcount which concludes that these are incurred efficiently.\textsuperscript{20} It reports an overall overspend on shared services of €3.9m (10%).

**CER decision**

While the CER notes the rationale provided by Irish Water, the CER expects that Irish Water would manage such risks within the overall expenditure allowance and the CER has not made an adjustment to the original allowance.

\textbf{4.2.3.6 TARGET OPERATING MODEL (ALLOWED €288.9M; OUTTURN €294.2M)}

**Summary**

The Target Operating Model (TOM) refers to the business capabilities and processes within Irish Water. It is made up of a number of elements that define the functions, structures and processes that Irish Water will need to carry out its business activities.

The TOM is based on a High Performance Utility Model. Its objectives, according to Irish Water, are to define how people, technology, processes and governance interact together to deliver a utility that provides water and wastewater services to customers.

Work and asset management, customer operations and support services are the main cost drivers within TOM. Costs are comprised of labour and non-labour costs.

Irish Water reports an overspend of €5.3m (1.8%) on the implementation of its TOM, of which €1.9m relates to labour and €3.4m to non-labour (1.6% and 2.1% overspends respectively).\textsuperscript{21}

The increases in labour costs are driven almost entirely by support operations, as a result of an increase in fixed procurement roles and additional HR personnel. There were some substantial areas of variation in cost drivers for non-labour costs. For example, it saw an increase in expenditure on customer services of €26m. However, this was (partly) offset by a reduction in costs incurred in relation to billing, of €13m.

Irish Water noted that legislative changes and the moving of the date for first domestic billing drove up the non-labour costs. Irish Water also pointed to unexpected volumes of certain types

\textsuperscript{20} Ervia Pay Model Review Report - available [here](#).

\textsuperscript{21} Irish Water has allocated the €4m associated with the Innovation Fund to this line item, resulting in increased costs in this line item and an offsetting reduction in another.
of activities that drove up costs, such as high contact volumes, customer registration taking place largely by post rather than online registration.

Irish Water also acknowledged that it has deferred some tasks (or part of some tasks) which it would have expected to carry out over IRC1, for example, the archiving of local authority information and the introduction of fleet vehicles, but this has not impacted on customer service levels.

CER decision

It is clear from Irish Water’s submission that the Water Services Act 2014 drove cost increases in its customer operations activity, for example, by changing timelines and capping domestic charging.

However, many of the reasons for increased TOM costs also relate to business risks which the CER consider should be borne by Irish Water. Irish Water also acknowledges that the Act resulted in reduced costs on some areas, i.e. from the delay to customer billing. Irish Water has also deferred certain activities to accommodate cost increases but has stated that this has not impacted on service levels. The CER does not consider that activity deferral represents an under-delivery compared to the activities funded at IRC1.

Given the lack of clarity on any net cost increases related to legislation, the CER has not made an ex-post variation in the TOM expenditure allowance.

4.2.3.7 SERVICE LEVEL AGREEMENTS (ALLOWED €1,253.8M; OUTTURN €1,254.7M)

Summary

The largest opex category is the operations and maintenance function which is responsible for the provision of water and wastewater services, including abstraction, treatment, storage and distribution of drinking water and the treatment and disposal of wastewater. It is delivered through Service Level Agreements (SLAs) with the local authorities and accounts for two-thirds of all opex in the IRC1 period.

CER decision

Overall, Irish Water has managed to make SLA savings in line with the efficiency challenge implied by the CER final determination. The final variation in outturn expenditure is not material, and the CER has not identified reasons to allow for variations in expenditure. Therefore, the CER has not made an ex-post adjustment to the SLA expenditure allowance.
4.2.3.8 INNOVATION FUND (ALLOWED €4M; OUTFUN €4M)

Summary

In order to promote new and improved ways of delivering water and wastewater service for customers, the CER approved an allowance at IRC1 to fund innovation of €2m per annum for 2015 and 2016. The allowance is in line with initiatives by other regulators to promote innovation in networks which might otherwise be stifled by the incentive regime which emphasises cost-efficiency above all.

Prior to drawdown of this allowance, Irish Water is required to receive CER approval for individual projects. The CER understands that Irish Water intends to use the full expenditure allowance of €4m for IRC1 on R&D projects which fall under the scope of this allowance. Some of this allowance was not spent during IRC1. The CER also understands that Irish Water intends to submit an application for an innovation project which may extend beyond the end of the IRC2 period.

CER decision

The CER expects a full submission on all of the projects that Irish Water intend to fall under the innovation fund allowance. The CER is proceeding on the basis that sufficient evidence will be provided by Irish Water that it intends to spend the money on R&D projects and that these projects will be approved by the CER. Therefore, the CER has decided to allow IRC1 expenditure of €4m relating to innovation. If Irish Water does not provide sufficient evidence to warrant the expenditure on R&D, the CER has decided to adjust the allowance at a later date.

As Irish Water did not fully use the €4m allowance on approved innovation projects during IRC1, the CER has decided to allow the remainder of the expenditure allowance to move to the IRC2 period. The CER has also decided to allow the IRC1 €4m allowance on approved innovation projects to extend beyond the end of IRC2 if it has not been fully spent by December 2018.

4.2.3.9 BAD DEBT

At IRC1, the CER did not provide an ex-ante domestic bad debt allowance, and instead stated that it would consider its treatment at the end of the review period. As part of its 2014-2016 k-factor adjustment submission (proposed adjustments to revenue outturn 2014-2016) for IRC1, Irish Water requested an adjustment for an 8% domestic bad debt allowance.

Please refer to Section 7.4.4.6 of this document for the CER’s position regarding domestic bad debt.
Irish Water has also included an assessment of non-domestic bad debt for the IRC1 period. Irish Water has assessed that it will be unable to collect 9.39% of the amount billed and accrued over the 27-month period. This equates to €39.67m in revenue terms.

Please refer to Section 7.4.4.8 of this document for the CER’s position regarding non-domestic bad debt.

4.2.4 Conclusion

Irish Water has largely met its allowance for IRC1 and delivered improvements in asset operations and maintenance. The CER acknowledges that this has been exceptionally challenging and that the utility has made significant strides in its short lifetime thus far.

The CER has decided to adjust the IRC1 allowance regarding uncontrollable costs. Irish Water’s costs for line items deemed uncontrollable by the CER in its IRC1 decision (licences, levies and rates) were €12.7m less than anticipated and the CER has decided to reduce the IRC1 allowance by this amount.

This adjustment results in an operating cost adjustment of -€12.7m (less than 1%) relative to the IRC1 allowance. In relation to other cost overspends and deferrals the CER has not amended the expenditure allowance set out in the IRC1 decision.

It should be noted that the figures submitted by Irish Water for IRC1 are based on actual data for the period to October 2015 and forecast data thereafter. The CER plans to review the outturn costs for the 1 November 2015 to 31 December 2016 period at a later date.

4.3 Irish Water’s Opening Regulated Asset Base

4.3.1 Review of the Opening RAB

The Water Charges Policy Direction 2014\(^\text{22}\) stated that properly and efficiently incurred expenditure up to 1 October 2014, along with any liabilities transferred from local authorities to Irish Water and the efficient cost of financing this expenditure, should be added to the opening value of Irish Water’s RAB.

As a result of the IRC1 decision, the following line items were included on Irish Water’s opening RAB:

- New operational expenditure incurred up until 1 October 2014 (excluding Service Level Agreement costs and old rates/VAT which were funded by the Government);

\(^{22}\) This was provided by the Department to the CER in July 2014 and is available [here](#).
- Efficiently incurred costs associated with establishing the utility up until 1 October 2014;
- Efficiently incurred costs of the metering programme up until 1 October 2014;
- Efficiently incurred capital expenditure up until 1 October 2014;
- Efficient costs of financing this expenditure up until 1 October 2014;
- Liabilities transferred from local authorities to Irish Water; and,
- Irrecoverable VAT associated with the above.

The CER’s Water Charges Plan Revenue Response and Decision Paper (CER14/454)\(^{23}\) set Irish Water’s opening RAB at €1,040m (nominal prices). Irish Water proposed reducing the value of the opening RAB by €283m based on outturn costs incurred up to 1 October 2014. Irish Water proposed a revised opening RAB of €757m (nominal prices).

**Table 4.3: IW’s Opening RAB Allowed vs. Outturn**

<table>
<thead>
<tr>
<th></th>
<th>Allowed (€m)</th>
<th>Outturn (€m)</th>
<th>Variance (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Q4 2014 Establishment Costs - Total</td>
<td>191</td>
<td>190</td>
<td>-1</td>
</tr>
<tr>
<td>Pre-Q4 2014 Capex</td>
<td>525</td>
<td>464</td>
<td>-61</td>
</tr>
<tr>
<td>2013 Opex</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Pre-Q4 2014 New Opex</td>
<td>103</td>
<td>74</td>
<td>-28</td>
</tr>
<tr>
<td>Allowed financing cost</td>
<td>14</td>
<td>13</td>
<td>-1</td>
</tr>
<tr>
<td>LA transferred liabilities</td>
<td>201</td>
<td>10</td>
<td>-190</td>
</tr>
<tr>
<td><strong>Total IW Opening RAB 1 October 2014</strong></td>
<td><strong>1,040</strong></td>
<td><strong>757</strong></td>
<td><strong>-283</strong></td>
</tr>
</tbody>
</table>

Having completed due diligence on the estimated €200m of local authority transferred liabilities Irish Water has stated the actual expected expenditure is €127m of which €10m was incurred during IRC1. Irish Water has proposed reducing the opening RAB, with respect to local authority transferred liabilities, by €190m and including €10m in the opening RAB. The CER agrees with the inclusion of €10m liabilities in the opening RAB at 1 October 2014.

Irish Water’s outturn opex for pre-Q4 2014 is €74m against an allowed amount of €103m. The CER did not review 2013 and pre-Q4 2014 operating costs as part of the IRC1 decision as they fell outside the IRC1 period. The amounts were agreed with the Department\(^{24}\) who directed the CER to include these amounts on the opening RAB to allow Irish Water to recover the costs. The opex incurred by Irish Water pre-Q4 2014 is less than that agreed with the Department. As these expenditures fall outside the IRC1 period, the CER recognises the 2013 opex and pre-Q4 2014 opex as spent.

Irish Water included €464m pre-Q4 capex in the opening RAB against an allowed amount of €525m. The variance has resulted mainly from underspends in capital maintenance and the

---

\(^{23}\) CER/14/454 can be found [here](#).

\(^{24}\) The Department of the Environment, Community and Local Government, now the Department of Housing, Planning, Community and Local Government
metering programme. The CER considers that Irish Water is implementing processes recognised as industry best practice and that the utility has been prudent in spending below the enduring level of capital maintenance prior to improving its understanding of its asset base and delivering a planned capital maintenance programme. The CER recognises Irish Water’s pre-Q4 capex as spent.

Irish Water proposed a reduction in the financing costs to €12.6m from the allowed figure of €14m. The CER has calculated Irish Water’s financing costs as €12.2m and has included this in the RAB.

**4.4 Addition of Specific Items to Irish Water’s RAB**

**4.4.1 Introduction**

Irish Water has requested clarification from the CER regarding the treatment of efficiently incurred expenditure on the development of Irish Water’s CIP and the expenditure on separation of storm water sewers. Irish Water has requested that this expenditure be added to the RAB. Following consideration of the view’s put forward by Irish Water regarding each of the above categories of expenditure and responses received to the Consultation Paper, the CER has reached its decision as outlined below in Sections 4.4.2 and 4.4.3. A summary of the responses received to the matters addressed below and the CER’s views regarding matters raised can be viewed in Section 2.2 of the response to comments paper (CER/16/343) which is available on the CER’s website.

**4.4.2 Expenditure on the development of the capital programme**

**Summary of Irish Water’s Request**

Irish Water has requested that expenditure on the development of the capital programme be included in the RAB. Irish Water considers that enabling Irish Water to consider a range of alternative options as part of the development of the CIP, without constraining capitalisation of development costs to the single option selected, results in the most efficient and optimal value set of solutions being delivered across the investment programme.

**CER Decision**

The CER considers that project and programme development, which includes examining alternative options, is a key part of capital planning and asset formation. The CER is of the view that it is appropriate to allow recovery of costs associated with reviewing alternative solutions, including those that are ultimately not chosen by Irish Water. This should ensure that the most cost effective solution is selected and delivered. The CER has decided to capitalise the
associated costs by including them in the RAB. This allows Irish Water to ‘smooth’ the revenue required to fund project development over the course of the assets expected life. By not treating this item as an opex cost, this will ensure that current customers are not funding, in full, expenditure that will also serve future customers.

This approach is consistent with the treatment of capital planning costs, including the examination of alternative options, under the CER’s regulatory regime for regulated electricity companies in Ireland. It is also consistent with UK water industry standard practice.

4.4.3 Expenditure on storm water sewer separation

Summary of Irish Water’s Request

Irish Water has requested that expenditure on new storm water sewer assets arising from the separation of combined sewers be included in Irish Water’s RAB.

Combined sewers are those that carry both wastewater and surface water, the latter arising principally from storm water runoff. Many of Ireland’s older sewer networks are combined sewers. During heavy rainfall events the capacity of the sewer network may be exceeded and the excess load may overflow into the environment. Irish Water is of the view that separating a combined sewer into a foul sewer and a storm water sewer can reduce loads on the sewage network as when this is done storm water does not enter wastewater treatment plants for treatment.

Under the Water Services (No.2) Act 2013, all water service functions of the then water services authorities, the local authorities, passed to Irish Water on 1 January 2014, with the exception of the provision, operation or maintenance of storm water sewers, which remain within the remit of the local authorities. This means that if Irish Water was to invest in sewer separation the existing Irish Water asset (the combined sewer) would be enhanced as outlined above, but the expenditure incurred would be on the creation of a new assets (the storm water sewer) belonging to, operated by and maintained by the relevant local authority.

Irish Water cites the ‘First Fix’ programme as an example of expenditure incurred by Irish Water on assets owned by a third party (the customer) which is included in Irish Water’s RAB.

CER Decision

The CER accepts that the separation of combined sewers may provide enduring benefits to Irish Water’s customers by reducing the load on Irish Water’s wastewater treatment plants. The CER

---

has decided to allow efficient costs associated with this category of investment to be added to Irish Water’s RAB, including expenditure on assets that are ultimately transferred to local authorities. For relevant expenditure to be added to the RAB in such cases, Irish Water must demonstrate that sewer separation is economically and technically viable, offers the most cost effective solution for Irish Water’s customers and represents an efficient means of meeting Irish Water’s service objectives.

In such cases, to avoid Irish Water being compensated twice, any increases in the RAB must be net of any capital grants or contributions from local authorities or other sources towards the cost of creating the storm water sewers.

4.5 Review of Capital Expenditure, 2014-2016

4.5.1 Introduction

This section examines the capital expenditure undertaken by Irish Water over the period January 2014 to December 2016 compared with the expenditure allowed by the CER in the Water Charges Plan Revenue Response and Decision Paper in 2014 (CER/14/454).27

As part of this IRC2 process, Irish Water has provided the CER with an updated position regarding 2014-2016 capital expenditure. This updated position is based on actual capital expenditure by Irish Water up to 31 October 2015 and on Irish Water’s estimate of forecast capital expenditure from 1 November 2015 to 31 December 2016.

Irish Water’s updated position regarding capital expenditure in 2014-2016 is a total spend of €1,847m, remaining within the CER’s allowance of €1,946m (nominal prices). The CER has decided to allow this expenditure.

An overview of the CER’s IRC1 decision regarding capital expenditure and how Irish Water’s updated position as of October 2015 compares to this is provided below in Section 4.5.2. This is followed by a review of key categories of capital expenditure. A summary of the CER’s views and decisions is provided in Section 4.5.3. Responses received to the matters addressed below can be viewed in Section 2.2 of the response to comments paper (CER/16/343) which is available on the CER’s website.

---

27 CER/14/454 can be found here.
4.5.2 Review of IRC1 Capital Expenditure Cost Categories

4.5.2.1 BACKGROUND

In its 2014 decision regarding allowed revenues for IRC1 the CER allowed a capex programme of €1,946m for the three-year period, 2014-2016, with Irish Water spending €1,847m. In doing so the CER imposed a 7% annual capital expenditure efficiency challenge to non-committed capital costs, excluding capital maintenance.

Table 4.4 below sets out the CER’s IRC1 allowed revenue in relation to capital expenditure, Irish Water’s updated position regarding this expenditure and the variance between the two. Irish Water is forecasting underspend by €100m on capital expenditure.28

Table 4.4 – The CER’s Allowed Capex 2014-2016 vs. IW’s Update

<table>
<thead>
<tr>
<th>Major Projects: Water CIP</th>
<th>CER Allowance 2014 – 2016 (Nominal €m)</th>
<th>IW Updated Position 2014 – 2016 (Nominal €m)</th>
<th>Variance (Nominal €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Projects: Wastewater CIP</td>
<td>394</td>
<td>498</td>
<td>104</td>
</tr>
<tr>
<td>Capital Maintenance</td>
<td>436</td>
<td>380</td>
<td>-56</td>
</tr>
<tr>
<td>Other Capex</td>
<td>262</td>
<td>154</td>
<td>-108</td>
</tr>
<tr>
<td>Metering</td>
<td>577</td>
<td>459</td>
<td>-118</td>
</tr>
<tr>
<td>Establishment</td>
<td>85</td>
<td>83</td>
<td>-2</td>
</tr>
<tr>
<td><strong>Total Capital Expenditure</strong></td>
<td><strong>1,946</strong></td>
<td><strong>1,847</strong></td>
<td><strong>-100</strong></td>
</tr>
</tbody>
</table>

4.5.2.2 MAJOR PROJECTS: WATER AND WASTEWATER CIP

Table 4.5: W&WW CIP CER Allowance vs. Irish Water Updated Position

<table>
<thead>
<tr>
<th></th>
<th>CER Allowance 2014 – 2016 (Nominal €m)</th>
<th>IW Updated Position 2014 – 2016 (Nominal €m)</th>
<th>Variance (Nominal €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Water Quality</td>
<td>118</td>
<td>151</td>
<td>33</td>
</tr>
<tr>
<td>Drinking Water Availability</td>
<td>74</td>
<td>121</td>
<td>47</td>
</tr>
<tr>
<td><strong>Water CIP Total</strong></td>
<td><strong>192</strong></td>
<td><strong>272</strong></td>
<td><strong>80</strong></td>
</tr>
<tr>
<td>Wastewater Compliance</td>
<td>201</td>
<td>267</td>
<td>66</td>
</tr>
<tr>
<td>Wastewater Availability</td>
<td>194</td>
<td>232</td>
<td>38</td>
</tr>
<tr>
<td><strong>Wastewater CIP Total</strong></td>
<td><strong>394</strong></td>
<td><strong>498</strong></td>
<td><strong>104</strong></td>
</tr>
</tbody>
</table>

28 Irish Water reported under different spend categories in IRC1 and in IRC2 hence the key spend categories elaborated on further in this section do not equate to those set out at IRC1 and in this background section.
Summary

Irish Water’s programme of major capital projects relates to building new, and upgrading existing, infrastructure throughout the water and wastewater network. These projects have been split into four regulatory categories for the IRC1 period: drinking water quality, drinking water availability, wastewater compliance and wastewater availability (Table 4.5).

In its 2014 IRC1 decision the CER allowed expenditure of €587m for this category of expenditure. Irish Water’s updated position as submitted to the CER in 2015 stated total expenditure of €771m for major water and wastewater projects. This is €184m above that allowed by the CER. However, Irish Water has underspent across a number of other categories (outlined in Table 4.4 above) and has used this to increase spending within its major capital projects. Given that the projects inherited by Irish Water had a demonstrated need, many relating to compliance issues, the CER is of the view that Irish Water has been prudent in accelerating its delivery of the major capital projects while establishing its approach to other programmes of work. The CER has reviewed a number of projects and is satisfied that Irish Water has applied appropriate and sensible processes and governance during this period. Irish Water has also broadly maintained the balance of capex that was expected at the time of the IRC1 decision in terms of investment driver and region.

Irish Water stated in their IRC1 look back submission that by the end of the IRC1 period 58 projects addressing drinking water capacity and quality issues will have been completed. These projects will have delivered over 250km of new or rehabilitated pipes, 9 new water treatment plants and 19 upgrades to existing treatment plants. Irish Water stated that it will have achieved a reduction in the number of people affected by boil water notices from circa 23,000 to circa 6,000 by the end of the period and have increased the headroom capacity of the Greater Dublin Area, in the short to medium term, from 1-2% to over 8%. Additionally, Irish Water has forecast that 26 new wastewater treatment plants will be built within the period with upgrades being made to a further 53 treatment plants to meet a number of compliance and capacity needs.

CER Decision

The CER considers Irish Water’s decision to rebalance its expenditure between categories to increase spending across major capital projects to be justified given the demonstrable need for investment in water and wastewater infrastructure. The CER has decided to allow expenditure on major capital projects of €771m.
Table 4.6 – The CER’s Allowed Capital Maintenance Capex 2014-2016 vs. Irish Water’s Updated Position

<table>
<thead>
<tr>
<th></th>
<th>CER Allowance 2014 – 2016 (Nominal €m)</th>
<th>IW Updated Position 2014 – 2016 (Nominal €m)</th>
<th>Variance (Nominal €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Conservation</td>
<td>153</td>
<td>153</td>
<td>0</td>
</tr>
<tr>
<td>Minor Capital Works (Reactive)</td>
<td>76</td>
<td>72</td>
<td>-4</td>
</tr>
<tr>
<td>Minor Capital Projects</td>
<td>106</td>
<td>82</td>
<td>-24</td>
</tr>
<tr>
<td>Suppressed Capital Maintenance</td>
<td>101</td>
<td>73</td>
<td>-28</td>
</tr>
<tr>
<td><strong>Capital Maintenance Total</strong></td>
<td><strong>436</strong></td>
<td><strong>380</strong></td>
<td><strong>-56</strong></td>
</tr>
</tbody>
</table>

**Summary**

In its 2014 IRC1 decision the CER allowed expenditure of €436m for this category of expenditure. Irish Water has reported a €55m underspend for this category of expenditure for the period. Prior to the establishment of Irish Water, capital maintenance across the water services was largely reactive. This has necessitated a period of gathering and assimilating information regarding asset condition and performance while implementing the required systems, processes and facilities to deliver an active, risk-based approach to asset management. The CER considers the steps taken by Irish Water to be prudent and should help to ensure that capital maintenance expenditure is more efficiently and more appropriately targeted in future revenue control periods.

Irish Water’s Water Conservation Programme is a key component of this category of expenditure. This programme aims to reduce leakage of drinking water by replacing or rehabilitating water mains throughout the network. Irish Water is forecast to spend the allowed budget of €153m for this programme across 85 projects. There are 45 projects scheduled to be completed by the end of the period which will see 82km of new pipes laid and 414km of pipes rehabilitated to achieve an estimated leakage reduction of 31 Ml/day.

**CER Decision**

The CER considers that Irish Water has been prudent in spending below the enduring level of capital maintenance prior to improving its understanding of its asset base to enable delivery of a more targeted, planned capital maintenance programme. The CER has decided to allow €380m for capital maintenance expenditure.
### 4.5.2.4 INFRASTRUCTURE SUPPORT

#### Table 4.7 – The CER’s Allowed Infrastructure Support Capex 2014-2016 Versus Irish Water’s Updated Position

<table>
<thead>
<tr>
<th></th>
<th>CER Allowance 2014 – 2016 (Nominal €m)</th>
<th>IW Updated Position 2014 – 2016 (Nominal €m)</th>
<th>Variance (Nominal €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy Final Accounts</td>
<td>45</td>
<td>33</td>
<td>-12</td>
</tr>
<tr>
<td>Developer Driven Reinforcement</td>
<td>30</td>
<td>10</td>
<td>-20</td>
</tr>
<tr>
<td>Key Studies</td>
<td>8</td>
<td>0</td>
<td>-8</td>
</tr>
<tr>
<td>Health &amp; Safety</td>
<td>6</td>
<td>0</td>
<td>-6</td>
</tr>
<tr>
<td>Telemetry</td>
<td>7</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Capital Project Office Staff</td>
<td>55</td>
<td>52</td>
<td>-3</td>
</tr>
<tr>
<td>Customer Side Leakage</td>
<td>46</td>
<td>19</td>
<td>-27</td>
</tr>
<tr>
<td>Metering Surveys</td>
<td>2</td>
<td>0</td>
<td>-2</td>
</tr>
<tr>
<td>Customer Connection Fees</td>
<td>0</td>
<td>-38</td>
<td>-38</td>
</tr>
<tr>
<td><strong>Infrastructure Support</strong></td>
<td><strong>199</strong></td>
<td><strong>84</strong></td>
<td><strong>-115</strong></td>
</tr>
</tbody>
</table>

**Summary**

In its 2014 IRC1 decision the CER allowed expenditure of €199m for this category of expenditure. Irish Water is reporting a €115m underspend across infrastructure support. This has mainly resulted from competitive negotiation of legacy final accounts, lower than anticipated levels of developer driven reinforcement, lower than anticipated uptake of Irish Water’s First Fix Scheme and the accrual of customer connection fees to the value of €38m. Irish Water’s commercial treatment of negotiations in the settlement of 142 legacy final accounts has resulted in a €12m saving for the period.

Developer driven reinforcement has a reported underspend of €20m resulting from the anticipated levels of investment required to reinforce the network not materialising. This investment is largely not within Irish Water’s control and is more closely related to the condition of the Irish economy. At the time of the IRC1 decision, Irish Water was unable to provide an explicit estimate of the customer connection fees it would receive and expected to proceed on the basis of existing charging arrangements across the local authorities prior to the adoption of a harmonised national connections framework. During the period Irish Water has accrued €38m from customer connection fees.

Key studies are conducted by Irish Water in order to assess the investment need over the period and to develop long term capital investment objectives. The expenditure for this line item has been reallocated to respective water and wastewater projects and so is reported as zero across infrastructure support. Similarly, health & safety expenditure has been reallocated to the HSQE.
minor capital project and the outturn is reflected as zero across the infrastructure support category.

Irish Water has reported a total expenditure of €1.35m against an original projected expenditure of €7.46m to the end of Q2 2015 for Customer Side Leakage. Total forecast expenditure for the period of €19m has been reported, a €27m underspend against the CER allowance, reflecting a slower uptake of the First Fix Repair Scheme by Irish Water’s customers than originally estimated. However, despite the lower than anticipated expenditure, Irish Water reported an estimated water saving of 27MI/day during the initiative’s first eight months which accounts for 73% of the originally expected outcome of 37MI/day of water saved.

CER Decision

The CER has decided to allow €84m for infrastructure support expenditure. The CER notes that many of the areas of spend in this category are not fully within Irish Water’s control. The CER welcomes the savings made by Irish Water in areas such as legacy final accounts and the water savings made under the First Fix Scheme despite lower customer uptake than originally forecasted.

4.5.2.5 ANCILLARY INVESTMENT

Table 4.8 – The CER’s Allowed Ancillary Investment 2014-2016 Versus Irish Water’s Updated Position

<table>
<thead>
<tr>
<th></th>
<th>CER Allowance 2014 – 2016 (Nominal €m)</th>
<th>IW Updated Position 2014 – 2016 (Nominal €m)</th>
<th>Variance (Nominal €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT</td>
<td>23</td>
<td>35</td>
<td>12</td>
</tr>
<tr>
<td>Business Change</td>
<td>12</td>
<td>10</td>
<td>-2</td>
</tr>
<tr>
<td>Facilities</td>
<td>19</td>
<td>17</td>
<td>-2</td>
</tr>
<tr>
<td>Shared Services</td>
<td>5</td>
<td>4</td>
<td>-1</td>
</tr>
<tr>
<td>Group Centre</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Metering</td>
<td>577</td>
<td>459</td>
<td>-118</td>
</tr>
<tr>
<td>Establishment</td>
<td>85</td>
<td>83</td>
<td>-2</td>
</tr>
<tr>
<td><strong>Ancillary Investment</strong></td>
<td><strong>725</strong></td>
<td><strong>612</strong></td>
<td><strong>-113</strong></td>
</tr>
</tbody>
</table>

Summary

Ancillary Investment relates to the investment in business and management necessary to improve the efficiency of Irish Water’s delivery of water and wastewater services to its customers. In its 2014 IRC1 decision the CER allowed expenditure of €725m for this category of expenditure. An underspend of €113m is reported by Irish Water for ancillary investment expenditure.
Whilst the net position for this category of spend is an underspend, Irish Water is reporting an overspend on information technology (IT) of €12m. This is due to the addition of new projects not included in the IRC1 submission, including projects on asset data capture and non-domestic tariff harmonisation. These functional change projects are necessary to ensure the efficiency of Irish Water’s management of its assets and services. With these additional projects excluded from the assessment, Irish Water has remained within the allowances determined by the CER for IT at IRC1. Irish Water has stated that their IT investment programme will require continued management and investment as the organisation evolves and these needs should be clearly set out in future investment plans.

Business Change investment is to be delivered with a €2m underspend for the period. The business change function within Irish Water provides support across the organisation in the delivery of organisational change. Irish Water has stated that this investment is necessary to introduce the single water utility framework across the 31 local authorities and to delivery efficiencies.

Irish Water is reporting marginal underspends in the areas of Facilities and Shared Services. The Facilities expenditure allows Irish Water to complete necessary refurbishment upgrades, replace critical building plant and facilitate technology upgrades. A Fleet Strategy paper is planned for delivery during the period and this will inform future expenditure in this area.

Irish Water is within budget for both Shared Services costs and Group Centre costs. These costs are allocated on a 65:35 ratio between Irish Water and Gas Networks Ireland (GNI). These relate to areas such as finance, procurement, HR, IT, transactional services, central governance, finance control and third party stakeholder management.

The contracts for Phase 1 of the National Metering Programme were novated to Irish Water when the utility was established. Phase 1 planned the installation of 1,058,275 meters between 2013 -2016 within a budget of €615.4m. By the end of 2016 Irish Water is forecasting that 884,824 meters will be installed (83.6%) at a cost of €500.7m (81.4%). The expected reduced cost per meter installed has resulted from fewer boundary boxes being required and fewer abortive excavations than originally assumed.

As part of its IRC1 review, the CER undertook a detailed review of the cost efficiency of Irish Water’s proposed establishment costs and a reduction was made to ensure only efficiently incurred costs were recovered. Irish Water is reporting spend of €83m of the allowed €85m for the IRC1 period. Irish Water’s profile of actual/forecast expenditure is broadly aligned with those allowed and the utility will deliver the outputs associated with the programme during IRC1.
CER Decision

Irish Water’s ancillary investment has largely delivered the necessary ancillary investment to support the business. The net underspend across ancillary investment is mostly associated with the metering programme. The CER has decided to allow expenditure of €612m as reported by Irish Water.

4.5.3 Conclusion

Irish Water is within the capital expenditure of €1,946m allowed by the CER for the three-year period 2014-2016 in its IRC1 decision, reporting expenditure of €1,847m. Irish Water’s outturn expenditure for the 27-month period Q4 2014-2016 (IRC1) is €1,365m. The remainder of the €1,847m feeds into the opening RAB (at 1 October 2014) as detailed in Section 4.3 of this paper. The CER has decided to recognise Irish Water’s capital expenditure during IRC1 in full. The manner in which these adjustments feed through into Irish Water’s allowed revenue for the 2017-2018 period is discussed in Section 7 of this document. Irish Water undertook a review and re-prioritisation of the projects and programmes inherited from the local authorities on establishment in order to support the development of the IRC1 CIP. The governance processes and guidelines that Irish Water has initiated appear to be an effective tool for managing their capital programme. A sample audit of projects carried out as part of this review has validated that they are being applied by Irish Water.

The CER considers that Irish Water’s decision to re-prioritise expenditure within the CER determined IRC1 allowance during the period is understandable. When formulating the first CIP and IRC1 submission to the CER, Irish Water did not have full knowledge of its assets or their condition or of existing work practices. At that time Irish Water was embarking on a phase to establish itself as the single national utility, a significant change from the model whereby water and wastewater services were delivered separately by individual local authorities.

It was prudent of Irish Water to re-prioritise expenditure within the ancillary investment category in this context to focus on putting in place the necessary systems and expertise to support this new entity. Re-balancing expenditure elsewhere within the overall allowance is also understandable. Irish Water has underspent, relative to its allowances, on capital maintenance while it collates information and data regarding its asset base in order to implement a planned national maintenance programme. This supports the implementation of a risk-based approach to capital maintenance which is consistent with that employed in energy networks in Ireland and water utilities in the UK. This should ensure efficient expenditure in this area as Irish Water matures. The CER considers that Irish Water has been prudent in reallocating the underspends associated with capital maintenance and the metering programme to advance a greater number of water and wastewater projects to meet compliance and statutory obligations.
The IRC1 period to end December 2016 is a period of establishment for Irish Water. IRC2 will see Irish Water advance to a transitional phase. The revenues allowed to Irish Water by the CER for the IRC1 period provide for investment in the foundations required to move to the single utility model including spend on metering as required by government policy, billing system(s) and other IT infrastructure platforms to support operational and investment decision making and asset management. Irish Water must now appropriately build on those foundations to support the transition to business as usual operation as a single national, efficient utility.

4.6 Summary of Review of IRC1 Expenditure

Summary of Key Decisions

Operational Expenditure (Opex)

- The CER has decided to claw back €13m (less than 1%) related to uncontrollable costs. The CER remains of the view that only licences, levies and rates should be treated as uncontrollable cost items.
- The CER also does not allow additional revenue for overspends in controllable cost areas.
- Given the lack of clarity on any net cost increases or activity deferrals, the CER has decided not to make an ex-post variation in the TOM expenditure allowance. The CER has also decided not make an adjustment to the original allowance for group centre costs and shared services costs.
- Regarding SLA costs, Irish Water has made savings in line with the CER’s allowance and the final variation in outturn expenditure is not material. The CER has decided not to make an ex-post adjustment to the SLA expenditure allowance.
- The CER has decided allow IRC1 expenditure of €4m relating to innovation.

Capital Expenditure (Capex)

- Irish Water is within the capital expenditure of €1,946m allowed by the CER in its IRC1 decision, reporting expenditure of €1,847m. The CER has decided to recognise Irish Water’s IRC1 capital expenditure in full.
- The CER considers Irish Water’s decision to rebalance its expenditure between categories to increase spending across major capital projects to be justified given the demonstrable need for investment in water and wastewater infrastructure. The CER has decided to allow Irish Water’s major capital projects expenditure.
- The CER considers that Irish Water has been prudent in spending below the enduring level of capital maintenance prior to improving its understanding of its asset base and
delivering a planned capital maintenance programme. The CER has decided to Irish Water’s capital maintenance expenditure as reported.

- The CER has decided to recognise Irish Water’s infrastructure support expenditure as spent.
- Irish Water’s ancillary investment has largely delivered the ancillary investment necessary to support the business. Underspend across ancillary investment is mostly associated with the metering programme. The CER has decided to recognise the expenditure as reported.

**Opening RAB**

- The CER has decided to capitalise costs associated with the development of Irish Water’s CIP.
- Efficient expenditure associated with the separation of combined sewers will be included in Irish Water’s RAB. Irish Water must demonstrate that that sewer separation is economically and technically viable, offers the most cost effective solution for Irish Water’s customers and represents an efficient means of meeting Irish Water’s service objectives.
- The CER has decided to recognise Irish Water’s operating costs for 2013 and Q1 – Q3 2014 as spent.
- The CER has decided to recognise the outturn capital cost associated with the Irish Water establishment programme and pre Q4 2014 capex as spent.
- The CER has decided to recognise the €10m cash local authority transferred liability.
- The CER has decided to apply a minor downward adjustment to Irish Water’s proposed financing cost from 12.6m to €12.2m.
- The CER has decided to allow €757m as Irish Water’s opening RAB at 1 October 2014. This value feeds into the CER’s 2014-2016 adjustments calculation discussed in Section 7 of this document.
5. Review of 2017-2018 Costs

5.1 Introduction

The CER issued business planning questionnaires to Irish Water in 2015 as part of the revenue control process. The purpose of the questionnaires was to allow Irish Water to provide submissions in as much detail as possible on the amount of money it would need to fund its operating and capital expenditure activities in 2017-2018. Having reviewed in detail the submissions provided by Irish Water, the CER published a consultation paper on Irish Water’s allowed revenue in September 2016.

The CER has now reviewed Irish Water’s submissions and the responses received to the consultation on this matter. The CER has also reviewed Irish Water’s updated CIP as received in August 2016 and engaged further with Irish Water regarding the application of a 13.5% efficiency challenge as a starting point to the uncommitted elements of Irish Water’s CIP to reflect expected efficiency gains in the period to the start of 2017. This section examines the Irish Water submissions and sets out the CER’s decisions regarding each area. It outlines in detail the submissions and the CER decision in the following areas:

- Irish Water’s operating expenditure for the 2017-2018 period in Section 5.2;
- Benchmarking undertaken by the CER on Irish Water’s operating expenditure in Section 5.3;
- Irish Water’s capital expenditure for 2017-2018 in Section 5.4;
- Summary of Irish Water’s key proposals for 2017-2018 in Section 5.5.

The CER’s responses to comments received to the consultation paper are published in a separate document alongside this paper (CER/16/343).

5.2 Review of Operational Expenditure, 2017 - 2018

5.2.1 Introduction

This section provides detail on the CER’s decision on the operating cost\(^29\) allowance for Irish Water for the IRC2 period. By setting an appropriate allowance for these costs, the CER requires the utility to drive efficiencies while still delivering an appropriate level of service.

\(^{29}\) Operating costs includes SLA costs.
In order to reach its decision, the CER has reviewed the submission provided by Irish Water. This included a review of Irish Water’s expenditure proposals in specific functional areas, the business case presented, and any supporting evidence.

The CER also commissioned a comparative benchmarking exercise to assist its assessment of Irish Water’s operational expenditure. This benchmarking includes a comparison of Irish Water relative to English and Welsh utilities. The CER considers that the operating costs met by these companies represent the target that Irish Water should move to over time.

The CER is aware that Irish Water has inherited the costs of operating water and wastewater services from 31 different local authority regions. The CER does not expect Irish Water to reduce those costs immediately to levels similar to utilities in other jurisdictions, as this immediate change would not be achievable while providing an adequate level of service. However, the CER does expect Irish Water to move over time to levels that are similar to those evident in neighbouring jurisdictions.

With this in mind, the CER has also considered the rate at which Irish Water should move towards an efficient level (i.e. comparable to English and Welsh utilities). It has also considered evidence which supports an achievable challenge for Irish Water while being cognisant of the context it operates in.

Both the benchmarking and the appropriate glide path are discussed below in more detail. In addition to that analysis, each line item was reviewed by the CER in the cost categories outlined by Irish Water.\(^30\) This is detailed below. However, rather than approving the expenditure for each individual line item (in the format used by Irish Water), the CER sets an overall level for operating costs\(^31\) within which Irish Water is required to manage its expenditure.

This approach is consistent with that for the IRC1 period and is designed to allow Irish Water flexibility regarding how it manages its activities. While the CER’s analysis indicates the scope for improvement (and areas where these could potentially be realised), it is up to Irish Water, using its own specialist knowledge and skills, to determine how and where to best deliver the improvements. Irish Water best knows how its business can drive cost reductions. This approach is also consistent with that of both water regulators in other jurisdictions and the CER with respect to energy utilities.

---

\(^{30}\) The CER had requested the information on a different line-by-line basis, but this could not be provided by Irish Water.

\(^{31}\) This is split into controllable and uncontrollable costs as detailed later in this section.
5.2.2 Review of forecast operational cost categories

Sections 5.2.3 to 5.2.6 below provide detail of the CER’s review of the costs submitted by Irish Water. This included a review of Irish Water’s expenditure proposals in specific functional areas, the business case presented, and any supporting evidence. Section 5.2.7 then discusses additional information provided by Irish Water.

In its submission, Irish Water requested a total operating expenditure requirement of €1,523m for 2017-2018. It noted that this was inclusive of its proposed annual efficiency target and operating expenditure growth forecast for the period. It grouped its operating expenditure into the following main areas:

- Operations and maintenance (SLA expenditure; 72% of total proposed opex);
- Target Operating Model (20%);
- Group, shared service centre and major projects office (5%); and,
- Uncontrollable operating costs (3%).

Each of these cost areas are discussed in turn below.

Table 5.1: Overview of IW operating costs and CER decisions for 2017-2018

<table>
<thead>
<tr>
<th>Operating costs</th>
<th>IW initial request 2017 – 2018 (2015 monies, €m)</th>
<th>CER decision on opex (2015 monies, €m)</th>
<th>Savings to customer from CER efficiency challenge (2015 monies, €m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA expenditure (excl. DBO costs)</td>
<td>871</td>
<td>722</td>
<td>38</td>
</tr>
<tr>
<td>DBO costs</td>
<td>222</td>
<td>222</td>
<td>0</td>
</tr>
<tr>
<td>Target Operating Model</td>
<td>305</td>
<td>305</td>
<td>0</td>
</tr>
<tr>
<td>Group centre</td>
<td>31</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>Shared services</td>
<td>42</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total controllable costs</strong></td>
<td><strong>1,471</strong></td>
<td><strong>1,357</strong></td>
<td><strong>114</strong></td>
</tr>
<tr>
<td>Non-controllable costs</td>
<td>52</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>1,523</strong></td>
<td><strong>1,375</strong></td>
<td><strong>148</strong></td>
</tr>
<tr>
<td><strong>Investment in capabilities</strong></td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Note: For IRC2 the CER has decided to impose a 5% per annum efficiency challenge across Irish Water’s controllable operating costs for 2017 and 2018, with the exception of Design Build Operate (DBO) costs. The CER does not specify exactly where these savings are to be made across the business and its decision does not insist that Irish Water achieve 5% per annum.

---

32 This is calculated by applying a 5% per annum reduction to Irish Water’s forecast costs for 2016 (net of DBO costs).
saving in each individual cost area, but rather that its total savings over the period amount to 5% per annum cumulatively from its 2016 submitted controllable operating costs. The CER has also decided to allow an additional €20m on a one-off basis allowing Irish Water to invest in further capabilities that it has identified following the submission of its initial proposals for 2017-2018. This will be discussed in detail in Section 5.2.7,

5.2.3 SLA expenditure (72% of total proposed opex)

5.2.3.1 OVERVIEW

Upon its establishment, Irish Water was required to enter into Service Level Agreements (SLAs) with each local authority for the delivery of water and wastewater services. The first SLA runs for a period of 12 years, with reviews scheduled in the second and seventh years. The first review commenced in 2015 and has been deferred for completion at a later date. The SLA covers work on water and wastewater services within local authorities where the statutory responsibility has transferred to Irish Water. Within operating expenditure, SLA costs are Irish Water’s largest spend, accounting for 72% of its proposed operating expenses.

5.2.3.2 IRISH WATER REQUEST

Irish Water proposed SLA operating costs of €1,093m. There are a number of components within this figure, with payroll, goods and services, energy, overheads and Design Build and Operate contracts forming the bulk of the expenditure.

The requested SLA expenditure total has already included Irish Water’s targeted efficiencies. Irish Water noted that it also includes increases proposed by the utility as a result of specific growth factors affecting operations and maintenance activities over the period. Irish Water listed the following main reasons for this growth:

- An increase in water and wastewater demand:
  - Irish Water expects that water and wastewater demand will increase in IRC2, driven by economic and population growth. It expects volume increases to, in turn, result in increases to variable treatment costs e.g. energy and chemicals. It anticipates this to amount to approximately €4m over the period.
- An expansion of its capital base:

33 These reviews are to be completed by Irish Water and the local authorities.
Irish Water expects that new or upgraded plants as a result of capital investment will result in greater associated operating costs. It anticipates an increase in operations and maintenance (O&M) costs of €4.9m in IRC2 as a result.

- **Increased compliance demand:**
  - Irish Water notes that the largest driver of O&M are activities required to pursue compliance with national legislation and EU Directives and Regulations. Targeted measures include increased health and safety inspections, implementation of Standard Operating Procedures (SOPs), and increased monitoring relating to lead.

- **Operational performance and service improvements:**
  - Irish Water has identified sections of the water services network which were not previously accounted for and expects to encounter higher maintenance costs now that it has established the extent of the network. It also submits that it plans to introduce a 24-hour out-of-hours service for customers at a cost of approximately €2.2m and a full survey of non-domestic metering stock at a cost of circa €3m.

- **Other growth drivers:**
  - Irish Water outlines that national wage agreements already implemented will increase SLA payroll costs by a further €2m.

---

**5.2.3.3 CER VIEW**

Irish Water substantially reduced SLA costs over IRC1. The utility noted that it delivered approximately €70m of savings in core asset opex in IRC1. This consisted of:

- Procurement savings – approx. €34m;
- SLA labour savings – approx. €21m;
- Opex savings from minor capital work delivery – approx. €5m;
- Energy and chemical usage savings – approx. €4m;
- Process improvements savings – approx. €4m; and
- Contractor savings – approx. €3m.

However, for IRC2 the costs proposed by Irish Water are broadly flat. While efficiencies are proposed by Irish Water these are offset by proposed increases in cost related to specific upward cost drivers listed above.

Irish Water proposed a transformation programme (the WIOF programme), which is intended to drive efficiencies over the medium term in these costs. While the CER has seen high-level details of the programme, more detail is to be provided during the IRC2 period outlining where and how these efficiencies will be realised over IRC2 and beyond.
Separately, an analysis comparing Irish Water’s unit costs to UK comparators indicates that Irish Water’s employment and material costs (of which SLAs comprise the larger element) are higher than the benchmark level. This analysis is detailed in the NERA report which is published alongside this paper. That report notes that the format in which the data was received from Irish Water did not easily facilitate comparison with UK utilities. The benchmarking is discussed further in Section 5.3 of this CER paper.

Within Irish Water’s SLA expenditure, €222m related to DBO costs. The CER has decided to exclude these costs from the overall efficiency challenge for 2017-2018, as outlined in Section 5.3.4.

5.2.4 Target Operating Model (20%)

5.2.4.1 OVERVIEW

The Target Operating Model (TOM) refers to the business capabilities and processes within Irish Water. It describes the organisation structure, processes and systems that Irish Water need to carry out its business activities. The key functions within the Irish Water TOM structure are Work and Asset Management, Customer Operations and Support Services.

The TOM accommodates the SLA partnership between Irish Water and the 31 local authorities to deliver water services. It enables local, regional and national operations to be co-ordinated between Irish Water through the SLAs to deliver water services in an efficient manner. It also recognises administrative and geographic realities of the water sector and its dispersed nature.

It is based on a High Performance Utility Model which was introduced over the course of IRC1. This is a best practice utility model encompassing organisational structure and associated business processes and systems. It is intended to ensure that Irish Water is managed to best-in-class utility structures and standards.

5.2.4.2 IRISH WATER REQUEST

Irish Water proposed €305m in TOM costs for the period 2017-2018. Work and asset management, customer operations and support services are the main cost drivers within TOM. Costs are comprised of labour (e.g. payroll, training, recruitment etc.) and non-labour (e.g. customer operations, billing, etc.) costs. Labour costs account for €137m of the total TOM.

---

34 See Section 3.1 of the NERA report for details – CER/16/269.
35 In the absence of data in the format requested in the Business Planning Questionnaire, to facilitate comparisons, the expenditure has been mapped to equivalent UK expenditure lines. This may result in some categorisation differences, and highlights the importance of receipt of data in a format to facilitate direct comparison (i.e. as requested in the questionnaire).
36 See CER/14/369 for further details.
request with non-labour comprising the remaining €168m. TOM costs have increased by €11m on the approved TOM costs from IRC1.

During the review process, Irish Water provided a report as evidence that its pay structures and headcount are efficient. The report, commissioned by parent company Ervia, concludes that actual individual pay levels are lower than typical market levels in most cases and that the pay model in operation is suitable for Irish Water.

5.2.4.3 CER VIEW

The CER notes that in order to achieve the 7% efficiency challenge set by the CER on operating costs for IRC1, implementation of the TOM was deferred where appropriate.

The CER notes the Aon Hewett report is primarily commenting on pay structure at different grades, not headcount or appropriate staffing levels.

As outlined in Section 5.2.3 for SLA costs, the benchmarking points towards employment costs being high (in total across operating costs, including operating costs related to the SLAs). While this suggests that reductions are possible, it is difficult to definitively conclude which areas these efficiencies should be best achieved in. This is one of the reasons why the CER sets an overall efficiency target across operating costs.

5.2.5 Group, shared service centre and major projects office (5%)

5.2.5.1 OVERVIEW

As a subsidiary of Ervia, Irish Water has costs allocated to its business for services provided to the utility from its parent company. These relate to Group, Major Projects and Shared Services.

The Group Centre is responsible for setting the strategic direction of Irish Water and providing corporate governance and oversight.

The Major Projects support function is responsible for managing the development and delivery of large scale water infrastructure projects. The Shared Service centre provides transactional support services to Irish Water in areas such as IT service and infrastructure delivery, IT project management office support and enterprise application delivery.

Ervia considers the Group and Shared Service structure as the most efficient model to provide relevant services to both Irish Water and Gas Networks Ireland (GNI) groups. Ervia allocate costs (for Group and Shared Services) between Irish Water and GNI on a 65:35 split between the companies, reflecting activity levels and the greater relative size of the water network i.e. in terms of customers served.
5.2.5.2 IRISH WATER REQUEST

Irish Water proposed €72.8m for the Group Centre, Shared Services and Major Projects cost category. This is an increase of circa €6m relative to expenditure incurred in IRC1.

Increases in these costs items are due to a larger capex programme and the roll-out of the Water Industry Operating Framework (WIOF) project among others.

Based on a 65% allocation of costs, Irish Water stated that expenditure Group Centre costs represent 2% of Irish Water’s total opex requirement comparing that with Group costs for ESB Networks in the recent PR4 decision which were 3.6% of opex.

Irish Water also provided a report regarding its business support function. The high-level messages of the report are that the adoption of a shared service model for the delivery of support functions is in line with international leading best practice.

5.2.5.3 CER VIEW

The CER notes that substantial work has been undertaken during IRC1 to build an operating model that is fit-for-purpose and considers that the activities undertaken at Ervia level appear reasonable.

The benchmarking report provided by Irish Water is noted. This analysis notes a number of points including that the report provides only a partial assessment of the business as a whole and does not take into account any activities which may also be undertaken in parts of the business which were not considered as part of the EY review.

The point put forward by Irish Water that Group costs (at 2% of total opex) are around half that of energy networks is noted. However, the percentage based comparison is not easily comparable and may also be distorted by the high level of base opex in Irish Water’s case relative to comparators. Differences may also arise due to any differences in organisational structures and functions. Please see the NERA report for more details.

5.2.6 Uncontrollable opex (3%)

5.2.6.1 OVERVIEW

Operating costs can be broken down into two categories: controllable and uncontrollable:

- Controllable operating costs are those over which the utility has control, such as staff costs, consumable materials, etc. These are discussed in the preceding Sections 5.2.3, 5.2.4 and 5.2.5 of this paper.
Uncontrollable operating costs are by definition not directly controllable by the utility, such as levies and rates.

This is an important differentiation as generally, in gas and electricity price reviews, once the CER accepts that a cost is uncontrollable, i.e. the utility can demonstrate that it does not have control over the cost, the CER has decided to include a placeholder (or estimate of the cost) within the forecast costs for the period, correcting for the actual costs when completing the ex-post review.

This approach is consistent with that outlined in the CER’s advice to the Minister regarding the Economic Regulatory Framework for the public water services sector in Ireland. It is also consistent with the approach taken by the CER for the regulated gas and electricity network utilities.

This ensures that if these costs are higher than expected the utility’s revenue is adjusted upwards to ensure it covers these costs. Conversely, if these costs are lower than expected the utility’s revenue is adjusted downwards to ensure it only receives enough revenue to cover these costs.

5.2.6.2 IRISH WATER REQUEST

Irish Water proposed that the following expenditure items be classed as uncontrollable opex for IRC2:

- Licences and levies (€18m): This cost item is made up of EPA licence fees (€13m) and the CER levy (€5m);
- Irrecoverable VAT (€8m): This cost item comprises VAT on expenditure on shared services within the Ervia Group. These items are costed exclusive of VAT as these entities have VAT recoverability;
- Insurance (€26.3m).

Irish Water’s classification of uncontrollable expenditure items within its IRC2 forecast submission is not consistent with the IRC1 decision, which classified “licences and levies” and “commercial rates” only as uncontrollable expenditure items.

Irish Water noted that while insurance costs are treated as controllable in the current electricity and gas price controls, earlier price controls provide precedent for treatment of these costs as uncontrollable. Irish Water held the view that it is at a similar stage in its regulatory framework to that of the transmission utilities in the early 2000’s and that given its start-up nature, it will be a number of years before the utility has access to sufficient information to fully understand its
insurable risks. As a result, Irish Water requested that the CER treat insurance costs as uncontrollable in IRC2.

5.2.6.3 CER VIEW

The CER notes Irish Water’s position as a new utility and that there may be some uncertainty around insurable risks at this stage of its development. However, the CER is of the view that the framework introduced at IRC1, which treats only licences, levies and rates as uncontrollable cost items, should remain in place. Under the Water Services Act 2014, Irish Water is no longer required to pay commercial rates. That decision at IRC1 was consistent with the CER’s approach to defining uncontrollable costs in its regulation of the energy sector. Therefore, the CER has decided not recognise insurance costs or irrecoverable VAT as uncontrollable cost items.

The CER has decided that the forecast costs for licences and levies (€18m) be allowed in full as uncontrollable costs for IRC2.

5.2.7 Additional information on capability to improve performance

5.2.7.1 OVERVIEW

Opex line items discussed in Sections 5.2.3 to 5.2.6 relate to submissions provided by Irish Water in business planning questionnaires earlier in the revenue control process. As part of the CER’s engagement with Irish Water, the utility also provided detail on cost drivers which it considers it faces over the coming period in particular. These are discussed in turn below. The costs associated with these upward pressures are already built into the requests outlined above.

5.2.7.2 IRISH WATER REQUEST

Investing in capabilities: Overview

Irish Water intends to deliver a uniform approach to service delivery across the country. This will assist in improving service for customers and environmental compliance, as well as allowing Irish Water to drive efficiencies and savings within its cost base over time.

Irish Water stated that during its establishment phase it was understood that certain activities were undertaken uniformly across all local authority areas. During the initial revenue control, Irish Water has become aware that this is not always the case and that additional work needed to be undertaken to ensure effective operation of required activities.
Investing in capabilities: Wastewater source control and licensing

Irish Water stated that work on wastewater source control and licensing has not always been carried out in a uniform way by the majority of local authorities.

This refers to the management of effluent from trade customers. Irish Water stated that historically these specific charges have fallen short of full cost recovery and that staffing levels for this activity have been low, resulting in a very limited delivery capability and increased pressure on the system. Irish Water is now seeking to roll out a national programme approach to this activity.

Investing in capabilities: Asset delivery

Irish Water has stated that during the previous revenue control period, it became clearer that some required services are not completed uniformly by all local authorities. These include Project Control, Design Services, Land Planning and Wayleaves. To facilitate a more effective roll-out of the Capital Investment Plan, Irish Water stated that it intends to consolidate certain capabilities related to this work. It stated that this will facilitate achievement of the capex savings set out in its Business Plan and its submission for the 2017-2018 period.

Investing in capabilities: Data capture

Irish Water has stated that prior to it taking responsibility in 2014, very limited data capture and planned maintenance was carried out by the local authorities. During its establishment, IT systems were put in place to allow Irish Water to effectively manage the asset base. Irish Water stated that over the next revenue control period, an Irish Water team must now go to all currently identified Irish Water sites (circa 4000 individual relevant sites), to capture missing asset data and maintenance practice.

Irish Water stated that a fully mapped asset management database is central to the operation of any modern utility, whether in electricity, gas, telecoms or water services. It stated that a complete picture of the Irish Water asset base will allow it to plan, maintain, consolidate and operate the water services system in a more effective and efficient manner. It stated that over time, this will enable sustainable cost reductions to be delivered for the benefit of customers.

Investing in capabilities: Regional monitoring

Irish Water stated that a lack of available monitoring capability in the local authorities has led to serious non-compliance issues at a number of Irish Water sites. It stated that resources are urgently required to improve monitoring, reporting and analysis of regional water and wastewater plant operation and compliance.
It stated that a single national approach to the monitoring, reporting and investigation of non-compliance incidents will provide for a more streamlined, efficient and less costly system of reporting and response across the entire country.

Irish Water stated that across the country, customer welfare and environmental protection is being adversely affected by the lack of a standardised approach to the monitoring, reporting and investigation of non-compliance at our plants. The CER is aware of a recent incident where an overflow occurred at a wastewater pump station. In this instance the pump station did not operate for a period of time resulting in an overflow of a significant quantity of wastewater into the area. Irish Water has stated that a uniform approach to compliance monitoring would reduce the risk of such failures.

**Investing in capabilities: Summary**

The total cost associated with these gaps is €19.8m over the 2017-2018 period.

**Economic growth**

Irish Water stated that driven by strong economic and population growth (including new connections), it anticipates that water and wastewater demand will increase by approximately 1% per year over IRC2 (after adjusting for estimated leakage reduction). This will result in an increase in treatment costs – both in plants with sufficient existing capacity and in those which are being upgraded to cope with the additional volume demand.

Irish Water also stated that there are numerous drinking water and wastewater plant upgrades and new assets that will lead to marginal operating cost increases over the 2017-2018 period.

This increases its costs by €28m during the 2017-2018 period.

**Additional compliance requirements**

Within their submission, Irish Water have made the point that over the course of IRC1 it has become clear that there are extensive compliance issues that have not been addressed heretofore. It stated that these now need to be tackled as a matter of priority to ensure customer welfare and environmental protection. These include:

- **Sampling and Health & Safety Inspections** – Irish Water stated that its IRC1 costs only provided for a level of sampling needed to meet basic regulatory requirements, but that additional sampling is required in IRC2 across a range of its assets in order to gather critical information on water and wastewater treatment plant operation.
- **Lead Monitoring** – additional monitoring is vital to the successful roll-out of the national Lead Strategy programme and, ultimately, public health.
- **Non Domestic Metering** – a full survey of the non-domestic metering stock must be undertaken to assess meter functionality, alignment with Irish Water metering practices, and revenue assurance.

- **Operating Procedures** – prior to IRC1, there were no Standard Operating Procedures (SOPs) and Site Specific Operating Procedures (SSOPs) for the water sector on a national basis. Irish Water has stated that it needs to continue the roll out of a standardised approach to compliance in IRC2. It stated that failure to do so will result in inefficient localised variances in operations and inconsistent asset performance levels across the country.

- **Out of Hours Service** – out-of-hours services were not provided on a national basis before Irish Water establishment. Regularising these services in IRC2 is a requirement to meet Customer Handbook obligations and will result in improved customer service, on a consistent basis, across the country.

Irish Water stated that this increases its costs by €18m during the 2017-2018 period.

**Additional compliance standards in excess of UK**

Irish Water also pointed out that it will incur increasing operating costs in IRC2 as a direct result of compliance demands which have not previously been addressed.

Under the 2001 UWWT regulations, the EPA has set requirements on the removal of nitrogen and phosphorous components in Ireland which drives increased costs.

According to Irish Water, the EPA approach requires the construction and maintenance of larger and more complex infrastructure and equipment in Ireland versus the equivalent UK plant. This additional nitrogen removal requires:

- More aeration;
- Larger blowers;
- More servicing; and
- More energy

It also stated that additional phosphorous removal requires:

- Continuous operation and maintenance of chemical dosing equipment;
- Year-round purchase of phosphorous removal chemical; and
- Higher volumes of sludge to be dewatered and disposed of.

Irish Water is of the opinion that if the utility was of exactly the same size, profile and maturity of its UK comparators, its costs would still be circa €26m higher as a direct result of the EPA conditions.
The CER engages with the EPA, the environmental regulator, on a regular basis and will continue to engage with them on these matters.

5.2.7.3 CER VIEW

The CER has considered the detailed information provided by Irish Water, as outlined above in Section 5.2.7.2. The CER’s view is outlined below for each of the points made by Irish Water.

The CER has reviewed the information provided by Irish Water regarding the need for investment in capabilities over the coming period. The CER does accept that the work outlined will bring benefits to customers and lead to increased environmental compliance. The CER considers that the costs associated with this work should, in time, either reduce (e.g. recording of data on existing assets) or be more than offset by reductions in costs in other areas. Therefore, the CER has decided to allow Irish Water a one off allowance of €19.8m to address these gaps for the 2017-2018 period.

Irish Water has outlined that it faces increased costs due to economic growth and ‘additional compliance’ requirements. The CER accepts that Irish Water will have some upward cost pressures over the 2017-2018 period. However, the CER notes that utilities in other jurisdictions essentially absorbed certain upward cost pressures while reducing their costs following the introduction of economic regulation. The CER considers that Irish Water should broadly be expected to do the same. Therefore the CER has decided not to make specific allowances for these two points (i.e. economic growth and additional compliance).

The point made by Irish Water regarding additional compliance standards in excess of the UK is slightly different, in that it relates to costs over and above what would have been experienced in other jurisdictions. The CER considers that this point could become more relevant in future revenue controls when the significance of any additional costs associated with new infrastructure could increase. The CER has decided not to make a specific allowance for this point for the 2017-2018 period.

The CER has decided to make a specific one-off allowance for the first of the above points, but not for the latter three. Similar to utilities in other jurisdictions, the CER expects Irish Water to absorb any upward cost pressures relating to the latter three points while reducing its overall costs.

To the extent that the situation faced by Irish Water over the next two years is more difficult than that experienced in other jurisdictions, the CER considers that its decision to choose a point at the lower end of the range outlined below in Section 5.3 makes an appropriate allowance for this factor.
5.3 Operating expenditure benchmarking 2017–2018

5.3.1 Overview

As detailed above, the CER has reviewed in detail costs put forward by Irish Water and the basis for these costs. This included a review of Irish Water’s expenditure proposals in specific functional areas, the business case presented, and any supporting evidence. The CER has also specifically considered the merits of Irish Water’s arguments for funding required to grow operating costs at this time and costs associated with Service Level Agreements. In doing so the CER has considered the appropriate glide path towards efficiency for Irish Water. The glide path is the length of time deemed reasonable for Irish Water to move towards achieving the same costs as an efficient comparator utility.

In addition, to arrive at a decision on appropriate costs, the CER commissioned a comparative benchmarking exercise to assist its assessment of Irish Water’s operational expenditure. This benchmarking includes a comparison of the cost performance of Irish Water (including costs under the SLAs) relative to UK water and sewerage companies. The benchmarking exercise also includes an assessment of the rate at which Irish Water should move towards an efficient level.

This benchmarking is discussed below in Sections 5.3.2 to 5.3.4.

5.3.2 Relative comparison of Irish Water to established utilities

5.3.2.1 INTRODUCTION

The benchmarking commissioned by the CER compares the performance of Irish Water relative to the operating costs of English and Welsh utilities that have been in operation for a number of decades. This section provides information on this comparison.

The international comparators are established utilities that have operated under a regulatory framework for a lengthy period, during which time they have driven efficiencies within their operations.

In contrast, since Irish Water was established relatively recently it is expected that it will be a number of years before it can reduce its operating costs to a level that is comparable to those evident in the UK. Therefore Section 5.3.4 provides information on the expected efficiencies over the next two years.

37 These include SLA costs.
5.3.2.2 CER BENCHMARKING – TECHNIQUES AND DATA

The techniques and data associated with this benchmarking, which compares the performance of Irish Water relative to the operating costs of established English and Welsh utilities, are published alongside this paper. This highlights the following key points:

- To ensure consistency with relevant regulatory precedents, when developing this benchmarking, models used by other regulators were reviewed. This included models developed by Ofwat, the UK’s Competition and Markets Authority (CMA), and the Utility Regulator in Northern Ireland (UREGNI).
- This review led to the development of a range of models to assess Irish Water’s cost performance. This approach acknowledges that it is difficult to identify a definitive statistical model that fully explains water companies’ costs.
- The impact of Irish Water’s specific characteristics, such as its greater length of water network per connections on its comparative cost efficiency, has been considered. In general, however, models developed by Ofwat, CMA and UREGNI show that connections rather than network length is the principal cost driver.
- The models generate “predicted” costs for each company, on the basis of the relationship between cost drivers and cost levels from the panel of English and Welsh (E&W) companies. These modelled ranges do not represent an efficiency frontier, but represent expected cost levels based on the average performance of the E&W companies over the period included in the panel (2001 to 2011). Some companies therefore exhibit cost performance which is superior to the predicted range, while some companies exhibit cost performance above (i.e. inferior to) to the predicted range.

The differences between the techniques and data used in the CER benchmarking and that provided by Irish Water are discussed briefly later in this section and in the NERA report38 which is published alongside this paper.

5.3.2.3 CER BENCHMARKING – RESULTS

The overall conclusion from the benchmarking exercise is that Irish Water’s proposed IRC2 operating expenditure is high compared to UK water and sewerage companies.

This is to be expected as, even though Irish Water has driven efficiencies during IRC1, it will take a number of years before Irish Water can drive sufficient efficiencies within its operating costs (including those under the SLAs) to reach a level comparable to those in the UK.

38 See Section 5 of the Econometric benchmarking annex of the main NERA report – CER/16/270.
As Irish Water delivers services through the SLAs, it is reasonable to expect efficiencies to take a longer period of time to be delivered than has been seen in neighbouring jurisdictions. This is because the SLA model combines expertise from 31 local authorities and requires an increased level of co-ordination and communication across a single utility model. An unintended consequence of this operational model may be the impediment on Irish Water to achieve costs reductions at a pace that has been seen by best water utility performers elsewhere.

When Irish Water’s operating costs\(^\text{39}\) for water are compared to the result generated by the models, they are about 60% higher than the predicted average costs from any of the models and 80% higher than the best estimate (using the preferred model) of its average cost.

For the sewerage service the picture is similar. When Irish Water’s operating costs for wastewater are compared to the result generated by the models, Irish Water’s proposed operating expenditure is more than 80% higher than the top end of the modelling range, and 90% higher than the preferred model.

5.3.2.4 BENCHMARKING PROVIDED BY IRISH WATER

The benchmarking provided by Irish Water also suggests that Irish Water is inefficient in relation to both water and wastewater operating costs, but closer to the average than was previously considered.

Benchmarking provided by Irish Water indicates that it is 17% above the average in 2014, rising to 35% in 2018. For wastewater, the benchmarking completed by Irish Water indicates that it is 26% above in 2014 rising to 32% in 2018.

5.3.2.5 DIFFERENCES BETWEEN BENCHMARKING TECHNIQUES AND DATA

The differences between the techniques and data used in the CER benchmarking and the benchmarking provided by Irish Water are discussed in detail in the NERA report\(^\text{40}\) which is published alongside this paper. Some relevant differences include:

- The benchmarking provided by Irish Water uses a forecast dataset which includes projected increases in operating costs, whereas the CER benchmarking uses actual data.
- The benchmarking provided by Irish Water uses ordinary least squares (a method use in regression analysis), while the CER benchmarking uses a pooled model across the years for which there is data.

\(^{39}\) Controllable excluding VAT.
\(^{40}\) See Section 5 of the Econometric benchmarking annex of the main NERA report – CER/16/270.
- The benchmarking provided by Irish Water makes a number of pre-modelling adjustments to Irish Water’s submitted costs, but does not provide the modelling calculations or detailed methodology for these adjustments.

For these reasons, the CER is of the view that the benchmarking which it has undertaken provides a more comprehensive study of Irish Water and its performance against comparable utilities, using actual data and noting its early stage of development.

### 5.3.2.6 Benchmarking Conclusions

The benchmarking undertaken by the CER and the benchmarking provided by Irish Water both point towards Irish Water’s cost base, inclusive of its SLA costs, being inefficient relative to established comparators in other jurisdictions.

The next section covers the expected efficiencies which the CER requires of Irish Water over the next two years.

### 5.3.3 Expected improvement in Irish Water costs over time

#### 5.3.3.1 Introduction

Irish Water has worked to reduce costs over the IRC1 period and as mentioned has broadly achieved the efficiency target put in place by the CER. However, Irish Water’s cost base (inclusive of its SLA costs) remains significantly higher than those of established mature utilities in other jurisdictions.

The CER is conscious that Irish Water cannot reduce its costs in the short term to a level that is comparable with established mature utilities elsewhere while providing an adequate level of service to customers. Setting unachievable efficiency targets for Irish Water could ultimately impact on customers through deteriorating service levels. Therefore, this section outlines relevant points regarding an appropriate efficiency challenge for Irish Water for the 2017-2018 period. It covers Irish Water’s performance in IRC1, what has been achieved in other jurisdictions, and Irish Water’s proposals for the 2017-2018 period.

The CER’s decisions are then outlined in Section 5.3.4.

#### 5.3.3.2 Irish Water IRC1 Performance

At IRC1 the CER required Irish Water to meet an average efficiency target of 7% per annum (applied to controllable costs) for 2015 and 2016. This was a challenge to reduce costs cumulatively by 13.5% over the two year, a target which Irish Water broadly met.
Irish Water noted that in order to meet the IRC1 expenditure allowance, it had to defer some activities, such as roll out of standard operating procedures and water sampling activities. However, Irish Water has stated that it continued to deliver the water services model and performance levels that it had targeted over the course of IRC1.

Further detail on what Irish Water achieved with the amount of revenue for 2014-2016 is provided in Section 4 of this paper.

5.3.3.3 IMPROVEMENTS IN OTHER JURISDICTIONS IN EARLY STAGES

This section provides information on the rate of change in terms of costs that was evident in other jurisdictions in the early stages of water services regulation. Specifically, the CER focuses on the experience of Northern Ireland and Scotland as those jurisdictions have experienced a step change (in relation to their water and wastewater sectors) which can be compared to the recent establishment in Ireland of one water utility and the introduction of economic regulation.

Scottish Water began operations in 2002, taking over the functions of three regional operators who in turn replaced the functions of the Scottish Regional Councils (nine mainland regions and three island areas) in 1996. In the first strategic review period, running from 2002 to 2006, Scotland’s economic regulator, the Water Industry Commissioner (WICS) set Scottish Water a challenge to reduce operating expenditure by an amount equivalent to an annualised reduction of around 10%. Evidence from WICS suggests that Scottish Water delivered reductions at an annualised unit cost improvement of around 11%.

In Northern Ireland, after an initial increase in opex between 2003-2004 and 2008-2009, Northern Irish Water (NI Water) achieved substantial cost reductions over the course of the first regulatory period PC10. At PC10 in Northern Ireland (covering the period 2010-2011 to 2012-2013), Utility Regulator (UR; the Northern Ireland economic regulator) set a target opex improvement of 6.5% per annum against which NI Water outperformed. In its PC15 determination, UR allowed for a slight initial increase in costs early in the period, offset by a decline in the latter years to 2021. It challenges NI Water to deliver 2.3% per annum efficiency savings over PC15. This was its third revenue control, having already delivered substantial efficiencies in earlier revenue controls following initial pre-regulatory opex cost increases.

The initial increases in NI Water’s opex were accompanied by verifiable improvements in NI Water’s performance levels across a range of water, sewerage, environmental and customer service indicators.

42 Cumulative Annual Efficiency Rates are NERA calculations, based on efficiency targets and outturn described in: WICS “Costs and performance report 2003-06”.
Water utilities in both Northern Ireland and Scotland have been able to drive annual reductions in their operating costs for a number of years following the introduction of regulation while at the same time facing growth and compliance gaps.

The NERA report which is published alongside this paper covers this point in more detail. That report recommended that Irish Water be required to reduce its controllable costs by a factor within the range of 5 to 10% per annum. It also highlighted why it may be appropriate for the next two years to choose a lower value from that range in Irish Water’s case. The NERA report excludes Irish Water’s DBO contracts from the efficiency challenge as it assumes that these costs are largely outside the control of Irish Water within the course of IRC2. The report notes that this 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 detailed comparison completed by NERA of different functional areas, such as employment costs, hired and contracted services, energy costs and materials and consumables costs, also point towards areas where efficiencies may be possible. This is documented in Section 3.2.2 of the NERA report and referenced above in Section 5.2.

### 5.3.3.4 IRISH WATER PROPOSALS REGARDING IRC2 PERFORMANCE

Irish Water has in its submission outlined its view on what efficiencies might be possible and also why increasing operating costs are key to ensuring delivery of its services at this stage. It is appropriate for the CER to challenge this view.

Irish Water has stated that many of the savings made in IRC1 in order to achieve 7% per annum efficiencies were one-off and could not be repeated at IRC2. It has revised its view of opex needs upward since IRC1, citing a number of reasons:

- Higher than expected network leakage (revised from 41% to 49%) and a larger than expected water mains network (revised up from 58,000km to 63,000km);
- Rising compliance standards, with more than 200 additional licences issued over 2014 – 2015;
- Roll out of the capital investment plan, with an increasingly complex asset base, including maintenance of the new stock of meters;
- Additional capabilities needed within Irish Water’s TOM model, such as lead monitoring, sampling and health and safety inspections, non-domestic metering, an out-of-hours service;

---

43 NERA Review of Irish Water costs 2017 to 2018, [CER/16/269](#).
- Population increases and economic growth, which increases requirements for key inputs such as energy and chemicals, estimated by Irish Water at €28m;
- Activity deferral at IRC1, which if deferred any longer would result in deterioration of asset performance, customer service levels and ability to drive further operational efficiencies. The activities deferred by Irish Water include rollout of standard operating procedures, water sampling and testing and upskilling of local authority staff.
- Irish Water also intends to improve customer service levels, reducing planned and unplanned interruptions and improving out-of-hour services for drinking water and wastewater services. It also cites improving drinking water quality, leakage and lead as reasons for requiring additional operating expenditure above the current baseline.

Irish Water proposed or committed to deliver a total of €44m efficiencies in O&M over 2017 and 2018 combined, on a controllable operating cost spend of c. €1,460m over two years. Set against Irish Water’s expectations for growth opex (set out above) costs are projected to rise relative to the operating cost performance achieved at IRC1.

Irish Water has provided high-level objectives in order to deliver services for its customers in its IRC2 submission and in its business plan. It commits to achieving €1.1bn in operating cost efficiencies by the end of 2021. At the time of writing Irish Water has not provided full details of how these savings will be made, nor when they will be made, but this is their commitment.

5.3.4 Operating costs and benchmarking – CER view

The above sections of this paper cover Irish Water’s proposed operating expenditure over the 2017-2018 period at a high level.

The CER has reviewed in detail and analysed the information provided by Irish Water to date, following the methodology outlined in Section 2.2. The CER has reviewed the individual cost categories put forward by Irish Water and relevant comments are provided above on each area. However, consistent with its decision for IRC1, the CER does not approve costs for specific line items. Rather the CER has decided to approve an overall budget for controllable operating costs within which Irish Water will be required to manage its expenditure.

In addition to its review of the cost categories put forward by Irish Water, the CER also completed a benchmarking analysis on Irish Water’s operational costs. The benchmarking commissioned by the CER (and the benchmarking provided by Irish Water) indicates that the

---

costs proposed by Irish Water (inclusive of SLA costs) are high relative to established utilities in the UK.\textsuperscript{45}

The CER is aware that Irish Water is still in the early stages of its development as a utility and that comparisons to utilities in other jurisdictions that are long-established are unlikely to show Irish Water’s cost base (inclusive of SLA costs) to be efficient.

The CER considers that it is important to continue to place challenging but achievable objectives on the utility in order to place Irish Water on a path to achieving comparable cost levels with efficient water utilities elsewhere. However, the CER is also conscious that Irish Water cannot reduce its costs in the short term to a level that is comparable with established mature utilities elsewhere while providing an adequate level of service to customers. Setting unachievable efficiency targets for Irish Water would ultimately impact on customers through deteriorating service levels. Therefore the CER has set an efficiency target which is based on what has been achieved in other jurisdictions following the introduction of economic regulation.

The CER has decided to set an operating cost efficiency target of 5% per annum. This is to be applied against Irish Water’s 2016 expenditure on controllable costs (exclusive of Design Build Operate costs).\textsuperscript{46}

The CER has decided to choose a value from the lower end of the range recommended by NERA to allow for Irish Water specific factors including that:

- Irish Water is expected to absorb certain upward cost pressures while delivering a per annum efficiency challenge. However, some of these cost pressures are more difficult for Irish Water than those faced by comparators (on which the range is based). For example, Northern Ireland would not have faced the same compliance issues as that faced by Irish Water.

- Irish Water is constrained by an operational 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 the SLAs, it may take more time for efficiencies to be delivered through a unified model given the increased level of co-ordination required. This was not evident to the same extent in other jurisdictions.

- This revenue control covers a two-year period, which means that Irish Water has a short period of time in order to achieve efficiencies. In utility regulation, a revenue control usually lasts for a longer period of up to five years. Unlike utilities in other jurisdictions, Irish Water

\textsuperscript{45} Further analysis also points towards some cost items where efficiencies could be generated.

\textsuperscript{46} Design Build Operate costs have been excluded for the 2017-2018 period to ensure regulatory consistency with other jurisdictions.
has a relatively short timeframe in which to achieve efficiencies. In a longer revenue control period, a utility has greater opportunity to plan ahead and identify when it can achieve efficiencies over the period. The CER considers that the shorter two-year timeframe contributes to justifying a lower efficiency challenge in this case.

Table 5.2 below indicates the CER’s decision on an efficiency challenge for 2017-2018. The efficiency target is set at 5% per annum applied to Irish Water’s 2016 expenditure on controllable costs. Efficiencies are applied to controllable costs, but not the cost items that Irish Water cannot control, i.e. licences and levies.

The CER has decided that the efficiency will not be applied to DBO costs for the IRC2 period. As with all aspects of the IRC2 decision, the CER will review this point for subsequent revenue controls. The CER 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 CER 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, particularly if the review period is longer than the current two year timeframe.

Table 5.2: Operating costs required efficiencies in IRC2 (€m, 2015 prices)

<table>
<thead>
<tr>
<th></th>
<th>Irish Water spend 2016, €m</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating costs</td>
<td>724</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBO costs47</td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating costs subject to efficiency</td>
<td>613</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative efficiency challenge</td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td><strong>Total controllable operating costs</strong></td>
<td><strong>693</strong></td>
<td><strong>664</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3 below shows the CER’s decision on total operating costs. It adds uncontrollable opex costs to the totals in Table 5.2. As outlined in Section 5.2.6, the uncontrollable costs which the CER has decided to allow are in respect of licence and levies.

---

47 IRC1 controllable opex for 2016 as submitted was €711m. Irish Water treated irrecoverable VAT and insurance of €14m as an uncontrollable cost. The CER, consistent with previous decisions, views these costs as within Irish Water’s control. This increased total spent 2016 controllable costs to €725m. This is converted to 2015 prices using a Central Bank 2016 forecast Irish HICP inflation of 0.2%. Irish Water’s submitted controllable opex in 2015 prices is €723.8m. DBO costs of €111m p.a. are removed before a cumulative 5% per annum efficiency challenge is applied. The DBO costs of €111m p.a. are then added back in to give the total controllable operating costs of €693m and €664m respectively.

48 Design, Build and Operate (DBO) costs are not subject to the 5% efficiency challenge, as discussed in this section. Irish Water’s submitted DBO costs for 2017 of €111m is taken from its 2016 submitted opex to arrive at the opex subject to efficiency.
Table 5.3: Operating costs required efficiencies in IRC2 (€m, 2015 prices)

<table>
<thead>
<tr>
<th></th>
<th>2017 €m</th>
<th>2018 €m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controllable costs subject to efficiency challenge</td>
<td>582</td>
<td>553</td>
</tr>
<tr>
<td>DBO costs</td>
<td>111</td>
<td>111</td>
</tr>
<tr>
<td>Uncontrollable costs</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>700</strong></td>
<td><strong>675</strong></td>
</tr>
<tr>
<td>Additional revenue</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total opex including one-off allowance</strong></td>
<td><strong>710</strong></td>
<td><strong>685</strong></td>
</tr>
</tbody>
</table>

The CER has also decided to allow a one-off pot of €19.8m as outlined in Section 5.2.7 above.

This brings the total operating cost allowance for 2017-2018 to €1,395m.

Please note that the efficiency challenge imposed for IRC2 does not bring Irish Water to the average level (under either the benchmarking commissioned by the CER or provided by Irish Water) by 2018, but is designed to move Irish Water to the average, and then the efficiency frontier, over time. The CER expects that the efficiency targets outlined in this section will be achieved by Irish Water without it needing to defer any of the activities to which it has committed. The targets set by the CER should be achieved through efficiencies which do not impact on the service that Irish Water provides to customers.

### 5.4 Review of Capital Expenditure, 2017 – 2018

#### 5.4.1 Introduction

This section sets out the CER’s decisions in relation to Irish Water’s allowed capital expenditure for the 2017-2018 period and addresses implications for expenditure beyond that period where appropriate. The background to Irish Water’s submission is provided in section 5.4.2, followed by an overview of Irish Water’s submission and of the scale of required investment. An overview of the CER’s approach to the review of Irish Water’s proposed 2017-2018 capital expenditure is set out in Section 5.4.2.2. The CER’s review and decisions regarding Irish Water’s submission and related matters are set out in Sections 5.4.6 to 5.4.11. The monitoring of capital investment during the 2017-2018 period is discussed in Section 6.

The CER has considered the responses received to the CER’s consultation paper in arriving at the decisions set out below. The CER’s response to comments paper (CER/16/343) is published alongside this decision paper.
5.4.2 Irish Water’s 2017-2018 Capital Investment Submission

5.4.2.1 BACKGROUND TO IRISH WATER’S CAPITAL INVESTMENT SUBMISSION

Irish Water is required to produce a capital investment plan (CIP) under section 34 of the Water Services (No.2) Act 2013. The CIP is an essential building block of the Water Charges Plan as it sets Irish Water’s capital investments and associated expenditure for a defined period. This expenditure in turn feeds into the revenue allowed to Irish Water during the period of review and associated charges to customers and Government subvention requirements.

In developing the CIP Irish Water is required to take account of a number of matters including:

- The Water Services Strategic Plan (WSSP) which sets out Irish Water’s objectives, priorities and targets for the period 2015-2040 and is approved by the Minister,
- River basin management plans under the European Communities (Water Policy) Regulations 2003,
- Local area plans under section 18 of the Planning and Development Act 2000,
- Development plans within the meaning of the Planning and Development Act 2000,
- Regional planning guidelines,
- Any strategic development zones within the meaning of Part IX of the Planning and Development Act 2000 to which the plan relates.

The 25 year WSSP is the ‘umbrella’ document which informs other Irish Water documents. Irish Water’s Business Plan is one such document and it sets out Irish Water’s seven-year plan for the period 2015-2021. Both of these provide the context for Irish Water’s CIP.

When developing the CIP Irish Water is required to consult with the EPA and regional bodies and each planning authority in respect of whose functional area the investment plan is likely to apply. Irish Water’s approach to the development of the CIP, including the use of a plan balancing tool (PBT), is discussed below in section 5.4.6.

Under section 34 of the Water Services (No. 2) Act 2013 the CER determines the duration of the CIP. The question arises as to whether or not this should align with the duration of this revenue control.

The CER recommended in its advice to the Minister regarding the economic regulatory framework to apply to Irish Water that a steady state revenue control period of six years be

---

49 Please see section 34 of the Water Services (No.2) Act 2013 available here.
50 Irish Water’s WSSP available here.
51 Minister for Housing, Planning, Community and Local Government (previously Environment, Community and Local Government)
adopted for the water services sector. This is in order to align with the River Basin Management Plans (RBMPs) cycle under the Water Framework Directive (WFD). In May 2015 the CER proposed a second, two year revenue review period for Irish Water. This shorter revenue control is considered appropriate for Irish Water at its current stage of maturity as data continues to be collected and collated to facilitate a more robust, longer revenue control period. The CER shall revisit this approach as part of the next revenue control after IRC2.

Notwithstanding this, the CER recognises that capital investment planning in the water and wastewater sector requires that a longer term view is taken and that planning tools generally operate on periods of longer than two years in that context. As a result, and in order to better align with the timeline for the third cycle of RBMPs under the WFD, the CER requested that Irish Water prepare a five year capital investment plan for submission as part of the IRC2 process. This five year plan allows the CER to have a better understanding of the investment required to deliver capital investments that commence in IRC2 and have delivery dates beyond the IRC2 period and of the trend in proposed key spend categories over the five-year period.

The primary focus of this second, interim revenue review is on the monies allowed to Irish Water for the 2017-2018 period. However, commitments during that period will result in spend in the years to 2021 and, in cases, beyond that year, given the timelines for the delivery of water and wastewater infrastructure. In that context, the CER has also considered relevant expenditure and the efficiency challenge to be imposed in relation to spend beyond IRC2 for projects committed during that period.

### 5.4.2.2 APPROACH TO REVIEW

The objective of the CER’s review of Irish Water’s proposed capital investment submission is to assess whether the capital expenditure is necessary and consistent with the legal obligations placed on Irish Water under legislation, is consistent with stakeholder and customer expectations and represents value for money for the water services customer. In order to support this review the CER engaged CH2M Hill to provide expert technical engineering and project delivery advice and NERA Economic Consulting to advise on efficiency.

---

52 CER/14/076, Advice to the Minister on the Economic Regulatory Framework for the Public Water Services Sector in Ireland.
55 Water Services (No. 2) Act 2013 available [here](https://www.era.ie).
Further to receipt of Irish Water’s capital investment submission the CER and its advisors reviewed the submission and engaged with Irish Water to clarify matters set out in the submission and to seek additional information as considered necessary. Presentations were also received from Irish Water regarding certain aspects of the submission. CH2M Hill conducted an audit of a sample of projects, capital maintenance programmes and national programmes. These audits were supplemented by a review by the CER and its advisors 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.

During the consultation period the CER reviewed the updated CIP submitted by Irish Water in August of this year. The CER engaged with Irish Water on the submission in order to seek further information and clarifications as deemed necessary. The CER also engaged with Irish Water further on the question of the reasonableness of the application of a 13.5% efficiency challenge as a starting point to the uncommitted elements of the CIP.

5.4.3 **Irish Water’s Capital Investment Submission: Overview**

Irish Water’s submission to the CER in April of 2016 composed of two elements: a capital investment plan (CIP) for the period 2017-2021 and a non-network capital investment plan (NNC) for the IRC2 period (2017-2018) (ref: CER/16/275).

The CER’s review for the 2017-2018 revenue control consultation paper was based on the CIP submitted by Irish Water in April 2016.

During the summer Irish Water made updates to the CIP to reflect Government policy, including the Government’s *[Action Plan for Housing and Homelessness]*, inclusion of new wastewater projects to facilitate growth and address environmental compliance issues and to support Irish Water’s National Wastewater Sludge Management Plan and National Lead Programme. The updated CIP, including updated targets, was submitted to the CER in August 2016. Irish Water has advised that the updated CIP has been submitted to the Minister. The total value of the CIP has not been significantly impacted on by the updates made by Irish Water in August.

During the consultation period the CER reviewed Irish Water’s updated CIP. This decision paper reflects the updated CIP and references to the CIP in the remainder of this document refer to the updated CIP unless it is expressly stated as otherwise. The updated CIP is published on the CER’s website (CER/16/345).
Irish Water has proposed total capital expenditure of €1,288m for the IRC2 period (€1,176m CIP plus €112m NNC).\(^5^6\) Irish Water’s five year CIP proposes expenditure of €3.588bn over the period 2017-2021 on 522 projects and programmes to address a number of statutory obligations, including compliance with environmental legislation, and capacity requirements.

Irish Water has revised how it categorises spend compared with IRC1 and now proposes four broad line items; projects, capital maintenance, national programmes and non-network capital investment. The proposed spend per category for the 2017-2018 period and for the period 2017-2021 are set out in Tables 5.4 and 5.5 below. Note that Irish Water has provided proposed spend for non-network capital investment for 2017-2018 only.

**Table 5.4 Irish Water’s Proposed Capital Expenditure during IRC2**

<table>
<thead>
<tr>
<th>Irish Water IRC2 Submission €m</th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Projects</td>
<td>186</td>
<td>264</td>
<td>450</td>
</tr>
<tr>
<td>Water Projects</td>
<td>156</td>
<td>186</td>
<td>342</td>
</tr>
<tr>
<td>Projects Total</td>
<td>342</td>
<td>451</td>
<td>793</td>
</tr>
<tr>
<td>Capital Maintenance</td>
<td>56</td>
<td>67</td>
<td>123</td>
</tr>
<tr>
<td>National Programmes</td>
<td>118</td>
<td>142</td>
<td>260</td>
</tr>
<tr>
<td>Non-Network capital investment</td>
<td>59</td>
<td>53</td>
<td>112</td>
</tr>
<tr>
<td><strong>Total Capital Expenditure</strong></td>
<td>575</td>
<td>713</td>
<td>1,288</td>
</tr>
</tbody>
</table>

*Source: Irish Water Submission, CER/16/345*

**Table 5.5 Irish Water’s Proposed Five Year CIP**

<table>
<thead>
<tr>
<th>Irish Water Capital Investment Plan Submission €m</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Projects</td>
<td>186</td>
<td>264</td>
<td>300</td>
<td>277</td>
<td>206</td>
<td>1233</td>
</tr>
<tr>
<td>Water Projects</td>
<td>156</td>
<td>186</td>
<td>201</td>
<td>178</td>
<td>119</td>
<td>841</td>
</tr>
<tr>
<td>Projects Total</td>
<td>342</td>
<td>451</td>
<td>501</td>
<td>455</td>
<td>325</td>
<td>2074</td>
</tr>
<tr>
<td>Capital Maintenance</td>
<td>56</td>
<td>67</td>
<td>97</td>
<td>142</td>
<td>189</td>
<td>551</td>
</tr>
<tr>
<td>National Programmes</td>
<td>118</td>
<td>142</td>
<td>186</td>
<td>226</td>
<td>290</td>
<td>963</td>
</tr>
<tr>
<td><strong>Total CIP Capital Expenditure</strong></td>
<td>516</td>
<td>660</td>
<td>784</td>
<td>824</td>
<td>805</td>
<td>3,588</td>
</tr>
</tbody>
</table>

*Source: Irish Water Submission, CER/16/345*

Irish Water’s proposed ‘projects’ capital expenditure in 2017-2018 accounts for 67% of the IRC2 CIP. This category of spend covers defined water and wastewater projects such as delivery of water and wastewater treatment plants. The majority of projects in Irish Water’s submission were identified in IRC1 having been initiated to address a number of specific deficiencies and driven by statutory obligations relating to environmental compliance and drinking water quality.

---

\(^5^6\) All figures quoted in section 5.4 are in 2015 monies unless otherwise stated.
By 2021 project capital expenditure is reduced to 40% of Irish Water’s proposed annual expenditure as Irish Water ramps up expenditure in national programmes to improve asset information, performance and service levels at a national level, and in capital maintenance to maintain service levels (Figure 5.1).57

**Figure 5.1 Irish Water’s Proposed CIP 2017-2021 by Category of Spend**

![Diagram showing Irish Water’s Proposed CIP 2017-2021 by Category of Spend](chart)

*Source: Irish Water Submission, CER/16/345*

Irish Water has retained a relative balance in terms of water and wastewater capital expenditure across 2017-2021; 46% of IRC2 capital expenditure has been identified as wastewater and 47% across the proposed five year CIP.

Proposed CIP expenditure within the business planning questionnaire has been allocated a ‘QBEG’ classification by Irish Water as requested by the CER. QBEG classification assigns capital expenditure to four broad main drivers: environmental or drinking water quality improvements (Q), maintaining current or base service levels (B), enhancing existing service levels to customers (E), and meeting growth in water or wastewater services to satisfy demand and security of supply (G). Across the 2017-2018 period Irish Water has stated that 44% of the

---

57 Please see Section 5.4.4 Scale of Investment in this context.
proposed CIP is related to Quality, 25% to Base, 8% to Enhancement and 23% to Growth. The QBEG classification is used by other economic regulatory authorities to classify spend by regulated utilities on water and wastewater services.

Irish Water’s updated CIP includes new Network Extension Programmes for water and wastewater. Irish Water has proposed expenditure of €6m and €18m over IRC2 for water and wastewater, respectively, and €13m and €38m during 2017-21. Irish Water advises that this expenditure is required in support of the Government’s Action Plan for Housing and Homelessness. Extension of the water and wastewater network is required to facilitate the plan.

In addition to the Network Extension programmes, Irish Water has included seventeen new wastewater projects in its updated CIP incurring expenditure of €2m in IRC2, €29m over 2017-21 and €49m in the period beyond 2021. Two projects are profiled to be completed within the investment period contributing to compliance with the UWWTD.

Informed by the progression of the National Wastewater Sludge Management Plan and of the Draft Lead in Drinking Water Mitigation Plan, Irish Water has increased the proposed expenditure of the Sludge Hubs-Satellite Programme and Orthophosphate dosing Programme.

Irish Water has accelerated its Large Non-Domestic Revenue Meter Assurance Programme and Non-Domestic Meter Systems Refurbishment to facilitate urgent advance work to assess and expand the non-domestic metering estate.

Irish Water has updated its budget requirements and timelines for its five Major Projects. Increased expenditure has been included for the Cork Lower Harbour project within the period to 2021 and the delivery of the Vartry project has been accelerated resulting in project completion in 2021. The timeline for the Water Supply Project – Eastern and Midlands Region has been re-profiled and now extends beyond 2021. This has resulted in significant expenditure in the amount of €823m for this project now being scheduled for the period beyond 2021.

Expenditure has been increased in wastewater above and below ground assets by €99m and €36m, respectively, with a minor increase to water below ground assets in the period 2017-21. This has been balanced by a decrease in expenditure to water above ground assets. Figure 5.2 illustrates that increased expenditure has been assigned to Quality in the QBEG categorisation and this is entirely associated with wastewater assets. The reduced spend in Growth (Security

---

58 Action Plan for Housing and Homelessness – www.rebuildingireland.ie
59 To view the National Wastewater Sludge Management Plan please see here.
60 To view the Draft Lead in Drinking Water Mitigation Plan please see here.
of Supply) results from reduced spend in water above ground assets across the period 2017 to 2021.

**Figure 5.2 QBEG analysis of Irish Water’s April and August CIPs**

<table>
<thead>
<tr>
<th>April 2016 CIP</th>
<th>Updated August 2016 CIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Quality</td>
</tr>
<tr>
<td>Base (Non-Infra)</td>
<td>Base (Infra)</td>
</tr>
<tr>
<td>Base (Infra)</td>
<td>Enhanced Service Level</td>
</tr>
<tr>
<td>Growth (Supply Demand)</td>
<td>Growth (Security of Supply)</td>
</tr>
<tr>
<td>€595m</td>
<td>€499m</td>
</tr>
<tr>
<td>€266m</td>
<td>€310m</td>
</tr>
<tr>
<td>€313m</td>
<td>€289m</td>
</tr>
<tr>
<td>€544m</td>
<td>€630m</td>
</tr>
<tr>
<td>€443m</td>
<td>€428m</td>
</tr>
<tr>
<td>€1,427m</td>
<td>€1,529m</td>
</tr>
</tbody>
</table>

Irish Water has identified a set of targets that it will meet for capital expenditure for both the IRC2 period and the period to 2021. In addition, for projects and a number of the more developed national programmes, defined outcomes have been provided in the submission to the CER. Outputs have not been provided. Here, the term ‘outputs’ refers to tangible deliverables such as water and wastewater treatment plants and kilometres of network upgraded. ‘Outcomes’ are the impacts on services to customers arising from the delivery of those outputs, e.g. reduced leakage rates and increased number of customers receiving water that meets requirements under the Drinking Water Regulations.

Table 5.6 below from Irish Water’s submission sets out Irish Water’s proposed targets for the IRC2 period and the period to 2021. These targets are a subset of those identified in the Water Services Strategic Plan (WSSP). The baseline for some of the targets has been revised to reflect improved asset information. Similarly, the final outcomes are not in all cases equivalent to those identified in the WSSP, reflecting Irish Water’s updated CIP where Irish Water has allowed for new policy priorities and updated project information whilst staying within Irish Water’s view of the funding envelope to 2021 and meeting deliverability and operability requirements to Irish Water’s satisfaction. Irish Water has advised the CER that the Minister has been provided with the most recent CIP.

In addition to the targets presented in Table 5.6, Irish Water has proposed investment across a range of projects and programmes that do not directly feed through to these targets. This investment includes upgrades of ‘at risk’ treatment plants, water conservation projects to reduce interruptions to supply, key studies, capital maintenance and national programmes whose outcomes have yet to be fully defined and projects which deliver outside the investment period.
Table 5.6: Irish Water Proposed Investment Targets for 2017-2018 Period & CIP2 Period

<table>
<thead>
<tr>
<th>Indicator</th>
<th>WSSP Starting Point</th>
<th>Expected Outcomes by end of 2016</th>
<th>Expected Outcomes by end of 2018</th>
<th>Expected Outcomes by end 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of people on boil water notices (BWN)</td>
<td>23,079</td>
<td>4,057</td>
<td>1,041</td>
<td>0</td>
</tr>
<tr>
<td>Number of WTPs on the RAL</td>
<td>121</td>
<td>71</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>Compliance with the parameters for lead in drinking water</td>
<td>Estimated as 85% - 95%</td>
<td>Establish baseline</td>
<td>-</td>
<td>98% compliant</td>
</tr>
<tr>
<td>Environmental Assessments and Plume-solvency Control Plans</td>
<td>-</td>
<td>-</td>
<td>200 WTWs</td>
<td>-</td>
</tr>
<tr>
<td>Replace Backyard Lead Shared Service</td>
<td>40,000 (circa)</td>
<td>38,701</td>
<td>&lt;36,000</td>
<td>&lt;22,000</td>
</tr>
<tr>
<td>Replace Individual Lead Service Connection Pipes</td>
<td>140,000 (circa)</td>
<td>139,716</td>
<td>&lt;136,000</td>
<td>&lt;117,000</td>
</tr>
<tr>
<td>Leakage</td>
<td>0</td>
<td>60 megalitres per day of savings</td>
<td>117 megalitres per day of savings</td>
<td>226 megalitres per day of savings</td>
</tr>
<tr>
<td>Rationalisation of WTP’s</td>
<td>918</td>
<td>0</td>
<td>12</td>
<td>105</td>
</tr>
<tr>
<td>WTW’s - Compliance with UWWD</td>
<td>&gt;1,722,000 p.e.</td>
<td>&gt;2,359,000 p.e.</td>
<td>&gt;2,361,000 p.e.</td>
<td>&gt;4,839,000 p.e.</td>
</tr>
<tr>
<td>Overloaded WTW’s &gt;2000</td>
<td>45</td>
<td>27</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>Overloaded WTW’s &lt;2000</td>
<td>113</td>
<td>97</td>
<td>82</td>
<td>74</td>
</tr>
<tr>
<td>No. of agglomerations with no treatment or preliminary treatment only</td>
<td>44</td>
<td>38</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>WTWs – compliance with Emission Limit Values</td>
<td>-</td>
<td>14</td>
<td>36</td>
<td>54</td>
</tr>
<tr>
<td>Sewer Flooding</td>
<td>-</td>
<td>-</td>
<td>1 project in progress</td>
<td>12 projects in progress</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>Energy consumption 527GWh/yr</td>
<td>12%</td>
<td>20%</td>
<td>33%</td>
</tr>
<tr>
<td>Headroom – Water</td>
<td>-</td>
<td>54%</td>
<td>10%</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>54%</td>
<td>&gt;8%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60%</td>
<td>&gt;7%</td>
<td>50%</td>
</tr>
<tr>
<td>Headroom – Wastewater</td>
<td>-</td>
<td>54%</td>
<td>56%</td>
<td>55%</td>
</tr>
<tr>
<td>Network Capacity – Nr of supply zones with updated hydraulic models</td>
<td>-</td>
<td>Establish register</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Network Capacity – Nr of agglomerations covered by DAP</td>
<td>-</td>
<td>Establish register</td>
<td>14</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: Irish Water Submission (CER/16/345)

A summary explanation of Irish Water’s investment targets is provided in Appendix A with further detail regarding the basis for and calculation of these targets provided in Irish Water’s ‘IP2 Investment Portfolio Outcomes (Table 4.8 / Appendix G) Explanatory Note’ which is published alongside this decision paper (CER/16/345).

As illustrated by the graph below, the level of spend proposed by Irish Water for the period to 2021 is significant but comparable to that undertaken by water and wastewater services utilities
Irish Water has reviewed the proposed CIP for deliverability and operability\(^{61}\) and is satisfied that the plan can be delivered. Irish Water has identified that careful management will be required when rolling out the CIP so that temporary degradation of service to Irish Water customers can be avoided.\(^{62}\)

**Figure 5.3 Irish Water Proposed Annual Capital Expenditure versus UK Comparators (€m)**


### 5.4.4 Scale of Investment Required

In its 2015 Business Plan Irish Water identified capital investment of €5.5bn as necessary to address all the targets set out in the WSSP for the period to 2021.

However, as Irish Water learns more about the scale and state of repair of its water and wastewater assets and given the improved economic outlook, emerging policy priorities and increases in environmental standards/requirements, Irish Water is now of the view that the €5.5bn will be insufficient to deliver the WSSP targets for 2021. Irish Water estimates that €4.8bn is required in addition to the €1.85bn IRC1 expenditure to deliver on the investment targets set out in the WSSP for 2021.

---

\(^{61}\) Irish Water definition: ‘Operability’ refers to whether Irish Water can maintain existing service during implementation of the various capital projects and programmes. While some planned/unplanned outages are inevitable, the roll-out of each investment must be carefully managed so that it does not lead to a temporary degradation of service to our customers. This was a key consideration for Irish Water in reviewing the draft Investment Portfolio. (Source: Irish Water Submission (CER/16/275))

\(^{62}\) The process adopted by Irish Water when developing and updating the CIP is discussed further in Section 5.4.6 of this paper.
On that basis Irish Water’s proposed CIP for the period 2017-2021 is based on expenditure of €3.588bn (excluding spend on non-network capital investment). Irish Water has stated that this spend will deliver the targets for 2018 and 2021 as set out in the CIP (reproduced above in Table 5.6).

It should be noted that Irish Water has identified a number of matters that will require additional monies above those factored into the €3.588bn requested by Irish Water in its capital investment submission to the CER\(^{63}\). No funding is included for non-network capital investment beyond the 2017-2018 period in Irish Water’s submission. Other matters which may require additional funding in the future include investment required under the second cycle of River Basin Management Plans required under the Water Framework Directive. Given the above it remains important that Irish Water continues to appropriately prioritise expenditure based on objective criteria, focusing on risk, costs and benefits. In updating the April CIP Irish Water has re-profiled expenditure for the Greater Dublin Drainage project (GDD) and Water Supply Project – Eastern and Midlands Region (WSP) to the period 2022 to 2024. The combined proposed expenditure for the two projects in the three year period amounts to €1,218m.

In carrying out this review the CER is conscious of the funding requirements of Irish Water and of the competing priorities to be addressed. The CER wishes to highlight the following in this regard:

- An appropriate process and suitable flexibility is required within IRC2 and subsequent revenue reviews to allow Irish Water to make appropriately justified changes to the CIP within the revenues allowed by the CER. It falls to Irish Water to ensure that this does not impact on its ability to deliver targets agreed with the CER and to ensure customer service does not deteriorate as a result of any re-balancing of its CIP.

- IRC2 is a relatively short period and Irish Water is a relatively new utility. It is expected that when making the submission for the third revenue control Irish Water may have a better understanding of its full funding requirements. Further to the recently published recommendations of the Expert Commission established by the Government\(^{64}\), a decision by the Oireachtas regarding the sustainable long-term funding model for the delivery of domestic water and wastewater services by Irish Water is expected by that juncture.

- For the major projects referred to above (WSP, GDD) and for Vartry Water Supply Scheme, the Cork Lower Harbour Project (CLH) and Ringsend WWTP\(^{65}\), the proposed

---

\(^{63}\) Irish Water has stated that it will deliver €423m of efficiencies in the period 2017-21. However the costings of the projects and programmes within Irish Water’s CIP amounts to 3.588bn

\(^{64}\) Report on the Funding of Domestic Public Water Services in Ireland, November 2016, available here.

\(^{65}\) Further information regarding these projects can be viewed on Irish Water’s website here.
capital expenditure is of such a significant magnitude that the CER has decided to fund these projects during IRC2 to allow their development. Irish Water is progressing these projects in discrete phases and the CER will consider further project phases at subsequent reviews beyond the 2017-2018 period.

5.4.5 CER review and decisions

The sections below set out the CER’s review of Irish Water’s capital investment submission for the 2017-2018 period and associated decisions regarding the following:

- Irish Water’s process for the development of the April and updated CIPs, and
- treatment of efficiencies and costing of Irish Water’s capital investment submission.

The CER has considered the responses received to the consultation paper (CER/16/267) in arriving at these decisions. The CER’s responses to comments received are published in a separate paper (CER/16/343).

5.4.6 Irish Water’s development of the CIP

5.4.6.1 OVERVIEW OF IRISH WATER’S APPROACH TO THE DEVELOPMENT OF THE 2017-2021 CIP

Figure 5.4 Irish Water Investment Planning Process

Source: Irish Water
The process adopted by Irish Water to develop the 2017-2021 CIP consists of nine steps as set out in the proposed CIP and represented in the figure above.66

The process starts with defining objectives in line with the WSSP and Irish Water’s Business Plan. Best available information regarding asset condition is used to identify needs arising and informs the risks to services to Irish Water’s customers posed by the range of options that could be employed to address each need. Each option is assigned a value which is based on risk to service arising if the option is applied or not. In measuring value here Irish Water took account of customer preferences based on Irish Water’s research on this issue.67 These values are used in the Plan Balancing Tool to assess what were the best options to progress in order to meet the objectives identified at the start of the process.

The Plan Balancing Tool (PBT) has been developed by Irish Water to support and inform decision making in relation to the CIP. The PBT uses an optimisation engine to find the best mix of interventions based on Net Present Value (NPV) of the net costs/benefits to meet defined constraints such as budgetary constraints, risk targets and performance targets.68

The final step in the process is termed ‘Business Decision Making’. Here the output of the PBT, a list of optimised interventions (projects and programmes) to achieve defined targets/constraints, was assessed by Irish Water in a series of workshops to determine if it:

- Met the targets identified;
- Is financeable given Irish Water’s view of available funding;
- Is deliverable given supply chain, resources and planning timelines;
- Is operable, i.e. Irish Water can maintain existing service levels during implementation of the projects and programmes identified; and
- Is acceptable to customers and stakeholders, adequately reflecting their views and preferences.

66 Please see Irish Water proposed CIP 2017-2021, section 2, Table 3.1 (CER/16/275) for further information on this issue.
67 Please see section Appendix E of proposed CIP 2017-2021, (CER/16/275) for further information on this issue.
68 Note that a number of projects and programmes (interventions) were flagged as ‘mandatory’ in the PBT by Irish Water when developing the CIP. These projects were automatically selected for inclusion in the final output list of interventions and not, therefore, subject to a cost benefit analysis. This included projects that were committed pre the running of the tool.
April CIP

In developing the 2017-2021 CIP submitted to the CER in April of this year Irish Water worked through steps 1 to 8 above (Figure 5.4). Here, the PBT was run with the objective of achieving all WSSP and Business Plan 2021 targets. This resulted in an investment portfolio costing €4.8bn. Irish Water then reviewed this investment portfolio given its view of current available funding to 2021 (€3.588bn), deliverability, operability and acceptability (step 9 above).

In carrying out this review, Irish Water did not remove projects or programmes from the investment portfolio but rather extended associated delivery dates, removing the constraint of completing all of the end 2021 WSSP objectives. Here, projects pertaining to statutory obligations, such as those on the EPA’s remedial action list or those addressing the current European Court of Justice Infringement under the UWWTD, retained their delivery timelines. These projects were tagged as ‘mandatory’ by Irish Water when including them in the PBT.

The proposed 2017-2021 CIP submitted to the CER in April of this year is derived from this review and, therefore, does not directly result from a strict optimisation of value approach.

The review resulted in cuts to the various spend categories both for the IRC2 period and the period to 2021.

Figure 5.5 CIP Pre and Post Irish Water Cut

Source: Irish Water
**Updated CIP**

Irish Water updated the April CIP during the summer to reflect a number of developments post submission to the CER as set out in section 5.4.3 above. The updated CIP, including updated targets to reflect the changes made to the plan, was submitted to the CER in August. Irish Water has advised that the updated CIP has been submitted to the Minister. The total value of the CIP has not been significantly impacted on by the updates made by Irish Water.

In updating the CIP Irish Water returned to step nine in the process above, ‘business decision making’, building on the work carried out for the development of the April CIP. Irish Water’s internal governance process in relation to updating the CIP provides for detailed engagement with the senior management team regarding emerging priorities and the updates to the CIP as identified. The updated CIP was approved by senior management within Irish Water pre submission to the CER.

---

**5.4.6.2 CER VIEWS AND DECISION**

The CER notes that this is the first time that Irish Water has used its nine step approach to develop a CIP (Figure 5.4). The approach adopted is based on the approaches used by other water and wastewater utilities, such as those in the UK who use the UK Water Industry Research Ltd. (UK WIR) Common Framework for Capital Maintenance Planning. This risk-based approach is considered best industry practice. The CER considers that as Irish Water collates more information regarding the condition of its assets over time the quality of the plan balancing process will continually improve. In addition, over time as mandatory requirements are met, there will be more opportunity for the PBT to select projects based on value/risks/preferences.

The CER accepts that the updates made to the April CIP were driven by emerging policy priorities, improved knowledge regarding the asset base and operating environment and to reflect progression of Irish Water’s national Lead in Drinking Water Mitigation Plan (currently in draft) and the finalisation of Irish Water’s National Wastewater Sludge Management Plan. As is the case with other network utilities regulated by the CER, it is necessary for Irish Water to have sufficient and appropriate flexibility in relation to capital planning. Irish Water is still proposing the same spend within the period and has identified defined targets to reflect the updated CIP which Irish Water commits to delivering in the stated timelines. Irish Water submitted the updated CIP to the Minister. Irish Water built on the work carried out to develop the CIP submitted to the CER in April when updating that plan. The CER notes that Irish Water reviewed the updated CIP to assess a number of issues including if it met the targets identified, is deliverable and is operable, i.e. if Irish Water can maintain existing service levels during implementation of the projects and programmes identified. This review included a review for
operability arising from the re-profiling of the WSP which is now scheduled to be delivered post 2023. Irish Water has advised the CER that it has examined risks associated with this revised timeline and will continue to review these risks. Irish Water has confirmed to the CER that services to customers will not be impacted on by the re-profiling of the WSP as Irish Water is committed to delivering on the targets set out in the CIP, notably that regarding headroom.

In that context, this decision is based on the updated CIP as submitted to the CER in August and published alongside this decision paper (CER/16/345).

5.4.7 Irish Water views on capital expenditure efficiency

In the first Interim Revenue Review ('IRC1') the CER set a cumulative efficiency challenge of 7% per annum for the years 2015 and 2016 on uncommitted capital expenditure resulting in a cumulative cost efficiency improvement of 13.5%\(^69\) by the end of IRC1. As outlined in section 4.5, Irish Water is of the view that it will meet the CER’s efficiency challenge during IRC1. Irish Water has stated that €77m worth of efficiencies will have been realised during IRC1 through a combination of: a commercial treatment of the negotiations in settling legacy accounts; better governance principles to provide effective management of the capital expenditure programme; an improved understanding of its asset base; and, through optimising solutions across local authority boundaries to achieve economies of scale.\(^70\)

Table 5.7 Irish Water IRC1 Efficiency Claims

<table>
<thead>
<tr>
<th>Category</th>
<th>Savings (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy Accounts</td>
<td>12</td>
</tr>
<tr>
<td>Procurement</td>
<td>26</td>
</tr>
<tr>
<td>Project Scoping</td>
<td>7</td>
</tr>
<tr>
<td>Efficient Deferral</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
</tr>
</tbody>
</table>

Irish Water’s Business Plan\(^71\) committed to the delivery of capital efficiency savings of €500m over the period 2014-2021. Irish Water expects to realise the remaining €423m during 2017-2021 through value engineering, innovation and procurement efficiencies. Irish Water has stated that it expects to achieve additional, as yet unquantified, efficiencies during the period through standardisation of design. Irish Water has advised the CER that it estimated that it can achieve €103m of the projected €423m during the IRC2 2017-2018 period plus savings not yet estimated in relation to standardisation of design.

\(^69\) Efficiency challenge calculated on a cumulative basis, i.e. \(1 - (0.93\times0.93) = 13.5\%\)

\(^70\) Note that this figure has been revised upwards by Irish Water from the €72m stated in the Irish Water lookback submission to the CER regarding IRC1.

\(^71\) Irish Water Business Plan – Transforming Water Services in Ireland to 2021 available [here](#).
Irish Water has advised that it intends to put in place a Standard Operating Procedure (SOP) to track capital expenditure efficiencies. The SOP, entitled the Capital Efficiency Framework, will set out rules that will govern how Irish Water identifies opportunities for delivery of efficiencies and will capture the timing of when efficiencies are delivered. Irish Water advises that a profile of savings and efficiencies across IRC1, IRC2 and the period 2019-2021 will be documented as part of this process. The timeline for the delivery of this SOP will be set out in Irish Water’s Delivery Plan Q4 2016.

The CER recognises that, with the exception of efficient deferral (which is discussed below), the categories of efficiencies identified by Irish Water as above are generally in line with those applicable to water utilities in the early years of regulation.

### 5.4.7.1 EFFICIENT DEFERRAL: IRISH WATER VIEW

Irish Water has claimed that €33m of efficiencies will have been achieved as a result of deferring projects during IRC1.

The concept of efficient deferral is one that is in place in the gas industry. The question of the appropriateness of adopting this concept in relation to Irish Water is considered here.

### 5.4.7.2 CER VIEW AND DECISION

In 2007 the CER put in place guidelines and rolling incentives to incentivise Gas Networks Ireland (GNI), previously Bord Gáis Networks, to defer investment that is no longer required to avoid growing the RAB where a deferral would have been more sensible. The burden of demonstration that a project is efficiently deferred lies with GNI and the utility must show that the decision to defer the project is to the benefit of the customer and that the deferral is driven by GNI decision making. Similarly, Ofgem has introduced a mechanism to incentivise gas distribution networks (GDNs) in the UK to defer capacity enhancements funded at review, where ex post the demand does not justify the expenditure. For a project to be deemed efficiently deferred, the GDN must show that it can meet capacity demand despite the deferral. In both cases the mechanism was put in place in relation to a gas utility with a reasonably fit for purpose network of which it had relatively good information.

The CER does not consider efficient deferral an appropriate incentive mechanism for Irish Water as the provider of public water and wastewater services for the following reasons:

---

72 CEPA (May 2012) Gas Transmission and Distribution Revenue Control – Outputs, Incentives and Uncertainty mechanisms available [here](#).
- Irish Water has stated that in order to achieve the objectives of the WSSP to 2021 it requires €4.8bn while its view of available funding is €3.588bn. Given the stage of Irish Water’s maturity, the CER expects that the deferral of any projects during IRC2 will more likely result from a need to accelerate a project of higher priority/need. The CER would expect Irish Water to re-prioritise its programme of work during IRC2 to achieve the optimal set of outcomes in line with good business practice.

- The approach provides a perverse incentive for a regulated utility to overstate its capital expenditure requirement for the price control period. Under the current operation of this mechanism for gas utilities, the utility is rewarded for efficient deferrals as it is allowed to keep the depreciation allowance and associated return on the forecasted spend on deferred investment for the period of the relevant price control.

- In order to justify an efficient deferral the utility must have a clear understanding of its current and expected performance against a set of outputs. At this early stage, Irish Water has less clarity on these metrics than the more mature GDN’s in the UK and GNI.

The CER has decided not to accept deferral as a mechanism by which efficiencies can be achieved by Irish Water.

### 5.4.7.3 EFFICIENCY TARGET LEVELS AND USE OF MONIES ARISING: CER VIEWS AND DECISION

The following section sets out the CER’s decisions regarding Irish Water’s proposed capital expenditure and the application of an appropriate efficiency challenge.

#### Table 5.8 Summary of Allowed Capital Expenditure for the 2017-2018 Period

<table>
<thead>
<tr>
<th></th>
<th>2017 (€m)</th>
<th>2018 (€m)</th>
<th>IRC2 Total (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish Water Proposed Capital</td>
<td>575</td>
<td>713</td>
<td>1,288</td>
</tr>
<tr>
<td>Expenditure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CER Scope Reduction</td>
<td>-2</td>
<td>-2</td>
<td>-4</td>
</tr>
<tr>
<td>CER Efficiency Challenge</td>
<td>-50</td>
<td>-82</td>
<td>-132</td>
</tr>
<tr>
<td><strong>Allowed Capital Expenditure</strong></td>
<td><strong>523</strong></td>
<td><strong>629</strong></td>
<td><strong>1,152</strong></td>
</tr>
</tbody>
</table>

*Note: The above refers to both CIP and NNC related expenditure.*

#### Capital Investment Plan Efficiency Challenge

At the first Interim Revenue Control 2014-2016 the CER set a 7% per annum (p.a.) efficiency challenge in relation to non-committed capital expenditure. This was informed by the performance of Scottish Water who achieved cost efficiency improvements of 9.1% p.a. and the
3.4% p.a. set by UREGNI\textsuperscript{73} in PC10 for Northern Ireland Water during their first regulatory control period.

In the IRC2 consultation paper the CER stated that its review of the projects and programmes within Irish Water’s Capital Investment Plan indicated that Irish Water had not reflected expected efficiency improvements over the period 2014 to 2018 in the costing of its plan. It was considered that further engagement with Irish Water on this issue was warranted during the consultation period.

The CER has now engaged with Irish Water further on this matter. The CER understands the approach that Irish Water has taken to the costing of the projects and programmes in the CIP. Having considered all evidence provided by Irish Water in relation to this issue the CER is of the view that the costs provided by Irish Water do not reflect expected efficiency improvements over the period 2014 to 2018. Therefore, to determine an appropriate global efficiency challenge, the CER considers that a 13.5% efficiency challenge should be applied, as a starting point, across the uncommitted elements of Irish Water’s proposed CIP. This is consistent with the 13.5% challenge applied by the CER for the first Interim Revenue Control for the 2014-2016 period given efficiencies achieved by other water utilities elsewhere and taking account of Irish Water’s stage of maturity and circumstances.\textsuperscript{74} The CER has not applied the efficiency challenge to capital maintenance as detailed in section 5.4.10. Additionally, Irish Water’s Network Extension Programmes in support of the Government’s Action Plan for Housing and Homelessness have been excluded from the efficiency as detailed in section 5.4.9.

The CER considers that the immediate step-change improvements achievable in the first interim revenue control period of regulation will have reduced somewhat in the next period. The CER would expect a reduction in the cost efficiencies that can be realised by Irish Water whilst still challenging the utility to constantly strive to deliver an appropriate service more efficiently to its customers. Given this, and based on the performance of comparable utilities, the CER has decided to apply a 5% p.a. efficiency challenge for each of the years 2017 and 2018.

The CER considers that the greatest scope for capturing efficiency is during the detailed design and procurement phases and that a project/programme becomes committed once it receives investment and construction approval.\textsuperscript{75} The CER considers that there is less scope to achieve efficiencies after this point. The CER has used the year in which the expenditure increases materially as a proxy for a project/programme becoming committed. Where no material

\textsuperscript{73} UREGNI is the utility regulator for energy, water and sewerage in Northern Ireland.

\textsuperscript{74} Please see section 3.5 of CER14/454, available here.

\textsuperscript{75} Referred to as Gate 3 in Irish Water’s decision process.
investment has occurred prior to 2016, the CER proposes to apply the efficiency challenge as detailed above.

The CER has used a bottom-up approach to determine an appropriate global efficiency challenge to be applied to Irish Water’s CIP. The CER applied a 13.5% efficiency challenge as a starting point and a 5% p.a. challenge for each of the years 2017 and 2018 to uncommitted capital expenditure. In applying this efficiency challenge, the year-on-year cost efficiency applied was dependent on the year in which that project was deemed to have become committed. For example, a project that significantly ramps up expenditure in 2017 had a 17.8% efficiency challenge applied to reflect expected efficiency gains to be implemented during 2017. A project ramping up in 2018 had a cost efficiency reduction of 21.9% applied.\textsuperscript{76}

The application of this efficiency challenge results in a total efficiency challenge of €129m or 11% of Irish Water’s updated CIP (€1.176m)\textsuperscript{77}. Irish Water has stated that it can deliver efficiencies in the amount of €103 plus efficiencies pertaining to standardisation of design which are as yet unquantified for the IRC2 2017-2018 period. The CER appreciates that this target may be viewed as challenging by Irish Water. In arriving at this view the CER has considered Irish Water’s submission, including analysis of the evidence presented regarding the costing of the CIP, efficiencies challenges pertaining to capital expenditure in other jurisdictions and Irish Water’s stage of maturity.

Further detail regarding the application of this challenge to the four major categories of spend within the CIP can be found in sections 5.4.8 to 5.4.10 below. This includes impacts beyond the IRC2 2017-2018 period where applicable.

**Non-network Capital Investment Efficiency Challenge**

The CER has applied a 5% efficiency challenge to Irish Water’s uncommitted NNC where investment begins in 2017 and a 9.75% efficiency challenge where investment begins in 2018. The CER has excluded Irish Water’s Water Infrastructure Operating Framework project (WIOF) from the efficiency challenge. The CER considers that the cost associated with the project are broadly appropriate. The CER considers that the WIOF project will deliver significant operational efficiencies to water services in Ireland. The above results in an efficiency challenge of €3m against Irish Water’s NNC proposals.

---

\textsuperscript{76} Efficiency challenge calculated on a cumulative basis, i.e. $1 - (0.865 \times 0.95 \times 0.95) = 21.9\%$
\textsuperscript{77} The efficiency challenge imposed in relation to non-network capital investment is discussed in section 5.4.11 of this document.
Further detail regarding the application of this is efficiency challenge to the key components of Irish Water’s proposed expenditure on non-network capital investment is discussed in section 5.4.11 below.

**Total Capital Expenditure Efficiency Challenge IRC2 Period**

The CER has decided to apply a total efficiency challenge for the IRC2 2017-2018 period for both the CIP and the NNC proposed expenditure of €132m or 10.2% of the total spend proposed by Irish Water of €1,288m.

**Treatment of Monies Arising from Efficiency Challenge**

Given the scale of the investment required in water and wastewater assets, the CER had proposed in the IRC2 consultation paper to allow Irish Water to spend the monies arising from the efficiency challenge on defined outcomes for customers. However, Irish Water has advised the CER that constraints such as supply chain constraints mean that delivery of additional outcomes in the IRC2 2017-2018 period cannot be committed to.

The CER has therefore decided not to require Irish Water to deliver additional outputs through reinvesting the €132m efficiency challenge. The CER will reduce the overall capital expenditure allowance to reflect the efficiency challenge.

Including scope reductions this results in a total reduction of €136m for the 2017-2018 revenue control. Sections 5.4.8 to 5.4.11, below, summarise Irish Water’s submission and the CER’s view and decisions in relation to Irish Water’s four categories of CIP spend: projects (previously referred to as major projects), national programmes, capital maintenance and non-network capital investment.

### 5.4.8 Projects

#### 5.4.8.1 OVERVIEW OF IRISH WATER’S SUBMISSION

**Table 5.9 Summary Proposed Allowed Projects Capital Expenditure**

<table>
<thead>
<tr>
<th></th>
<th>2017 (€m)</th>
<th>2018 (€m)</th>
<th>2017-18 Total (€m)</th>
<th>2019 (€m)</th>
<th>2020 (€m)</th>
<th>2021 (€m)</th>
<th>2017-21 Total (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish Water Proposed Projects Total</td>
<td>342</td>
<td>451</td>
<td>793</td>
<td>501</td>
<td>455</td>
<td>325</td>
<td>2,074</td>
</tr>
<tr>
<td>Capex included in Assessment</td>
<td>342</td>
<td>451</td>
<td>793</td>
<td>247</td>
<td>171</td>
<td>97</td>
<td>1,308</td>
</tr>
<tr>
<td>Efficiency Challenge</td>
<td>-34</td>
<td>-52</td>
<td>-86</td>
<td>-45</td>
<td>-31</td>
<td>-17</td>
<td>-178</td>
</tr>
<tr>
<td><strong>Allowed Capital Expenditure</strong></td>
<td><strong>308</strong></td>
<td><strong>399</strong></td>
<td><strong>707</strong></td>
<td><strong>202</strong></td>
<td><strong>140</strong></td>
<td><strong>80</strong></td>
<td><strong>1,130</strong></td>
</tr>
</tbody>
</table>

---

78 Please refer to section 5.4.7.2 of CER/16/267.
Irish Water’s capital projects category of spend relates to the building of new and the upgrading of existing infrastructure throughout the water and wastewater network through a set of discrete solutions. Irish Water has proposed 364 water and wastewater projects over the period 2017-2021 with a total proposed expenditure of €2,074m for that period. 254 of these projects have expenditure during IRC2 amounting to €793m for the period. Given the timelines necessary to complete water and wastewater capital projects, a significant amount of proposed project expenditure falls outside the IRC2 period. In addition, Irish Water has forecast spend for some of the projects beyond 2021 in the amount of €2,220m.

Based on Irish Water’s QBEG classification, 54% of Irish Water’s proposed project capital expenditure during IRC2 is driven by quality, 16% by base, 7% by enhancement and 23% by growth.

**Figure 5.6 Irish Water’s QBEG Allocation for Projects 2017-2018**

This is in line with expectations since the majority of projects in Irish Water’s submission were identified in IRC1 having been initiated to address a number of specific deficiencies and driven by statutory obligations relating to environmental compliance and drinking water quality.

The projects have been further categorised by Irish Water as wastewater above ground, wastewater below ground, water above ground and water below ground (Figure 5.7).

---

79 Please refer to section 4.4.3 in Irish Water’s proposed Capital Investment Plan for IRC2 (CER/16/345).
Figure 5.7 Irish Water Proposed Capital Expenditure by Primary Asset Category

Source: Irish Water Submission (CER/16/345)

Irish Water’s wastewater above ground projects are primarily driven by achieving compliance with the UWWTD and creating sufficient headroom to support growth and prevent overloading at wastewater treatment plants. Wastewater below ground projects have been identified by Irish Water to achieve compliance with the Directive, to increase capacity in the sewer network and reduce sewer flooding. Irish Water has stated that their water above and below ground projects have been identified to improve drinking water quality, improve water pressure and to reduce leakage and interruptions to supply.

Irish Water has provided information regarding the outcomes that each project will achieve – or contribute to the achievement of during the period to 2021 – and the pace of delivery of those outcomes. This includes the extent to which they will be delivered by the end of the IRC2 period. The CER will monitor the achievement of these outcomes as outlined in section 6.6.

5.4.8.2 CER VIEWS AND DECISION

Based on the review of Irish Water’s submission, the project audits carried out by the CER’s technical advisors, and engagement with Irish Water, the CER is satisfied that in principle the projects proposed here have a demonstrable need. The projects are necessary to achieve statutory compliance, have taken account of customer priorities and will contribute to the delivery of Irish Water’s WSSP targets as approved by the Minister.
The CER is satisfied that Irish Water has employed appropriate tools to develop the CIP and prioritise investment given the stage of maturity of the utility and the information available to it at present.

As noted in Section 5.4.4 there are five projects (WSP, GDD, CLH, Vartry and Ringsend WWTP) with substantial expenditure. The CER has decided to fund these projects during IRC2 to allow their progression. Irish Water has provided discrete phases for these projects and the CER will consider these at subsequent reviews.

The CER has arrived at its view of an appropriate efficiency challenge, as detailed in Section 5.4.7.2 above, to the projects category of spend as detailed below. This does not reflect the CER’s views of an efficient level of expenditure on a project-by-project line level but is the method used to arrive at an appropriate global efficiency challenge.

Where projects become committed before or during IRC2 the CER has decided to set expenditure limits for the lifetime of these projects. The CER considers that once a project receives approval to commence construction it has become committed. The CER has used the year in which capital expenditure ramps up as a proxy for approval to commence construction.

- The efficiency challenge applied is dependent on the year in which the project is deemed to have become committed as follows:
  - Projects committed in 2017 had a 17.8% efficiency challenge applied to all expenditure for that project.
  - Projects committed in 2018 had a 21.9% efficiency challenge applied to all expenditure for that project.
- Where a project appears phased (i.e. there is a discontinuity in project spend and/or a significant ramp up in expenditure post IRC2) the CER has not considered post 2018 expenditure in the efficiency challenge. The CER will review subsequent phases during the next revenue review period.
- There are a number of projects with expenditure falling in 2017-2018 that do not become committed until 2019 or beyond. The CER has decided to apply a 21.9% efficiency challenge to the 2017-2018 expenditure for these projects. The CER has decided to exclude post IRC2 expenditure for these projects. The CER will review these projects when reviewing Irish Water’s third revenue control submission.
- Projects with no spend in 2017-2018 have no efficiency challenge applied during this revenue control. Irish Water has included these projects in its CIP in recognition that capital investment planning for water and wastewater infrastructure requires a longer

---

80 Referred to as Gate 3 in Irish Water’s decision process.
timeframe than the two year revenue review. Many of these projects are in the very early stages of development with the scope of the projects, costings and outputs yet to be confirmed. The CER will review these projects during the next revenue review period, where they remain within the plan.

Applying the above approach the CER has decided to apply an efficiency challenge of €86m to the proposed spend on projects in the 2017-2018 period.

**Figure 5.8 Allowed Projects Capital Expenditure**

![Proposed Capital Expenditure](image)

### 5.4.9 National Programmes

#### 5.4.9.1 Overview of Irish Water’s Submission

<table>
<thead>
<tr>
<th></th>
<th>2017 (€m)</th>
<th>2018 (€m)</th>
<th>IRC2 Total (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish Water Proposed N.P Total</td>
<td>118</td>
<td>142</td>
<td>260</td>
</tr>
<tr>
<td>Efficiency Challenge</td>
<td>-15</td>
<td>-29</td>
<td>-43</td>
</tr>
<tr>
<td><strong>Allowed Capital Expenditure</strong></td>
<td><strong>104</strong></td>
<td><strong>113</strong></td>
<td><strong>217</strong></td>
</tr>
</tbody>
</table>

Irish Water’s national programmes aim to bring water and wastewater asset performance to acceptable levels of compliance and capacity nationally. Key programmes identified by Irish Water within the CIP include the National Lead Programme to reduce lead in drinking water, the First Fix Programme to reduce leakage, Drainage Area Plans (DAPs) to assess network...
performance and address flooding issues and programmes to upgrade water treatment plants nationally such as the Disinfection Programme and the Coagulation, Floculation and Clarification Programme.\textsuperscript{81}

Irish Water has proposed expenditure of €260m during the period 2017 to 2018 on 137 national programmes. Irish Water’s proposed investment in national programmes ramps up during the 2017 to 2021 period from €118m in 2017 to €290m in 2021. The total expenditure proposed for the period 2017-2021 is €963m. The increase in proposed capital expenditure relating to programmes corresponds to the completion of projects initiated in IRC1 and Irish Water’s view that increased funding will be available within the funding envelope for the period 2017-2021.

The majority of capital expenditure is addressing water infrastructure. The figure below illustrates Irish Water’s QBEG allocation of the proposed spend in this category in 2017-2018.

**Figure 5.9 Irish Water QBEG classification National Programmes 2017-2018**

![Figure 5.9 Irish Water QBEG classification National Programmes 2017-2018](image)

*Source: Irish Water Submission (CER/16/345)*

The vast majority of the national programmes proposed by Irish Water are in the early stages of development. The 28 minor programmes carried over from 2014-2016 are the only programmes to have advanced to implementation.

In June 2015, the Government published its National Strategy to reduce Exposure to Lead in Drinking Water\textsuperscript{82} which outlines a suite of actions to be taken by a number of stakeholders.

\textsuperscript{81} The full list of the national programmes proposed by Irish Water can be viewed in Appendix C of Irish Water’s CIP submission (CER/16/345).

\textsuperscript{82} National Strategy to Reduce Exposure to Lead in Drinking Water, June 2015 available [here](#).
including Irish Water, the EPA, the HSE, GWSs, private property owners and other public bodies. It is in this context that Irish Water has developed a draft plan for the mitigation of lead in the drinking water. Irish Water carried out an initial round of public consultation in June 2015 and a statutory consultation on the draft plan and associated strategic environmental assessment (SEA) was published on 27 July 2016.

Irish Water’s proposed plan provides for investment in both orthophosphate dosing and in the replacement of public side lead service pipes and fittings. The CER notes that combined action by relevant stakeholders is required in order to address the issue of lead in drinking water. Where lead pipework and/or fittings exist in both the public side service pipes and in private properties the expenditure of monies on the removal of lead in the public network will not always address the issue; co-replacement on the private side is also necessary.

The CER considers that it is important that replacement of public side lead water infrastructure is targeted at areas where there is co-replacement on the private side in order to focus spend where it will serve to eradicate the lead in drinking water and to allow spend on dosing to cease in relevant areas.

There is a need to ensure that Irish Water’s approach to lead mitigation continues to be reviewed by the utility. Irish Water needs to ensure that its approach meets the objectives and requirements of the Government’s strategy and that it is delivered in the most efficient way possible over its lifetime.

5.4.9.2 CER VIEWS AND DECISION

As with projects, the CER has reviewed Irish Water’s proposals through interrogating the investment plan and through a sample of audit reviews. The CER, in principle, recognises the need for the programmes proposed.

The programmes aim to appropriately target investment to solve deficiencies in performance and service levels based on a risk based approach. Irish Water’s proposals reflect the priorities identified by customers and address the challenges and priorities identified in the WSSP.

The CER notes that much of the national programmes proposed by Irish Water are at an early stage of development. The CER is of the view that this is to be expected given the early stage of Irish Water maturity and the fact that Irish Water does not yet have full information regarding its assets. In order for Irish Water to appropriately roll out a set of national programmes it is necessary for the utility to gather a greater level of detail of its assets and asset performance. The inclusion within the proposed programmes of 49 programmes (‘key studies’) to support further collation of information regarding Irish Water’s asset base and increase Irish Water’s understanding of the condition and performance of assets is welcomed in this regard.
The definition and/or scale of individual programmes may be necessarily refined during 2017-2018 within the monies allowed whilst delivering on targeted outcomes. The CER has not considered Irish Water’s proposed capital expenditure for the period 2019-2021. This capital expenditure falls outside the revenue control period. The CER considers that none of the allowed capital expenditure will become committed during 2017-2018. At this stage it is expected that the scope, outcomes and costings of the programmes will be better defined during 2017-2018. The CER will consider updated proposals from Irish Water regarding these national programmes when reviewing Irish Water’s submission for the next revenue control period.

Given the above, the CER has decided to allow spend on national programmes less the efficiency challenge as set out below.

The 28 minor programmes carried over from 2014-2016 have a projected expenditure of €23m in 2017. Since these programmes have advanced to implementation they are deemed committed and the CER considers that there is no scope for efficiency savings for these programmes. The CER expects Irish Water to provide outputs and outcomes from these programmes.

The CER has excluded Irish Water’s Network Extension programmes from the efficiency challenge. These programmes are in the very early stages of development and have been included in support of the Government’s Action Plan for Housing and Homelessness. The outputs and outcomes from the Network Extension Programmes will be informed by the outcomes of on-going engagement between the Department and key stakeholders regarding the implementation of the Government’s policy.

The CER has set an efficiency challenge of €43m over the period 2017 to 2018 in relation to Irish Water’s proposed spend on national programmes.

---

83 Action Plan for Housing and Homelessness, July 2016 can be found [here](#).
5.4.10 Capital Maintenance

5.4.10.1 OVERVIEW OF IRISH WATER’S SUBMISSION

Table 5.11 Allowed Capital Maintenance Capex

<table>
<thead>
<tr>
<th></th>
<th>2017(€m)</th>
<th>2018(€m)</th>
<th>IRC2 Total (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish Water Proposed Total</td>
<td>56</td>
<td>67</td>
<td>123</td>
</tr>
<tr>
<td>Efficiency Challenge</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Allowed Capital Expenditure</strong></td>
<td><strong>56</strong></td>
<td><strong>67</strong></td>
<td><strong>123</strong></td>
</tr>
</tbody>
</table>

Irish Water has proposed expenditure of €123m during the period 2017-2018 on 21 capital maintenance programmes. Spend of €551m is proposed for the period 2017-2021. Irish Water has proposed 21 programmes under this category of spend. Irish Water’s capital maintenance programmes include the First Fix Programme, Mains Rehabilitation Programme, Water Above Ground Capital Maintenance and Wastewater Above Ground Capital Maintenance. All of the programmes are at an early stage of development.

Irish Water has stated its intention to fully implement the capital maintenance Common Framework, an approach that is used by water services utilities elsewhere. Irish Water has proposed ramping up spend on capital maintenance towards the end of 2017-2021 as the utility...

---

84 Further information regarding the full suite of programmes proposed can be viewed in Irish Water’s CIP CER/16/275.
invests in gathering asset information and develops a planned, national approach to capital maintenance.

**Figure 5.11: Irish Water Proposed Capital Maintenance Spend by Asset Category**

Irish Water has prioritised maintenance of water assets and in particular below ground water assets. Expenditure on above ground assets has focused on larger assets for which Irish Water has better information and a greater understanding of the asset condition and performance allowing Irish Water to better define the outcomes.

**5.4.10.2 CER VIEWS AND DECISION**

Irish Water’s approach to capital maintenance and the principles it has applied are welcomed by the CER. Its approach is deemed industry best practice and is based on an analysis of risk (probability and consequences of asset failure). It encompasses an economic approach which allows the trade-off between capex and opex options to be considered.

The information available to Irish Water regarding their assets and their condition was incomplete when drafting the submission to the CER. Irish Water made assumptions extrapolated from available data in order to develop its submission. In that context, ramping up spend in this area towards the end of the period is deemed prudent. The focus on water assets is consistent with WSSP objectives and with customer preferences identified by Irish Water when formulating the plan. Prioritising investment on assets where Irish Water has better information and, therefore, greater certainty regarding the asset condition, performance of
relevant assets, and the benefits arising from expenditure, is considered appropriate at this juncture.

The CER expects that Irish Water will be in a position to provide progressively more clearly defined programmes of capital maintenance spend in successive revenue controls, noting that Scottish Water took a number of price controls to fully implement the Common Framework.

In developing its CIP submission to the CER, Irish Water reduced spend on capital maintenance from €813m in the unconstrained €4.8bn profile to €551m, a reduction of 32% over the period 2017-2021. Irish Water has stated that this may lead to increases in asset and service failure. However, Irish Water has noted that it has reviewed the overall CIP for deliverability and operability\(^{85}\) as part of its process to develop the plan and is satisfied that the CIP can be delivered. Irish Water has identified that careful management will be required when rolling out the CIP so that temporary degradation of service to Irish Water customers can be avoided.\(^{86}\) In addition, using the QBEG allocation, more monies are available in total for capital maintenance than specifically addressed in this category of spend. Using the QBEG allocation capital maintenance expenditure approaches the expected levels of enduring spend identified by our advisors.\(^{87}\) Here, spend in the projects and national programmes categories includes a level of expenditure on capital maintenance.

The CER notes Irish Water’s position that the CIP is deliverable and has passed Irish Water’s review regarding ‘operability’, i.e. Irish Water has determined that existing services can be maintained during the implementation of the CIP. Here, Irish Water has stated that while some planned/unplanned outages are inevitable, the roll-out of each investment must be carefully managed so that it does not lead to a temporary degradation of services to Irish Water’s customers. The CER appreciates that Irish Water does not yet have complete information regarding the condition and performance of its assets. To help mitigate against any risk that may arise in this regard, and taking account of responses to the consultation on this issue\(^{88}\), the CER has decided not to impose an efficiency challenge on capital maintenance expenditure for the IRC2 period 2017-2018.

Irish Water’s capital maintenance expenditure is in the early stages of development and the CER has only considered Irish Water’s proposed expenditure for the 2017-2018 period.

---

\(^{85}\) Irish Water definition: ‘Operability’ refers to whether Irish Water can maintain existing service during implementation of the various capital projects and programmes. While some planned/unplanned outages are inevitable, the roll-out of each investment must be carefully managed so that it does not lead to a temporary degradation of service to our customers. Source: Irish Water Submission (CER/16/345)

\(^{86}\) The process adopted by Irish Water when developing the CIP is discussed further in Section 5.4.6 of this paper.

\(^{87}\) Please refer to NERA Review of Irish Water costs 2017 to 2018 (CER/16/269) page 20.

\(^{88}\) Please see section 2.2.2.2, CER/16/343
consistent with the two year revenue review. The decisions set out here apply to IRC2 only. The CER expects Irish Water to provide a more defined suite of capital maintenance programmes when making submissions to the CER regarding the next revenue control. As Irish Water improves its understanding of the asset base and its condition Irish Water will be better able to define the expected outcomes from its capital maintenance programmes.

Figure 5.12 Allowed Capital Maintenance Capital Expenditure

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>IW Proposed NNC Total</td>
<td>59</td>
<td>53</td>
<td>112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope Reduction</td>
<td>-2</td>
<td>-2</td>
<td>-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency Challenge</td>
<td>-1</td>
<td>-1</td>
<td>-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allowed Capital Expenditure</strong></td>
<td><strong>55</strong></td>
<td><strong>49</strong></td>
<td><strong>104</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.4.11 Non-Network Capital Investment

5.4.11.1 OVERVIEW OF IRISH WATER’S SUBMISSION

Table 5.12 –Allowed Non-network Capital Investment

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>IRC2 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IW Proposed NNC Total</td>
<td>59</td>
<td>53</td>
<td>112</td>
</tr>
<tr>
<td>Scope Reduction</td>
<td>-2</td>
<td>-2</td>
<td>-4</td>
</tr>
<tr>
<td>Efficiency Challenge</td>
<td>-1</td>
<td>-1</td>
<td>-3</td>
</tr>
<tr>
<td><strong>Allowed Capital Expenditure</strong></td>
<td><strong>55</strong></td>
<td><strong>49</strong></td>
<td><strong>104</strong></td>
</tr>
</tbody>
</table>

Irish Water has proposed non-network capital investment of €112m during IRC2. Non-network capital investment includes expenditure on IT, Business Change, Facilities & Fleet and Transformation Water Industry Operating Framework (WIOF) as outlined below.
Figure 5.13 IW’s Proposed Non-network Capital Investment

Table 5.13 – Irish Water’s Proposed Non-network Capital Investment

<table>
<thead>
<tr>
<th></th>
<th>2017 (€m)</th>
<th>2018 (€m)</th>
<th>IRC2 Total (€m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT</td>
<td>23</td>
<td>20</td>
<td>43</td>
</tr>
<tr>
<td>Business Change</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Transformation (WIOF)</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Facilities &amp; Fleet</td>
<td>13</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>59</strong></td>
<td><strong>53</strong></td>
<td><strong>112</strong></td>
</tr>
</tbody>
</table>

*Source: Irish Water Submission (CER/16/345)*

Irish Water has proposed an expenditure of €43m during 2017-2018 on IT to support the delivery of key business priorities. Irish Water has stated that these include: supporting environmental and regulatory requirements; improving the decision making process; consolidating and building SCADA (supervisory control and data acquisition) capability for clean water and waste management; supporting Irish Water’s transformation plan, and; enhancing customer service. Many of these projects have been identified by Irish Water as enablers for its transformation programme.

The Irish Water Business Change function supports the implementation of Irish Water’s transformation programme. Business Change is responsible for change management as Irish Water embeds and develops the systems established during 2014-2016. Irish Water has stated
that €14m is required for Business Change over the period. The Business Change function within Irish Water covers: project management, change management, and the delivery of business and process analysis, design and implementation across Irish Water’s twenty seven water services transformation projects.

Irish Water has advised that €30m is required to support the transformation of water services in Ireland to a single utility approach. The WIOF is the primary initiative under Transformation in IRC2. Through the WIOF programme, Irish Water, in partnership with the local authorities, will structure how the water services industry will operate efficiently to meet customer expectations. Irish Water has stated that the transformation plan is central to the delivery of its €1.1bn of efficiency savings by 2021 identified in its Business Plan.

Irish Water has proposed an investment of €25m for Facilities and Fleet. Irish Water has stated that investment in its facilities is required to bring them in line with statutory obligations. Additionally, Irish Water has stated that increased expenditure is required on fleet in line with a ramp up in operational and maintenance activity in 2017-2018.

5.4.11.2 CER VIEWS AND DECISION

The CER is satisfied that Irish Water’s proposed non-network capital investment is necessary, will help to transform the water services delivery model in Ireland and will contribute to the delivery of operational efficiencies. Therefore, the CER has decided to allow Irish Water’s non-network capital investment less the efficiency target and scope reductions outlined below.

Irish Water has proposed 23 projects with a combined capex of €21.8m over the revenue control period that have been initiated prior to 2017. The CER considers that these projects have limited scope for achieving efficiencies and reducing costs. The CER has decided that no efficiency challenge is to be applied to the above.

Irish Water has proposed investment of €4.1m on ‘on hold’ and ‘low priority’ projects. The CER has decided to disallow this expenditure during IRC2.

Irish Water has justified IT expenditure insofar as the requirements are largely driven by the transformation of the delivery of water services and maintaining current IT applications and infrastructure. Irish Water has appropriately prioritised IT investment within its available budget by reviewing IT demands across the business. The majority of projects proposed by Irish Water are at an early stage of development. The CER considers it appropriate to challenge Irish Water to deliver these projects more efficiently. Therefore, the CER has decided to impose an
efficiency challenge of 5% against Irish Water’s proposed IT investment where investment begins in 2017 and 9.75%\(^8\) where investment begins in 2018. This amounts to €1.49m.

Given the scale of the transformation programme being undertaken, Irish Water has proposed an expenditure of €14m to manage and implement this change across the water services sector in Ireland. The CER considers that the costings are broadly appropriate. However, Irish Water should be challenged to deliver programmes that have not begun prior to 2017 more efficiently. The CER therefore has decided to impose an efficiency challenge of 5% against Irish Water’s proposed Business Change investment where investment begins in 2017. This results in an efficiency challenge of €0.14m over IRC2.

Irish Water considers that the WIOF programme is fundamental in the move to an efficient single public water utility and in transforming how water services are delivered in Ireland. Irish Water has stated that over the period 2014-2021 the WIOF programme will deliver operational efficiency savings by reducing payroll and overhead costs while helping to deliver Irish Water’s overall business plan target of operational efficiency savings of €1.1bn. In estimating the investment required for the WIOF over IRC2 Irish Water has used Ervia framework rates – which have been independently reviewed – and estimated the resource requirements to implement the required change programme.

Irish Water has stated that the WIOF programme is currently in detail design stage, which is due to be completed in early 2017. The CER considers that the proposed costs associated with the current WIOF programme are appropriate and should deliver significant cost efficiencies to water services in Ireland. Given the strategic importance of the WIOF programme, the CER has decided to allow the costs as proposed by Irish Water. The CER notes that the transformation costs proposed by Irish Water are not business-as-usual costs but are one-off spends necessary to deliver Irish Water’s Business Plan targets that will provide enduring benefits for Irish Water’s customers. The CER will monitor Irish Water’s delivery of the WIOF in line with the final plan which will be available early next year.

The CER considers that Irish Water has been prudent in estimating the Facilities and Fleet investment required during 2017-2018. Additionally the CER is satisfied that the proposed investment is required to allow Irish Water to move towards a more efficient operating model and to ensure compliance with statutory obligations. However, none of Irish Water’s projects have started and the CER considers that Irish Water should be challenged to deliver them more efficiently and is proposing a 5% efficiency challenge during 2017-2018. Therefore, the CER has decided to apply an efficiency reduction of €1.2m against Irish Water’s proposed Facilities and Fleet expenditure of €24.6m.

\[1 - (0.95 \times 0.95) = 9.75\%\]

---

\(^8\) Irish Water’s proposed expenditure for the WIOF is €14m. The CER considers that this is appropriate and should deliver significant cost efficiencies to water services in Ireland.
Consistent with the proposals set out for Irish Water’s CIP, the CER has decided to allow Irish Water’s non-network capital investment (less efficiency and scope reductions) over the IRC2 period and will review the efficiency of the investment against Irish Water’s stated deliverables and timelines.

The CER has decided on a €4m scope reduction and €3m efficiency challenge against Irish Water’s proposed non-network capital investment.

Figure 5.14 Allowed Non-network Capital Investment

![Chart showing proposed and allowed capital expenditure over 2017 and 2018 with scope reduction and efficiency challenge highlighted.]

5.5 Summary of Revenue 2017-2018

Summary of key decisions

Operational Expenditure

- The CER has decided to set Irish Water’s controllable operating costs (excluding DBO’s) for 2017 and 2018 to a level that is 5% and 10%, respectively, less than Irish Water’s outturn figures for 2016.
- The CER continues to treat irrecoverable VAT and insurance as costs that are within Irish Water’s control, as is consistent with its IRC1 decision.
- The CER has decided to continue to allow levies and licence fees as uncontrollable costs.
The CER has allowed a total operating expenditure for 2017 and 2018 of €1,395m. This is €128m less than requested by Irish Water. This includes a one-off expenditure allowance of €19.8m.

This decision means that by the end of 2018, Irish Water will be required to achieve efficiencies of circa 20% in its controllable operating costs since the start of 2015.

**Capital Expenditure**

*Irish Water's Development of the CIP*

- The CER considers that the approach to the development of the CIP is appropriate insofar as it is based on a risk-based approach, seeks to objectively optimise for defined constraints and incorporates customers’ preferences.

**Capital Efficiency**

- In order to arrive at an appropriate global efficiency challenge, the CER carried out a bottom-up analysis of Irish Water’s submission.
  - A 13.5% efficiency challenge was applied as a starting point to uncommitted capital expenditure.
  - A 5% p.a. cumulative efficiency challenge was applied for each of the years of 2017 and 2018 on uncommitted capital expenditure. For projects the efficiency challenge applied was dependent on the year in which the project was deemed to become committed.
  - No efficiency challenge was applied to capital maintenance or Irish Water’s network extension programmes.

- The total efficiency challenge applied to Irish Water’s CIP amounts to €129m for the period 2017 to 2018.
- The concept of efficient deferral will not apply to Irish Water.
- The total efficiency challenge applied to capital investment (CIP and NNC) is €132m.

**Capital Investment Plan**

- The projects, national programmes and capital maintenance programmes proposed by Irish Water are necessary and appropriate tools have been used to compile and prioritise the CIP.
- The CER has reviewed Irish Water’s updated CIP during the consultation period and this decision paper is based on the updated CIP.
- The efficiency challenge applied to projects for the period 2017-2018 amounts to €86m of the €793m proposed by Irish Water.
The efficiency challenge applied to the national programmes for the period 2017-2018 amounts to €43m of the €260m proposed by Irish Water.

No efficiency challenge has been applied to the capital maintenance programmes for the period 2017-2018.

Non-network Capital Investment

- Irish Water’s proposed non-network capital investment is necessary (excluding low priority and on hold projects).
- Irish Water’s proposed investment of €4m on low priority and on hold projects is disallowed.
- The total efficiency challenge applied to Irish Water’s proposed non-network capital investment amounts to €3m during 2017-2018.
6. Incentives and Monitoring

6.1 Introduction

In October 2013\(^90\), the CER provided advice to the Minister which set out the CER’s intention to introduce incentive-based regulation, using broadly the same regulatory framework as applied by the CER for energy networks. Incentives are used by the CER to encourage the utility to run its business in an efficient manner in order to reach targets set by the CER. 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 CER has to date (in the energy sector) placed performance-based incentives on energy companies. The CER outlined that it considered that a similar approach would be appropriate for the water services sector.

Performance-based incentives are an important component of revenue control regulation for monopoly entities. They enhance the requirement for a regulated monopoly business to efficiently manage costs by giving it an incentive to deliver an appropriate level of service to the customer.

For IRC2, the CER has decided that a combination of reputational incentives (through monitoring and publication) and financial incentives (through payments/penalties) will be utilised to incentivise Irish Water to improve its performance in key areas. In reaching this decision the CER has considered whether data and a firm baseline over a number of years is available in Ireland. The CER has also considered what is in place for energy utilities in Ireland and water utilities in other jurisdictions.

The areas where the CER has set financial incentives are:

- Rolling retention additional of opex efficiencies; and,
- Non-Domestic billing incentives.

Areas where the CER has decided to monitor Irish Water over the IRC2 period, but has not currently set financial incentives are:

- The Irish Water Performance Assessment;
- The Customer Handbook; and,
- Capital Expenditure Monitoring.

\(^90\) “Advice to the Minister on the Economic Regulatory Framework for the public water services sector in Ireland” can be found here.
These areas are outlined below. In addition, further information is provided in the NERA report published alongside the consultation on this matter.91

### 6.2 Rolling retention of additional opex efficiencies

#### Background

For electricity and gas utilities, allowances for operating costs are fixed for the duration of the revenue control. 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 due to making savings in an efficient manner, it can continue to earn that surplus for a specified period (often 5 years). The rolling element of the incentive, where the utility can earn the same number of years’ worth of revenue regardless of what point during the revenue control the saving is made, is designed to incentivise the utility to make efficiency savings as soon as they are identified (that is, rather than waiting until the start of the next revenue control). This approach is used to deliver increased savings to consumers in the medium term.

The utility cannot simply make 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.

In relation to the retention period, the standard approach is to match the retention period with the length of review, i.e. usually five years, but in this case two years. However, to increase the incentive on Irish Water to realise cost efficiencies, the CER has decided to use a retention period of three years, as outlined below.

#### CER decision

The CER has decided to include a mechanism for the rolling retention of additional opex efficiencies for the next revenue control for Irish Water’s controllable operating costs. The decision is as follows:

- The incentive relates to controllable operating costs. It does not apply to uncontrollable costs. Adjustments will be made to the controllable operating cost allowance where appropriate (ex-post) for additional work completed or planned work that was not completed.92

---

91 The NERA report ([CER/16/269](#)) published alongside the consultation on this matter also covers some other possible incentives which have not been implemented by Irish Water at this time.

92 Section 7.4 provides more detail on appropriate adjustments, referred to as for logging-up/down of outputs.
The rolling element of the incentive is for a period of three years. That is, Irish Water is permitted to earn three years’ worth of revenue related to operating costs which were avoided for efficient reasons. The reduction will have to be sustained, i.e. it shall not be a reduction for one year followed by an increase in any subsequent years related to the same item of work.

Overspends are not subject to the rolling element of this incentive. Irish Water’s loss of revenue related to overspends are capped at overspends during the IRC2 period.

6.3 Non-domestic billing incentives

6.3.1 Introduction

The CER has decided to adopt three incentives relating to the billing of non-domestic customers for the IRC2 period, 2017-2018. Irish Water does not yet bill non-domestic customers centrally as this is carried out by local authorities on behalf of Irish Water. It is expected to commence billing centrally in 2017 following the completion of the billing migration project. In order for incentives to be implementable, a firm baseline for the appropriate data is needed. Therefore, while the CER has decided that the incentive covered by Section 6.3.2 (non-domestic bad debt) comes into effect immediately, the implementation date for the other incentives (detailed in Sections 6.3.3 and 6.3.4) will be decided following the completion of the data migration project and the formation of a robust baseline of data. That is, these incentives could take effect for the latter half of 2017 onwards or perhaps all of 2018.

The incentive schemes outlined below are intended to cover all bills relating to regulated charges set by (or on behalf of) Irish Water to non-domestic customers (including mixed use customers).

In order to ensure that the utility is encouraged to actively pursue each of the incentives outlined below and that the incentives are not overly rewarding, the CER has decided to place the following caps on the incentive payment that can be earned by Irish Water:

- €50k cap on the revenue that can be gained on individual customers (relating to efficient billing and billing correction incentives);
- €4m cap on each individual incentive per annum;
- €10m cap on the total amount of revenue the utility can earn through these three incentives combined per annum.

Some of the details of each incentive may change if it is appropriate to do so following review of the information received as part of the data migration project.
6.3.2 Non-domestic bad debt

As part of its IRC2 submissions to the CER, Irish Water included an assessment of non-domestic bad debt for the IRC1 period, 1 October 2014 – 31 December 2016. Irish Water has assessed that it is unable to collect 9.39% (€39.67m) of the amount billed over the 27-month period. The CER has decided to allow the 9.39% IRC1 bad debt provision as requested by Irish Water. Additionally the CER has decided to set a bad debt provision of 5% of the billed amount for the IRC2 period.

In order to encourage the utility to actively pursue outstanding debt amongst its non-domestic customers the CER has decided to introduce an incentive mechanism relating to the both the IRC1 and IRC2 periods. An incentive payment will apply where Irish Water can reduce their bad debt to a level lower than the level set by the CER i.e. 9.39% for IRC1 and 5% for IRC2. A penalty will apply where Irish Water’s actual bad debt ends up being higher than the level set by the CER. The incentive, and corresponding penalty, will be capped at €4m per annum for each of the associated revenue control periods.

After what is deemed an appropriate period of time by Irish Water, the utility may make a request to the CER for the shortfall in revenue that it was unable to collection from non-domestic customers. This would be in addition to the provision already set by the CER relating to the IRC1 and IRC2 periods i.e. 9.39% and 5% respectively. The CER has decided that, subject to Irish Water providing detailed breakdowns of the correction requested and the details of actual bad debt levels, the CER will make a further provision for the uncollected revenue subject to a penalty. A penalty of €4m (maximum) per annum would be subtracted from the correction which was to be provided. If Irish Water do not make this request or do not provide sufficient information relating to its bad debt collection activities, the CER would not make any revenue correction and the utility must bear the loss of any additional uncollected revenue.

If Irish Water reduces its bad debt to levels lower than those set by the CER for the IRC1 and IRC2 periods then the CER has decided that Irish Water would be allowed to keep any additional revenue up to the cap of €4m per annum as an incentive payment. In order to ensure Irish Water retain only up to the maximum capped level of additional revenue, the CER intends to initiate more regular revenue assurance reporting detailing the collection rates of non-domestic revenue and associated bad debt. Bad debt levels and associated revenues would also be monitored by the CER as part of future revenue reviews so as to avoid over-compensating the utility.

This decision covers the IRC1 and IRC2 period (i.e. for non-domestic bad debt from October 2014 to 2018). Irish Water will be incentivised to:
1. Reduce bad debt levels within its non-domestic customer sector in order to achieve or beat the bad debt provision set by the CER;

2. Investigate the specifics as to how the bad debt correction will be implemented, taking future bad debt collection rates into account, in order to be in a position to request a bad debt revenue correction from the CER; and

3. Ensure the data migration project is completed in a timely manner in order to assist the utility in its non-domestic revenue collection activities.

6.3.3 Efficient billing

The efficient billing scheme creates 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 the baseline amount) they keep a certain percentage of the additional revenue billed.

In order for this incentive to be effective, the number of non-domestic connections that are currently billed is an important baseline. This data will be available following the completion of the data migration project.

In other jurisdictions a similar incentive scheme has been utilised. When putting this incentive in place in England and Wales (E&W), Ofwat decided to allow utilities to retain a portion of extra revenue billed. This was done by multiplying the difference between expected billing and actual billing levels by an efficient billing factor of 42% of the average bill. Similarly, for Irish Water, the CER has decided to allow the utility to retain 42% of the additional revenue billed i.e. the difference between expected billing and actual billing amounts multiplied by an efficient billing factor of 42%. The decision to use this method incentivises Irish Water to prioritise large non-domestic customers that have not been billed in the past. This is subject to the cap on revenue that can be gained on individual customers.

For the IRC2 period, the CER has decided to implement an asymmetrical incentive as the opportunity to earn additional revenue through the incentive (with no downside) will further act as an incentive for Irish Water to migrate data, set the baseline and bill all eligible customers in a timely and efficient manner. This incentive may be changed to a symmetrical incentive in the future, where appropriate, but this will be decided as part of the consultation process for the next revenue control period.

---

94 To give context to this figure, Irish Water has stated that the average bill is circa €860 per annum. These figures are calculated from 2013 non-domestic data.
6.3.4 Billing correction

The billing correction scheme creates 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 order for this incentive to be effective, Irish Water will need to provide appropriate information to demonstrate the amount of additional revenue it has billed out as a result of identifying these errors. This data will be available following the completion of the data migration project.

Similar to the above, Ofwat has used this approach in regulating utilities in England and Wales. Keeping in line with the efficient billing incentive, the CER has decided to allow Irish Water to retain 42% of the additional revenue billed. The calculation is: additional revenue billed to customers as a result of errors being identified and correct bills being issued multiplied by 42%. Ofwat has linked this incentive to back-billing in its regulation of utilities in England and Wales, where it revisits previous years and corrects for under-billing. However, the CER has decided not to include back-billing within this billing incentives.

For the IRC2 period, the CER has decided to make this incentive asymmetrical as the opportunity to earn additional revenue through the incentive (with no downside) will further act as an incentive for the utility to migrate data, set the baseline and bill all eligible customers correctly in an timely and efficient manner.

6.4 Monitoring of Irish Water Performance Assessment

The CER has reached a decision on key performance indicators that will measure the performance, progress and efficiency of Irish Water. The purpose of this is to ensure that value is delivered to customers through improving performance metrics. Monitoring the output delivery associated with revenue recovered by Irish Water will assist the CER in ensuring that revenue is used by the utility to operate in a manner that provides an appropriate level of service and delivers improvements over time.

---

95 This is detailed in Section 5.4.2 of the NERA report
96 Further detail is provided in the CER’s decision paper on the Irish Water Performance Assessment (CER/16/308) which can be found here.
It is intended that monitoring and reporting against these metrics will enhance transparency regarding what service improvements are being delivered to customers for the money that is spent.

The metrics cover a number of 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.

Given the early stages of development of these metrics and the lack of robust baselines in many areas, the CER has decided not to place financial incentives or penalties on these metrics for the IRC2 period. However, the CER has decided to monitor and report on these metrics regularly.

### 6.5 Monitoring of Customer Handbook

In 2014 the CER published the Irish Water Customer Handbook, outlining the required levels of customer service Irish Water must include in their Customer Charter, Codes of Practice and Terms & Conditions of supply. The Customer Handbook contains 353 services requirements and the CER monitors Irish Water’s implementation of these requirements.

Part of the Customer Handbook includes a requirement for Irish Water to implement a Customer Charter which includes areas such as providing information to customers affected by supply interruptions; remedy of damage to property during meter installation and responding to customer complaints. The Customer Charter outlines Irish Water’s minimum service standard guarantees; if any of these are not met, Irish Water will compensate customers with a €10 payment for each instance. The CER will continue to monitor requirements under the Customer Handbook which can be found [here](#).

### 6.6 IRC2 Capital Expenditure Monitoring

#### 6.6.1 Background and CER Decision

Irish Water submitted its first CIP (2014-2016) to the CER whilst building its understanding of the scale and nature of its assets and of projects previously committed to by local authorities under the Water Services Investment Programme (WSIP). In addition, Irish Water was commencing work on its first WSSP when it submitted the first CIP to the CER.
Further to engagement with Irish Water regarding the necessary on-going review and refinement of the CIP during the first revenue control period the CER considered it would have been less than optimal to design a formal monitoring and reporting regime at this early stage in the absence of a sufficiently firm baseline.

It is considered that Irish Water is now in a better position to provide information to the CER to facilitate standard monitoring of delivery during IRC2. Therefore, the CER has determined that an appropriate regime will be advanced during 2017 to facilitate monitoring of capital investment in IRC2.

### 6.6.1.2 CER DECISION

The CER has decided to adopt the following high-level, approach to monitoring Irish Water’s delivery of capital investment during IRC2:

- The CER will monitor the delivery of capital investment at a global level by monitoring Irish Water’s performance against Irish Water’s stated targets associated with the final, approved capital expenditure allowance. This, coupled with appropriate monitoring of other outcomes/outputs not captured directly in these targets, will allow for the monitoring of Irish Water’s overall delivery across all categories of spend with a focus on delivery of outcomes and outputs for customers.
- The monitoring framework to be developed by the CER in 2017 will incorporate monitoring at an appropriate level of large projects with significant spend, including the WSP, Vartry, Cork Lower Harbour, the Greater Dublin Drainage Project and Ringsend.
- Irish Water will report on progress against agreed timelines, budget, outputs and/or outcomes and risk management.
- Under the monitoring regime Irish Water will update the CER of any proposed material changes to capital investments against the approved baseline within the revenues allowed by the CER in this IRC2 decision.
- Irish Water will be required to report to the CER on a periodic a basis.
- The CER will publish reports on Irish Water’s delivery of capital investment in an accessible format during 2017 post finalisation of the monitoring framework.

The CER will engage with Irish Water to develop its approach to monitoring capital investment in the coming months such that monitoring can commence in 2017.
6.7 Summary of Incentives and Monitoring

Summary of key decisions

Incentives and Monitoring

- The CER has decided to put in place a rolling opex incentive mechanism where Irish Water retains outperformance for a three-year period. This is intended to decrease costs to customers in the medium term.

- The CER has decided to put in place three incentives relating to non-domestic billing:
  - The CER has decided to allow for a 9.39% non-domestic bad debt provision for IRC1 and 5% for IRC2. This is intended to incentivise Irish Water to collect revenue from non-domestic customers to whom bills are sent.
  - The CER has decided to allow Irish Water keep 42% of additional revenue billed if Irish Water can bill more connected properties above the baseline amount. This is intended to incentivise Irish Water to ensure all non-domestic properties receive bills where appropriate.
  - The CER has decided to allow Irish Water keep 42% of additional revenue billed if Irish Water can bill customers correctly where customers have been charged less than they should have been charged. This is intended to incentivise Irish Water to ensure all non-domestic properties are billed appropriately.

- The CER has decided to monitor Irish Water under certain metrics through the Irish Water Performance Assessment, but it has decided not to put financial incentives in place for these metrics at this time.

- The CER has decided to continue to monitor Irish Water’s compliance with the Customer Handbook, but it has decided not to put financial incentives in place in relation to the handbook at this time.

Capex Monitoring

- The CER will introduce a monitoring regime in 2017 in relation to Irish Water’s delivery of capital investments under this 2017-2018 revenue control decision.

- The CER will monitor the delivery of capital investment at a global level by monitoring Irish Water’s performance against Irish Water’s stated targets associated with the final, approved capital expenditure allowance. The CER will also appropriately monitor other outcomes/outputs not captured directly in these targets.

- The CER will monitor Irish Water’s delivery of outcomes, outputs, timelines and budgets against an agreed baseline.
- The CER will monitor larger projects with significant spend, including the WSP, Vartry, Cork Lower Harbour, the Greater Dublin Drainage Project and Ringsend.
- The CER will appropriately monitor Irish Waters delivery of the projects category of spend and of the sub set of national programmes where outcomes have been identified at a more granular level.
- Under the monitoring regime Irish Water will update the CER of any proposed material changes to the CIP against the approved baseline within the revenues allowed by the CER in the IRC2 decision.
- Irish Water will be required to report to the CER on a periodic basis.
- The CER will publish reports on Irish Water’s delivery of capital investment in an accessible format during 2017 post finalisation of the monitoring framework.
7. Calculation of Revenue Requirement

7.1 Overview

This section details how the overall revenue figure for Irish Water was calculated. It outlines:

- Irish Water’s regulated asset base including the composition, depreciation and asset lives applied to the RAB;
- The CER’s decision on the cost of debt, cost of equity and overall WACC for Irish Water for the IRC2 period;
- A summary of the adjustments made to the 2014-2016 outturn revenue; and
- The calculation of the overall revenue for Irish Water for the IRC2 period.

Each of the above are discussed in turn below.

7.2 Irish Water Regulated Asset Base

7.2.1 Introduction

The revenue that is recovered from Irish Water customers and from government subvention during each review period can be divided into three separate categories:

1) Revenue to cover Irish Water’s operational costs during that period;  
2) A return on capital invested in Irish Water’s assets; and,  
3) Revenue to cover depreciation of Irish Water’s assets.

The Regulated Asset Base (RAB) plays a key role in the determination of the amount of depreciation that Irish Water receives (item 3 above), and is the base to which the rate-of-return is applied when determining the return on capital for Irish Water (item 2 above).

This section provides information on a number of interrelated issues that determine Irish Water’s RAB. Specifically, this section provides information on:

- The type of assets within Irish Water’s RAB;
- The methodology used to value the assets within Irish Water’s RAB;
- The length of asset lives applied to the assets within Irish Water’s RAB;

---

97 There may also be an adjustment related to the previous revenue control.
The depreciation methodology applied to Irish Water’s RAB; and
The regulatory treatment of additions to Irish Water’s RAB.

7.2.2 Composition of the RAB

Please see the CER’s revenue model for detailed composition of Irish Water’s regulated asset base at 1 January 2017. Information on the value of the assets is provided within the asset base itself.

Regarding asset lives, Irish Water’s capital expenditure is depreciated using asset life categories based on the expected economic life of the assets to be depreciated.

Section 7.2.4 of this paper provides more detail on asset lives used for the RAB.

<table>
<thead>
<tr>
<th>Table 7.1: Irish Water RAB 2017-2018 (2015 prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opening Asset Value</strong></td>
</tr>
<tr>
<td><strong>Capex</strong></td>
</tr>
<tr>
<td><strong>Depreciation</strong></td>
</tr>
<tr>
<td><strong>Closing Asset Value</strong></td>
</tr>
</tbody>
</table>

7.2.3 Valuation of the Regulated Asset Base

7.2.3.1 INTRODUCTION AND DECISION TO CONTINUE CURRENT APPROACH

The preceding section provides information on the composition of Irish Water’s RAB. However, the approach to valuing the assets within the RAB is also an important decision within the revenue control process.

The CER has decided to continue its current approach for valuation of the RAB through into the next review period. Firstly, the CER remains of the view that this approach is the most appropriate to value the Irish Water and wastewater assets. Secondly, maintaining this methodology, which has become established practice in the electricity and gas sectors, provides regulatory stability which is a significant advantage in itself.

This approach allows the CER to focus on reviewing other aspects of Irish Water’s performance to ensure that it is operated and developed in a cost-effective and efficient manner.

The CER is continuing with the current methodology for the valuation of Irish Water’s RAB. The following sections provide further information on this issue.

---

98 CER/16/272 – CER IRC2 Revenue Model
The core issue regarding the valuation of Irish Water’s RAB is whether the RAB should reflect the value of the assets now (replacement value) or when they were built (acquisition cost). A number of variations on these approaches are outlined below. The advantages and disadvantages of each are detailed below.

**Acquisition cost**

Assets are valued at their original cost of construction/acquisition. The value of the assets is not indexed for inflation nor is the value linked to the cost of replacement.

**Replacement cost**

Assets are valued at what it would cost to replace existing assets. There are two approaches to replacement cost: (a) indexing the acquisition cost of the assets to allow for inflation; and (b) revaluing the asset based using a modern equivalent asset value (MEAV) approach.

**Replacement cost less stranded assets**

This is as per replacement cost (above) but those assets that are not utilised in the current system would be excluded. Effectively, this would be the cost of building a replacement system.

**Deprival value**

The assets would be valued at the lower of their replacement cost or economic value (in the event that they could not be replaced).

Table 7.2: Advantages and disadvantages of valuation approaches.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition cost</td>
<td>This is the simplest approach to valuing the RAB. It requires no adjustments to the RAB, other than for new capital expenditure and depreciation.</td>
<td>It does not reflect the economic values of the assets and therefore is likely to reduce incentives to invest in the network.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It may not provide sufficient cash flow to fund network investment.</td>
</tr>
<tr>
<td>Replacement cost</td>
<td>There are two variations of this:</td>
<td>(a) Modern Equivalent asset</td>
</tr>
<tr>
<td></td>
<td>(a) Modern Equivalent asset</td>
<td>Complex, as in principle all assets within the RAB must be reviewed and valued.</td>
</tr>
<tr>
<td></td>
<td>This ensures the RAB is directly linked to the costs of constructing a new transmission</td>
<td>Assessment of networks used for</td>
</tr>
</tbody>
</table>
It provides a better indication of changes in market values.

(b) Indexed acquisition cost

This is simpler to apply than MEAV, as it does not require an in-depth review of the asset base.

Indexed acquisition cost

This approach risks deterring new investment if some existing assets are stranded when the RAB is revalued.

(b) Indexed acquisition cost

Simple indexation means that some assets may be overvalued and some undervalued relative to their true market value. This may be worsened by retirement/disposal of some assets.

It does not take into account technological improvements that increase capital efficiency.

Replacement cost less stranded assets

The advantages are as per those listed above for replacement cost. In addition, it has the benefit that any assets that are considered stranded – that is, where there is an unambiguous case that they are not required – would be removed from the RAB. This is correct as, in principle, these should be removed as they do not form part of the operational base of networks.

Identifying stranded assets is somewhat subjective. It would need to be demonstrated that a specific asset should not have been built based on reasonable assumptions.

Excluding stranded assets from the RAB may deter investment. That is, the utility may not invest in some cases if there is a risk that the asset may become stranded, for example, through expected load not appearing.

Deprival value

Provides most accurate economic valuation of the network

Highly complex to apply as requires detailed modelling of system to determine asset values

Having balanced and considered all of the above, the CER decided that Irish Water’s RAB would be valued using a replacement cost approach for the first review period October 2014 to December 2016. The CER has decided to continue using this method for the period 2017-2018 (IRC2).

While it is recognised that there are advantages and disadvantages associated with each methodology, the replacement cost approach was taken as it is more likely to result in the correct level of investment in the sector.
As documented above there are a number of variations of replacement cost that could be used. The version used by the CER is 2 (b) above - indexed acquisition cost, (i.e. acquisition costs indexed upwards to allow for inflation, as a proxy for the replacement cost).

7.2.3.3 DECISION

The CER has decided to continue using this methodology to value Irish Water’s regulated asset base for the 2017-2018 period. Firstly, the CER remains of the view that this approach is the most appropriate to value the Irish Water and wastewater assets. Secondly, maintaining this methodology, which has become established practice in the electricity and gas sectors, provides regulatory stability which is a significant advantage in itself.

7.2.4 Asset Lives Applied to the RAB

7.2.4.1 INTRODUCTION

The assets lives applied to assets within the RAB feeds through into the level of depreciation that Irish Water receives on those assets within each control period (or indeed year).

The CER has decided that Irish Water’s capital expenditure will be depreciated using asset life categories based on the expected economic life of the assets to be depreciated.

Infrastructure assets in the water and wastewater industry usually comprise the following categories (commonly adopted asset lives reported in brackets):

- Dams and Impounding Reserves (200 – 250 years);
- Water Aqueducts (250 years);
- Mains (40 – 150 years);
- Sewers (40 – 300 years);
- Sea Outfalls (70 – 80 years).

Based on the above, the CER has decided to adopt an assumed asset life of 100 years for all infrastructure assets. The following table shows the CER’s decision on asset categories and respective asset lives for Irish Water assets. Table 7.3 summarises recommendations in relation to asset categories for depreciation and the corresponding depreciation asset lives.
Table 7.3: Asset categories and respective asset lives

<table>
<thead>
<tr>
<th>Category</th>
<th>Asset life range</th>
<th>Depreciation asset life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Short</td>
<td>0-5 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Short</td>
<td>6-15 years</td>
<td>10 years</td>
</tr>
<tr>
<td>Medium</td>
<td>16-30 years</td>
<td>20 years</td>
</tr>
<tr>
<td>Medium-long</td>
<td>31-50 years</td>
<td>40 years</td>
</tr>
<tr>
<td>Long</td>
<td>50+ years</td>
<td>60 years</td>
</tr>
<tr>
<td>Land</td>
<td>Infinite</td>
<td>Not depreciated</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>100+ years</td>
<td>100 years</td>
</tr>
</tbody>
</table>

The CER has assigned capital expenditure to asset lives using percentages as shown in the CER table below.

Table 7.4: Percentage allocation of capital expenditure to asset categories

<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>

7.2.4.2 BACKGROUND

As part of the first interim revenue control, the CER allocated pre-October 2014 expenditure into categories which reflected the expected economic lives of the amounts spent and set an opening RAB. Table 7.5 below sets out the allocations of the components of the opening RAB into depreciation categories.

Table 7.5: Opening RAB allocations 1 October 2014

<table>
<thead>
<tr>
<th>Asset</th>
<th>CER Allocations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment Costs</td>
<td>50% Short, 50% Medium</td>
</tr>
<tr>
<td>Capital Programme</td>
<td>As per new capex allocations</td>
</tr>
<tr>
<td>Network (metering)</td>
<td>45% Long, 55% Short/Medium</td>
</tr>
<tr>
<td>Non-network capex</td>
<td>Short</td>
</tr>
<tr>
<td>Net opex and rolled-up finance costs</td>
<td>90% Very Short, 10% Short</td>
</tr>
<tr>
<td>Local Authority transferred liabilities</td>
<td>Short</td>
</tr>
</tbody>
</table>

For the first revenue control period covering October 2014 to December 2016 an assumed asset life of 100 years was adopted for all infrastructure assets. When setting the revenue control period for 2017-2018, the CER decided that all asset lives were not changed when moving between periods.

The CER sees no reason to change its treatment of asset lives for the 2017-2018 period.
7.2.4.3 DECISION

For the control period covering 2017-2018, the CER has decided to continue applying the assets lives used during the first revenue control. Maintaining regulatory certainty by continuing this methodology is a significant advantage to this approach. The CER allocates expenditure to these asset lives as shown in Table 7.4 above.

7.2.5 Depreciation method

7.2.5.1 BACKGROUND

Economic depreciation profiles the original capital cost of a project over its useful life. There are a number of possible methods through which asset bases may be depreciated; some relevant examples are straight-line, sum-of-years-digits and declining balance depreciation.

When setting the first revenue control, covering the period October 2014 to December 2016, the CER chose the straight-line method. The following benefits were noted:

- Straight-line fully depreciates the assets over a period of time. The declining balance method does not, as it is calculated as a portion of the declining value of the asset.
- Due to the nature of the design life of water and wastewater assets and the load profile of the use of the assets, the straight-line method was considered to be a reasonable representation of depreciation.

7.2.5.2 DECISION

For the control period covering 2017-2018, the CER has decided to continue applying the straight-line method of depreciation used during the first revenue control.

7.2.6 Additions to Irish Water’s RAB

7.2.6.1 INTRODUCTION

The regulatory treatment of additions to Irish Water’s RAB is an important issue in a revenue control. This section explains and sets out the CER’s decision to continue the current regulatory approach to treatment of additions to Irish Water’s RAB for:

- Interest During Construction (IDC); and,
- Capital contributions and grants.
7.2.6.2 INTEREST DURING CONSTRUCTION (IDC)

In the previous revenue control, assets were added to the RAB as costs were incurred, not on the date of commissioning. Irish Water received a return on the assets from the middle of the year in which the costs were incurred, rather than when the asset was commissioned. For this reason the CER did not allow IDC to be added to the RAB.

Depreciation was also provided as expenditure on assets as incurred. This means that expenditure on assets still under construction during any given year will be included in the calculation of that year’s annual depreciation charge.

The CER has decided to continue this policy during the forthcoming revenue control period of 2017-2018.

7.2.6.3 CAPITAL CONTRIBUTIONS AND GRANTS

Capital contributions or grants, if they arise, should be subtracted from capital expenditure in the relevant year.

The CER has decided to continue a policy of subtracting capital contributions or grants from capital expenditure during IRC2.

7.3 IRC2 Cost of Capital

7.3.1 Introduction

The revenue of a regulated network utility consists of three categories\(^{99}\):

- revenue to cover the utility’s operational costs;
- revenue to cover the depreciation of the utility’s assets, and
- a return on the capital invested in assets by the utility.

Businesses, including regulated utilities, compete on national and international markets to finance their capital projects. The cost of capital allowed by a regulator in setting the revenue control should reflect the opportunity cost\(^{100}\) of the funds invested in assets.

---

\(^{99}\) There may also be an adjustment related to the previous revenue control.

\(^{100}\) This is the risk adjusted costs faced by an investor when it could have provided the same level of capital to another utility.
7.3.2 **Methodology**

Most businesses are financed through a combination of debt and equity and as such the relevant measure of the cost of capital is the weighted average of the cost of debt, \( r_d \), and the cost of equity, \( r_e \). The weights reflect the company’s long-term target ratio between debt and equity invested in the company or its gearing, \( g \).

The Weighted Average Cost of Capital (WACC) approach is commonly used by regulators to estimate the cost of capital. Consistent with the methodology detailed in the CER’s Advice to the Minister\(^{101}\), the CER is using the WACC approach to determine Irish Water’s allowed rate of return, where:

\[
\text{WACC} = (r_e \times (1 - g)) + (r_d \times g)
\]

The component parts of this formula are discussed in the following sections.

### 7.3.2.1 COST OF DEBT

The cost of debt of a regulated business can generally be considered to be the sum of the real pre-tax return required by investors in risk-free investments plus a premium over the risk-free rate representing the rate at which debt can be obtained by the company in question.

Debt repayments made by a company to its investors are fixed and the risk faced by an investor is the non-payment of the debt at the agreed rates and intervals. A measure of this risk is the rating on the company’s debt provided by credit rating agencies. Therefore, a company’s debt premium can be determined by taking the market data on spreads on bonds with the same credit rating. Where a company is not rated and does not have listed bonds reasonable inferences can be made by looking at the data for a set of comparator utilities.

The cost of debt, \( r_d \), can be determined by summing the risk-free rate, \( R_\text{fR} \), and the debt premium.

\[
r_d = R_\text{fR} + \text{debt premium}
\]

### 7.3.2.2 GEARING

The gearing of a company, \( g \), is the ratio of debt, \( D \), to equity, \( E \), in the company and determines the weightings applied to the cost of debt and the cost of equity when calculating the WACC.

\[
g = \frac{D}{D + E}
\]

\(^{101}\) CER/14/076 Advice to the Minister on the Economic Regulatory Framework for the Public Water Services Sector in Ireland.
The CER’s objective is to allow the regulated business to recover only the required cost of finance from customers based on an optimal level of gearing. The result being that if the regulated company has a non-optimal level of gearing which results in the cost of capital being raised, this extra cost is not passed through to customers.

7.3.2.3 COST OF EQUITY

The cost of equity is the rate of return that an investor expects to earn when investing in shares in a company. The return consists of dividends paid on the shares invested and any increases or decreases in the market value of the shares. However, Irish Water as a publicly-owned regulated company does not issue shares to third parties so its cost of equity must be estimated. The Capital Asset Pricing Model (CAPM) approach is commonly adopted by regulators – and well understood by investors – to estimate the cost of equity of a regulated utility.

The CAPM states that the cost of equity should provide shareholders with a premium, over the risk-free return. This is determined by the market-risk premium (the premium that is earned by investors as a whole reflecting economy-wide systematic risk) and the correlation between the risk in the company’s returns and those of the market as a whole, the beta. The beta is estimated from primary market data for listed companies, or by analysing the betas of comparators for companies which are not listed.

Companies with a higher gearing level will, all else being equal, have higher equity betas. Therefore to determine a company’s systematic risk one must control for the risks it faces as a result of high gearing. To control for this, asset betas are determined to reflect the perceived riskiness of a company. The asset beta is a hypothetical measure of a company’s beta if that company was financed entirely by equity. It is related to the company’s beta as follows:

$$\beta_a = (1 - g)\beta_e + g \beta_d$$

Where $\beta_a$ is the company’s asset beta, $g$ is the company’s gearing, $\beta_e$ is the company’s raw equity beta and $\beta_d$ is the company’s debt beta. Debt betas have generally been assumed as zero when calculating asset betas for comparators.

The cost of equity, $r_e$, is determined as follows:

$$r_e = RfR + (ERP \times \beta_e)$$

Where RfR is the risk-free rate, ERP is the equity risk premium and $\beta_e$ is the equity beta.
7.3.2.4 **TAX**

Consistent with the CER’s previous WACC determinations and the Advice to the Minister on the Economic Regulatory Framework, a pre-tax WACC is determined using the Irish corporation tax rate of 12.5%.

7.3.3 **Cost of Debt**

At IRC1 Irish Water’s cost of debt was determined using the long-run historical average of the Eurozone risk-free rate plus a current market premium based on a set of comparator firms with an investment grade rating. The risk-free rate was estimated as 2.0%. Based on market data at IRC1, the debt premium fell within a range of 1.7-1.9%. Irish Water’s cost of debt was set at 3.9% during the first revenue control.

7.3.3.1 **RISK-FREE RATE**

The risk-free rate has been estimated using a combination of pre-2008 sovereign bond yields (reflecting the fact that since the economic downturn such bonds are considered as no longer providing a strong indicator of the changes in risk-free rate), recent regulatory decisions and changes in the output growth rate for the Eurozone.

The risk-free rate was set 2.0% at the PR3 Mid-term WACC review for ESBN, 2.0% at the IRC1 decision for Irish Water and 1.9% in the PR4 review for ESBN. A broader set of comparators across Ireland and the UK points to recent regulatory precedent for the risk-free rate in the range of 1.8-2.0%.

Eurozone Government bond yields have, in general, been falling since July 2013 and remained relatively stable since the PR4 decision at the end of 2015, with Irish yields converging to the Eurozone norm. Since 2008, determining the risk-free rate using low-risk sovereign bond yields in any sort of mechanical way has not been appropriate as they have been significantly distorted downwards by a combination of quantitative easing and market pressures. The CER’s advisors, Europe Economics, have determined a relationship between output growth rates and changes in the risk-free rate using empirical evidence from pre-2008 sovereign bond yields as a starting point. This suggests a Eurozone risk-free rate of 1.5-1.8% in 2016 and 1.85-2.2% in 2020, suggesting a risk-free rate range of 1.9-2.0% in IRC2.

Given the better growth prospects of the Irish economy relative to the Eurozone in general, the CER has decided to use the upper bound of this range and setting the risk-free rate at 2.0%.
### 7.3.3.2 DEBT PREMIUM

An appropriate debt premium range has been derived from the bond spreads of euro and sterling denominated Irish utilities, pure play water companies in France and the UK and a multi-utility company in Austria (included as the size of Austria is more comparable to Ireland than the UK, France or Germany).

Spot rates for Irish euro-denominated bonds of Ervia and ESBN Finance at 28 April 2016 ranged from 57 bps (two years to maturity) to 95 bps (eight years to maturity) with an average of 67bps. Spreads of outstanding sterling denominated ESB bonds range from 107 bps (two years to maturity) to 123 bps (ten years to maturity) with an average of 114bps.

Reviewing data on the spread of UK comparators’ (Severn Trent, Thames Water and United Utilities) bonds over UK gilts gives an average spot spread at 28 April 2016 of 117 bps with a one year average for the comparators’ spreads of 127 bps. Similarly the average spot spread of French water companies’ bonds over the German benchmark bond of 93 bps is lower than the one year average of 104 bps. This is again reflected in the average spreads of EVN over the German benchmark at 28 April 2016 of 125 bps against the one year average of 130 bps.

#### Table 7.6 Summary of Comparator Bond Yield Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Time to Maturity</th>
<th>Average Spread (28 April 2016)</th>
<th>One Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>9</td>
<td>117</td>
<td>127</td>
</tr>
<tr>
<td>France</td>
<td>5</td>
<td>93</td>
<td>104</td>
</tr>
<tr>
<td>Austria (euro denominated)</td>
<td>11</td>
<td>125</td>
<td>130</td>
</tr>
<tr>
<td>Ireland (sterling denominated)</td>
<td>4</td>
<td>67</td>
<td>81</td>
</tr>
<tr>
<td>Ireland (sterling denominated)</td>
<td>5</td>
<td>114</td>
<td>128</td>
</tr>
</tbody>
</table>

From Table 7.6 above, the average of the Irish euro and Irish sterling denominated bonds is 90.5 bps. However, by giving slightly more weight to the euro denominated bonds, which is appropriate, gives an average spread of 85.8 bps and 85 bps is taken as the lower bound.\(^{102}\)

The average of UK, French and Austrian data (111.7 bps) suggests an upper bound of 110 bps.

Credit scores of the comparators ranges from BBB to A. An Irish utility with a rating of A- and 8 years to maturity has a spread of 95 bps over the German benchmark. Comparator analysis suggests that if that bonds credit rating changes to BBB- an increase spread of 20 bps is added. The spreads on sovereign bond yields were based on the German benchmark which is 15 bps lower than the Irish risk-free rate.

Taking the above into account (95 + 20 – 15 = 100), the CER has decided on a debt premium of 100 bps.

\(^{102}\) (0.6 x 67) + (0.4 x 114) = 85.8
7.3.4 Cost of Equity

At IRC1 the CER set the equity risk premium (ERP) at 5%.

Regulatory precedent at the time of the IRC1 decision suggested an asset beta in the range 0.3-0.4, while empirical evidence on betas for United Utilities, Severn Trent and Pennon gave a two-year average of daily rolling beta estimates of 0.30 and a ten-year average of daily rolling beta estimates of 0.32. Accordingly, the CER set the asset beta at 0.3, identical to the asset beta for ESBN in PR4.

Recent regulatory decisions in the UK and Ireland and the 2016 edition of the “Credit Suisse Global Investment Returns Sourcebook” by Dimson, Marsh and Staunton (DMS) have been used to determine an appropriate ERP for IRC2.

To estimate the asset beta of Irish Water over IRC2, the CER’s advisors have expanded the number of comparators used at IRC1. At IRC1, three pure-play water utilities from the UK were used which has the advantage of restricting the comparator set to companies with similar characteristics to Irish Water. However, for IRC2 other network utilities from core and peripheral Eurozone countries have been considered to allow the set of comparators to include utilities sharing the same systematic risk as Irish Water. A higher weighting has been given to water utilities.

7.3.4.1 Risk-Free Rate

As outlined in Section 7.3.3.1, the CER has decided on a risk free rate of 2.0% based on recent regulatory precedent and evidence from output growth rates in the Eurozone.

7.3.4.2 Equity Risk Premium

Selected recent regulatory decisions from the UK and Ireland are provided in Table 7.7 below (a wider set is provided in the accompanying Europe Economics report).

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Country</th>
<th>Sector</th>
<th>Period Start</th>
<th>Period Name</th>
<th>ERP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CER</td>
<td>Ireland</td>
<td>Energy</td>
<td>2015</td>
<td>PR4</td>
<td>4.75%</td>
</tr>
<tr>
<td>UREGNI</td>
<td>NI</td>
<td>Water</td>
<td>2015</td>
<td>PC15</td>
<td>5.0%</td>
</tr>
<tr>
<td>Ofwat</td>
<td>UK</td>
<td>Water</td>
<td>2015</td>
<td>PR14</td>
<td>5.0%</td>
</tr>
<tr>
<td>Ofgem</td>
<td>UK</td>
<td>Energy</td>
<td>2015</td>
<td>RIIO-EDI</td>
<td>5.0%</td>
</tr>
<tr>
<td>Ofcom</td>
<td>UK</td>
<td>Telecoms</td>
<td>2015</td>
<td>RP2</td>
<td>5.3%</td>
</tr>
<tr>
<td>CAA</td>
<td>UK</td>
<td>Aviation</td>
<td>2015</td>
<td>IRC1</td>
<td>5.0%</td>
</tr>
<tr>
<td>CER</td>
<td>Ireland</td>
<td>Water</td>
<td>2014</td>
<td>IRC1</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

103 For further detail please see CER/16/346, Europe Economics IRC2 WACC report.
The most recent arithmetic mean Irish ERP over bonds from 1900-2015 is 4.8% with a European average of 4.5% (DMS). Given the similarity between the European and Irish estimates the CER takes as its lower bound 4.5% and uses the most recent regulatory decision in Ireland to take 4.75% as the upper bound.

Recent regulatory precedent and the most up-to-date data suggests an ERP point estimate of 4.75%. The CER has decided to use 4.75% as the ERP for the calculation for the WACC.

### 7.3.4.3 ASSET BETA

The CER’s advisors estimated asset betas for its set of comparator utilities by using daily data on net debt, current enterprise value and equity returns of the selected comparators and returns of the relevant domestic equity indices. This data was used to determine the two-year rolling average asset betas for the comparators.\(^{104}\)

The asset betas for the set of UK comparator have, in general, been increasing since 2014 and stabilising in late 2015. This may be explained by the perceived riskiness of financial and construction firms falling and so utilities increasing to maintain the market equilibrium.

The asset betas of core European utilities (Germany, France and Austria) have in general increased (with the exception of EVN) since a drop in 2010 up to 28 April 2016. Similar, yet milder, observations can be made for peripheral Eurozone countries with all asset betas increasing (with the exception of Endesa) for comparator utilities since 2015. Table 7.8 below – representing the average asset beta for comparators within Eurozone countries on the data cut-off dates for PR3, PR3 Mid-term and PR4 – illustrates that asset betas have been generally increasing since 2013.

**Table 7.8 – Average Asset Beta for Comparators in Core and Peripheral Eurozone Countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Asset Beta for Comparators at</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>0.61</td>
</tr>
<tr>
<td>Germany</td>
<td>0.63</td>
</tr>
<tr>
<td>Austria</td>
<td>0.28</td>
</tr>
<tr>
<td>Italy</td>
<td>0.28</td>
</tr>
<tr>
<td>Portugal</td>
<td>0.44</td>
</tr>
<tr>
<td>Spain</td>
<td>0.40</td>
</tr>
<tr>
<td><strong>Eurozone Average</strong></td>
<td><strong>0.41</strong></td>
</tr>
</tbody>
</table>

\(^{104}\) For a detailed consideration of the methodology used to estimate asset betas please refer to section 8.2 in CER/16/346, Europe Economics IRC2 WACC report.
The above has generally been reflected in recent regulatory precedent in Ireland and the UK. In its PR3 Mid-term the CER used an asset beta of 0.3 for ESBN. This was maintained in its decision for Irish Water in IRC1. The asset beta was increased to 0.37 in the CER’s PR4 decision in 2015.

The average asset beta (excluding outliers) for UK comparators suggests a lower bound of 0.44. The average asset beta (excluding outliers) for European comparators suggests an upper bound of 0.46. The CER has decided on an asset beta point estimate of 0.45.

7.3.5 Gearing

At IRC1 the CER assumed a level of gearing of 55% for Irish Water. This decision was set taking account of recent regulatory decisions in the UK and the recent decisions for GNI and ESBN. UK precedent suggested a range of 50-65% was consistent with utilities maintaining an investment grade credit rating. Market evidence suggested that a gearing level of between 53-55% was appropriate for an Irish utility with an investment-grade credit rating.

Europe Economics has formed an initial range for the level of gearing based on rolling two-year averages of comparator utilities in the UK, core European countries (France Germany and Austria) and, to a lesser extent, peripheral European countries (Italy, Portugal and Spain). Gearing levels were calculated from daily data on net debt and current enterprise value available from Bloomberg. The appropriate gearing was determined in an iterative process involving the financeability analysis.

Table 7.9 – Gearing for UK Comparators

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National Grid</td>
<td></td>
<td>57</td>
<td>46</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td>Pennon</td>
<td></td>
<td>50</td>
<td>45</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>SSE</td>
<td></td>
<td>29</td>
<td>30</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>Severn Trent</td>
<td></td>
<td>57</td>
<td>52</td>
<td>50</td>
<td>48</td>
</tr>
<tr>
<td>United Utilities</td>
<td></td>
<td>52</td>
<td>55</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>UK Average</td>
<td></td>
<td>49</td>
<td>46</td>
<td>44</td>
<td>41</td>
</tr>
</tbody>
</table>

Gearing levels for UK comparators have been steadily falling since 2010. Similarly, European comparators have shown a general decrease in gearing levels since 2013 having increased between 2010 and 2013. Utility companies within core European countries are less leveraged than those of peripheral countries.
Table 7.10 – Average Gearing for Comparators in Core and Peripheral Eurozone Countries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>33</td>
<td>47</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Germany</td>
<td>21</td>
<td>35</td>
<td>31</td>
<td>29</td>
</tr>
<tr>
<td>Austria</td>
<td>35</td>
<td>45</td>
<td>44</td>
<td>41</td>
</tr>
<tr>
<td>Italy</td>
<td>45</td>
<td>55</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>Portugal</td>
<td>50</td>
<td>65</td>
<td>61</td>
<td>58</td>
</tr>
<tr>
<td>Spain</td>
<td>40</td>
<td>53</td>
<td>43</td>
<td>38</td>
</tr>
<tr>
<td><strong>Eurozone Average</strong></td>
<td><strong>39</strong></td>
<td><strong>51</strong></td>
<td><strong>46</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>

Europe Economics determined their recommended gearing level by focusing on observed gearing levels for typical Eurozone utilities. Excluding notable outliers, gearing levels fall within the range of 40-50%. The CER has decided to adopt a central estimate within this range which is roughly consistent with the observed level of change in gearing for European comparators.

Since the CER’s PR3 Mid-term decision, in which the gearing was set at 55%, the gearing levels of European comparators have decreased by 6-10%.

The CER has decided to use a gearing level of 45% for Irish Water.

7.3.6 Overall WACC

The parameters discussed above feed through to the calculation of Irish Water’s WACC as follows:

\[ WACC = (\text{Cost of Equity} \times (1 - \text{gearing})) + (\text{Cost of Debt} \times \text{gearing}) \]

The CER’s WACC range and point estimate for Irish Water is set out in Table 7.11 below.

Table 7.11 WACC for Irish Water

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
<th>Point Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-free Rate</td>
<td>1.80%</td>
<td>2.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td>Debt Premium</td>
<td>0.85%</td>
<td>1.10%</td>
<td>1.00%</td>
</tr>
<tr>
<td>Cost of Debt</td>
<td>2.65%</td>
<td>3.10%</td>
<td>3.00%</td>
</tr>
<tr>
<td>ERP</td>
<td>4.50%</td>
<td>4.75%</td>
<td>4.75%</td>
</tr>
<tr>
<td>Asset Beta</td>
<td>0.44</td>
<td>0.46</td>
<td>0.45</td>
</tr>
<tr>
<td>Equity Beta</td>
<td>0.73</td>
<td>0.92</td>
<td>0.82</td>
</tr>
<tr>
<td>Cost of Equity (post-tax)</td>
<td>5.1%</td>
<td>6.4%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Tax Rate (%)</td>
<td>12.5%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Cost of Equity (pre-tax)</td>
<td>5.8%</td>
<td>7.3%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Gearing</td>
<td>40%</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td><strong>WACC (pre-tax, pre-aiming up)</strong></td>
<td><strong>4.6%</strong></td>
<td><strong>5.2%</strong></td>
<td><strong>5.05%</strong></td>
</tr>
</tbody>
</table>

The CER’s most recent regulatory decisions are shown in Table 7.12 below, along with the point estimate decisions presented here.
7.3.6.1 AIMING UP

Estimating the true cost of capital of a regulated entity carries inherent uncertainty which should be taken into account when setting the value. This uncertainty should be balanced by considering the consequences of over and underestimating the value of the WACC.

The consequence of overestimating the WACC is that investors receive a windfall gain at the expense of the customer who will pay more than necessary for the service. However, prices being occasionally above the competitive level allows the utility to innovate and invest to produce new products and services.

When the WACC is set below the market cost of capital the utility may face difficulties raising the required finance for investment from debt and equity markets. Additionally, underestimating the WACC may result in innovations that required investment being under-rewarded, removing the incentive to invest in new technologies that will reduce the costs faced by customers in the future. The short term gain of lower bills during a revenue control with an underestimated WACC is offset by the longer-term consequences of under investment in the sector.

Regulators (and the Competition Commission in the UK) have taken the view that the longer term consequences of underestimating the WACC outweigh those of overestimating the WACC. This has been reflected in recent regulatory decisions including ComReg (eirom, 2014), Ofwat (PR14, 2014), Ofgem (RIIO-ED1, 2014) and the CER (PR4, 2015) who have all aimed up above the 70th percentile.

To reflect the asymmetry in over and underestimating the WACC the CER has decided to aim up to the 80th percentile bringing the overall WACC to 5.2%. The recommended overall WACC is presented in Table 7.13 below.
Table 7.13 – Final Recommended WACC for Irish Water

<table>
<thead>
<tr>
<th></th>
<th>Point Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-free Rate</td>
<td>2.00%</td>
</tr>
<tr>
<td>Debt Premium</td>
<td>1.00%</td>
</tr>
<tr>
<td>Cost of Debt</td>
<td>3.0%</td>
</tr>
<tr>
<td>ERP</td>
<td>4.75%</td>
</tr>
<tr>
<td>Asset Beta</td>
<td>0.45</td>
</tr>
<tr>
<td>Equity Beta</td>
<td>0.82</td>
</tr>
<tr>
<td>Cost of Equity (post-tax)</td>
<td>5.9%</td>
</tr>
<tr>
<td>Tax Rate (%)</td>
<td>12.5%</td>
</tr>
<tr>
<td>Cost of Equity (pre-tax)</td>
<td>6.7%</td>
</tr>
<tr>
<td>Gearing</td>
<td>45%</td>
</tr>
<tr>
<td>WACC (real, pre-tax)</td>
<td>5.05%</td>
</tr>
<tr>
<td>WACC after aiming up</td>
<td>5.2%</td>
</tr>
</tbody>
</table>

7.3.7 Financeability

The CER’s financeability assessment is based on the financial ratios given the CER’s allowed forecast capex and opex and the WACC presented herein.

In order to determine the credit rating of a regulated utility, the regulatory comparator method\textsuperscript{105} establishes thresholds which a notional regulated entity should meet to be considered financeable. Irish Water passes the ratios (with the decisions set out in this paper) with the exception of the RCF/capex ratio.

Table 7.14 Regulatory Comparator Method

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Thresholds</th>
<th>Irish Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFO interest cover</td>
<td>2.5 min</td>
<td>6.3</td>
</tr>
<tr>
<td>FFO/Net debt</td>
<td>9% min</td>
<td>15%</td>
</tr>
<tr>
<td>Net debt/RAV</td>
<td>80% max</td>
<td>45%</td>
</tr>
<tr>
<td>RCF/capex</td>
<td>0.5 min</td>
<td>0.3</td>
</tr>
</tbody>
</table>

The more formulaic approach under Moody’s method shows that Irish Water would meet investment grade (Table 7.15). The Moody’s method has been applied using the financial metrics assumed in this paper and on the assumption that Irish Water would achieve the same score as ESBN in the non-financial, qualitative metrics.

\textsuperscript{105} Specifically, the method is based upon the method used by Ofgem in its 2014 ED 1 control, as elaborated (and adjusted, slightly) in PR4.
Table 7.15 Moody’s Method

<table>
<thead>
<tr>
<th>Calculated by model</th>
<th>Rating</th>
<th>Score</th>
<th>Weight</th>
<th>Over-weighting</th>
<th>Weighted score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability and predictability of regulatory regime</td>
<td>Aa</td>
<td>3</td>
<td>15%</td>
<td>1</td>
<td>0.37</td>
</tr>
<tr>
<td>Stability and predictability of regulatory regime</td>
<td>Aa</td>
<td>3</td>
<td>5%</td>
<td>1</td>
<td>0.12</td>
</tr>
<tr>
<td>Cost and investment recovery</td>
<td>A</td>
<td>6</td>
<td>15%</td>
<td>1</td>
<td>0.74</td>
</tr>
<tr>
<td>Revenue risk</td>
<td>Aa</td>
<td>3</td>
<td>5%</td>
<td>1</td>
<td>0.12</td>
</tr>
<tr>
<td>Scale and complexity of capital program</td>
<td>22%</td>
<td>B</td>
<td>15</td>
<td>10%</td>
<td>3</td>
</tr>
<tr>
<td>Financial policy</td>
<td>Baa</td>
<td>9</td>
<td>10%</td>
<td>1.15</td>
<td>0.85</td>
</tr>
<tr>
<td>FFO interest cover</td>
<td>6.3</td>
<td>A</td>
<td>6</td>
<td>12.5%</td>
<td>1</td>
</tr>
<tr>
<td>Net debt / RAB</td>
<td>45%</td>
<td>A</td>
<td>6</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>FFO / net debt</td>
<td>15%</td>
<td>Baa</td>
<td>6</td>
<td>12.5%</td>
<td>1</td>
</tr>
<tr>
<td>RCF / net debt</td>
<td>15%</td>
<td>A</td>
<td>6</td>
<td>5%</td>
<td>1</td>
</tr>
</tbody>
</table>

Implied Rating 7.89 Baa1

At a recommended gearing of 45% an entity similar to Irish Water would achieve an investment grade credit rating. Concerns around the RCF/capex are sufficiently buffered by the other elements of the Moody’s formula.

### 7.4 Adjustments related to 2014-2016

#### 7.4.1 Introduction

The CER regulates utilities through a form of revenue cap regulation which allows adjustments relating to one revenue control period to feed through into subsequent periods. This adjustment mechanism is generally referred to as a k-factor mechanism.

This section provides general information regarding how the k-factor adjustment works. It also provides specific information on the adjustments put forward by Irish Water and the CER’s decision on each of these adjustments.

#### 7.4.2 General information regarding k-factor adjustments

In its advice to the Minister [CER/14/076](#), the CER put forward proposals regarding the regulation of Irish Water. The CER recommended that a revenue-cap regulation model be put in place and proposed the inclusion of a methodology in the regulatory framework. This is consistent with the approach which the CER takes in regulating other utilities. The ‘k-factor’ methodology is applied to over or under recoveries and permissible variations in costs (e.g. cost pass-through) from the pre-determined level of allowed revenues.
The k-factor methodology is an adjustment used to allow for the fact that while the CER approves a level of revenue to allow Irish Water cover its costs over a regulatory period, this level depends on assumptions about what happens over the course of that period but may not necessarily reflect events as they occur. The adjustment essentially corrects for these events by applying a correction to the revenue to be collected in subsequent periods.

When putting in place a revenue control, the CER reviews the utility’s performance against the targets or allowances set for the previous control and makes any necessary adjustments to the utility’s revenue. In this section the CER has documented the key principles that fed into the reviews of past performance on opex and capex. In general, reviews accommodate the following factors which could potentially lead to changes in the allowances for the period:

- Cost items that were explicitly not allowed for in full, or at all, in setting revenues. At IRC1, an example of this is bad debt provision.
- Cost items that were explicitly treated as uncontrollable. At IRC1, the CER determined levies/fees and commercial rates as uncontrollable cost items.
- For Irish Water specifically, cost items that are approved under the innovation funding allowance (which for Irish Water the CER considers should be treated on a lose-it-or-use-it basis, akin to an uncontrollable cost up to the cap).
- Reclassification of opex or capex expenditures which may require restatement of allowances.
- Variations in costs relating to the application or change to specified legal requirements, e.g. for Irish Water, changes to legislation to the extent it applies to Irish Water; changes to discharge consents and abstraction licences. Recognition for the costs associated with additional outputs not funded at review where the outputs are in the customer interest (referred to as “logging-up”).
- A deduction for the costs associated with additional outputs funded at review but no longer required (referred to as “logging-down”).
- Failure of a company to deliver an output, for which was funding provided at IRC1 (or referred to as “shortfalling”).

The CER does not intend to vary allowances for general business risk, consistent with a revenue cap regime. Such an approach provides high-powered incentives for regulated entities to manage risks and costs, and benefits consumers in terms of lower costs.

7.4.3 **Summary of Irish Water’s proposed adjustments:**

Irish Water proposed a total k-factor adjustment of €106m in the utility’s favour for the IRC1 period, reflecting the difference between costs and revenues assumed at the time of the IRC1 determination and Irish Water’s actual performance over the IRC1 period.
The k-factor adjustment comprises corrections relating to:

- Irish Water’s expenditure, which is further subdivided into IRC1 operating expenditure, expenditure which fed into the opening RAB and IRC1 capital expenditure during IRC1; and
- The level of revenue that it was due to recover under the IRC1 decision.

These are discussed in turn below.

### 7.4.4 K-factor adjustment related to expenditure

#### 7.4.4.1 OPERATING COSTS:

In its IRC1 decision the CER determined an allowance of €1,679m for operating costs. As outlined in Section 4.2 following a review of Irish Water’s actual expenditure the CER has decided to adjust the allowance relating to operating costs by €12.7m.

Section 7.5 outlines how the CER has decided to feed these adjustments through into the calculation of the revenue requirement for the IRC2 period.

#### 7.4.4.2 OPENING RAB AND IRC1 CAPEX

In its IRC1 decision the CER set the opening RAB at €1,037m (2013 prices) and determined a capital expenditure allowance of €1,383m (2013 prices) for the IRC1 period.

As outlined in Section 3, following a review of Irish Water’s actual expenditure the CER has decided to adjust the opening RAB to €757m (2014 prices) and the IRC1 capital allowance to €1,365m (in nominal prices). The CER revenue model (CER/16/272) shows how the €757m and the €1,365m have been assigned to relevant asset lives. This has been completed using the same methodology as that utilised in the original IRC1 decision.

Section 7.5 outlines how the CER has decided to feed these adjustments through into a recalculation of the revenue requirement for the IRC1 period.

**Table 7.16: Irish Water outturn Opening RAB (€m)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening RAB</td>
<td>1,037</td>
<td>1,040</td>
<td>757</td>
<td>-283</td>
</tr>
</tbody>
</table>
7.4.4.3 IRC1 REVENUE REQUIREMENT

The CER has recalculated the revenue requirement for the IRC1 period based on the above figures for opex, IRC1 capex and the IRC1 opening RAB. Based on these calculations, which are outlined in the CER model published alongside this decision paper\textsuperscript{98}, the revenue requirement is €102m (2015 prices, NPV at 1 October 2014) less than the revenue which had been set for the IRC1 period.

The CER has decided to discount this value to 1 January 2017 (2015 prices) using the IRC1 WACC at the discount factor. This brings the total adjustment to -€114m (2015 prices, NPV at 1 January 2017).

7.4.4.4 K-FACTOR ADJUSTMENT RELATED TO REVENUE

In this section, the CER outlines its approach to adjusting Irish Water’s revenues for variations relating to revenue received from domestic customers, non-domestic customers, and subvention.

7.4.4.5 DOMESTIC REVENUE – GENERAL SUMMARY

An adjustment of €59m was proposed by Irish Water in relation to an overall domestic revenue under-recovery from customers. This included:

- An adjustment of €68m based on the assumed customer collection profile. This €68m under-recovery reflects a €43m charge for bad debts (assuming 8% non-collectable revenues relating to the IRC1 period) and €25m compensation for the financing cost associated with the late receipt of revenue from customers.
- An over-recovery of €9m related to inflation differences.

The CER accepts Irish Water’s submission regarding the 8% (or €43m) level of bad debt for the IRC1 period, but has decided to use a different methodology for the financing cost adjustment.\textsuperscript{107} The CER has also decided to adjust the €43m bad debt to January 2017 NPV terms for consistency with the IRC2 revenue requirement, utilising a Euribor-based methodology for discounting purposes.

The CER accepts Irish Water’s calculation of the adjustments relating to inflation differences.\textsuperscript{106}

\textsuperscript{106} For the purposes of the lookback submission, the CER has used the figures provided by Irish Water for 2015 and 2016 HICP and will correct the data using outturn HICP figures in the future.
The CER has decided to adjust inflation to January 2017 NPV terms for consistency with the IRC2 revenue requirement utilising a Euribor-based methodology for discounting purposes. The methodology for this adjustment is outlined in Section 7.5.3.5 of this paper.

7.4.4.6 DOMESTIC REVENUE – BAD DEBT

As mentioned in Section 7.4.4.5 above, an adjustment of €59m was proposed by Irish Water in relation to an overall domestic revenue under-recovery from customers. This is made up of an under-recovery of €68m in domestic revenue and an over-recovery of €9m related to inflation differences.

The under-recovery of €68m in domestic revenue reflects a €43m adjustment for bad debts (assuming 8% non-collectable revenues relating to the IRC1 period) and a €25m compensation for the financing costs associated with the late receipt of revenue from customers.\(^{107}\)

The CER considers the proposed domestic bad debt of 8% to be reasonable. It is outside the range of the bad debt provisions in England and Wales, but this may be reasonably explained by the greater number of vacant properties in Ireland than in the UK and the difficulty in collecting revenue in the early years of charging.

Therefore, the CER accepts Irish Water’s request for a provision for bad debt of 8% relating to the IRC1 period, but has decided to review this figure at a later stage when there is more certainty in this area. This is essentially being included as a placeholder at this time and will be adjusted for, or revisited, where future revenue controls are completed.

7.4.4.7 NON-DOMESTIC REVENUE - GENERAL SUMMARY

In the IRC1 decision it had been anticipated that €486m (2013 prices, NPV at 1 October 2014) would be billed to non-domestic customers. This was the amount that Irish Water estimated it would bill if it continued using the methodology and the same level of charges applied previously by the local authorities. At the time, Irish Water did not have full information on non-domestic billing as implemented by the local authorities. In its submission, Irish Water outlined that it now expected to bill out €106m (in nominal terms) less than anticipated to non-domestic customers over the period.

Irish Water requested an estimated adjustment of €106m, calculated as the difference between the amounts originally anticipated and now expected to be billed over the IRC1 period.

Of this amount, €11m, €43m and €52m related to Q4 2014, 2015 and 2016 respectively.

\(^{107}\) The detail relating to this is outlined in Appendix A of the CER consultation on this matter.
The CER has decided to adjust the revenue for recovery in subsequent periods to allow for this difference. This treatment is consistent with the CER’s approach for other utilities. The treatment is also a key feature of the revenue cap regime through which the CER regulates Irish Water.

The CER has decided to index these k-factor adjustment amounts to January 2017 NPV terms for consistency with the IRC2 revenue requirement, using a Euribor-based methodology for discounting purposes. This methodology is outlined in detail in Section 7.5.3.5.

7.4.4.8 NON-DOMESTIC REVENUE – BAD DEBT

As mentioned in Section 4.2.3.9 above, an adjustment of €39.67m was proposed by Irish Water in relation to non-domestic bad debt.

From 1 January 2014 local authorities have been acting on behalf of Irish Water in relation to all activities associated with non-domestic customers including billing, invoicing and revenue collection. Irish Water’s non-domestic bad debt request was based on information provided by local authorities on revenue received (actuals for Q4 2014 – 2015 and estimates for 2016) against revenue billed and accrued for the period 1 October 2014 – 31 December 2016.

As with the domestic sector, it is expected that Irish Water’s initial performance regarding non-domestic bad debt would be poorer than in England and Wales owing to the transition of billing functions from local authorities to Irish Water. Current levels of doubtful and written off debt for non-domestic customers in England and Wales are at 1.7% and 1.3% respectively.

Following a review of the information provided, the CER has decided to allow the 9.39% IRC1 bad debt provision as requested by Irish Water. For further detail see Section 6.3.2 of this decision paper.

Based on the ranges of bad debt relating to the worst England and Wales company performance, a bad debt percentage of 3-5% has been considered for Irish Water. For the IRC2 period, 1 January 2017 – 31 December 2018, the CER has decided to allow a 5% bad debt provision.

7.4.4.9 SUBVENTION

Government subvention, which, for the IRC1 period, was paid quarterly in arrears, funds the following in relation to domestic customers:

- Product subsidy – a volume-based payment such that the amounts charged to domestic customers per 1,000 litres do not exceed those set out in the Water Services Act 2014;
- Capping cost – the cost of purchasing water in order for the maximum annual charges per household set out in the Water Services Act 2014 to apply;
- Child allowances – the cost of purchasing an allowance of 21,000 litres for each child under eighteen years of age.

In the IRC1 decision it had been anticipated that €981m (2013 prices, NPV at 1 October 2014) would be recovered through subvention. Using the inflation assumed within the IRC1 decision, this converted to €1,045m in nominal prices. It is still anticipated that this amount will be received in nominal prices.

However, more up-to-date inflation assumptions were available at the time of Irish Water’s submission to the CER. Converting the nominal subvention to 2013 prices using these inflation rates (0.3%, 0.1% and 1.2% for 2014, 2015 and 2016) means that there is a negative k-factor adjustment (or an over recovery) of €10m.

The CER has decided to adjust the revenue for recovery in subsequent periods to allow for this difference. This treatment is consistent with the CER’s approach for other utilities. The treatment is also a key feature of the revenue-cap regime through which the CER regulates Irish Water.

The CER has decided to index these k-factor amounts to January 2017 NPV terms for consistency with the IRC2 revenue requirement, utilising a Euribor based methodology for discounting purposes. This methodology is outlined in detail in Section 7.5.3.5.

**7.4.5 Conclusion on adjustments relating to 2014-2016**

- The CER’s conclusions on adjustments for 2014-2016 are: The CER has decided to claw back €114m (2015 prices, NPV at 1 January 2017) relating to IRC1 opex, IRC1 capex and the IRC1 opening RAB; and,

  - The CER has decided to allow a provision of €189m (2015 prices, NPV at 1 January 2017) relating to revenue billed or collected by Irish Water.

The IRC1 figures are based on a combination of actual data up to end October 2015 and revised forecast outturns from thereafter to 31 December 2016. The CER has decided to review the outturn data from 1 November 2015 to 31 December 2016 at a future date.

The CER has decided to claw back the €114m immediately, but to depreciate the recovery of the €189m over time as detailed in the CER model. The CER has included a depreciation life of 5 years but may revise this later.
7.5 **Allowed Revenue**

### 7.5.1 Introduction

This section outlines how the CER's approach to incentive-based regulation leads to an annual revenue figure for recovery through Government subvention and charges to customers.

This approach involves taking the allowances decided by the CER for capex, opex, WACC and the IRC2 K-factor (in sections 5.2, 5.4, 7.3 and 7.4, respectively) and calculating the allowed revenue in real prices. The allowed revenue is then profiled for recovery over the IRC2 period.

The calculation of the annual revenue in real prices is discussed below in Section 7.5.2.2. Updates to this figure are discussed in Section 7.5.3.

The CER notes that applying different practices for each revenue control could risk creating an inconsistent set of incentives and regulatory uncertainty. Therefore, the decisions outlined below are generally consistent with the CER’s previous decisions on revenue controls for network utilities.

### 7.5.2 Incentive regulation & setting allowed revenue

#### 7.5.2.1 INTRODUCTION

In previous revenue controls for network utilities, the CER has used an incentive-based approach, which is based on the RPI-X form of regulation.

The CER's approach involves building efficiencies into the opex and capex allowances, calculating the allowed revenue and profiling the resulting figure over the revenue control period. This results in an annual allowed revenue figures (in real prices) which the utility can collect through either Government subvention or charges to customers.

The calculation which leads to the annual revenue for IRC2 (in real prices) is outlined in Sections 7.5.2.2 to 7.5.2.4 below. The annual revenue figure is then updated as outlined in Section 7.5.3.

---

108 The figures are calculated in real 2015 prices (Present Value at 1 January 2017) prior to profiling for recovery over the IRC2 period in real 2015 prices.

109 This includes both an update (now) to convert into nominal terms and an update (in the future) to correct for certain factors.

110 This differs slightly to another way in which RPI-X regulation could be applied, where the starting level of revenue would be set for the first year, allowances would be made for inflation and then a generic high-level percentage reduction would be applied to the revenue allowance.
7.5.2.2 CALCULATION OF IRC2 REVENUE

This section outlines how the allowed revenue for the IRC2 period is calculated (in real prices). The calculation itself is carried out within the excel model which is published alongside this consultation paper. For full details please refer to that excel model (CER/16/272).

The allowed revenue calculation is structured as follows:

- The calculation commences with the opening RAB (i.e. at 1 October 2014). The opening RAB is outlined in Section 4.3;
- Allowed capex is then added and depreciation subtracted from the RAB for each year up to 2018. The allowed capex for the 1 October 2014 to 31 December 2016 period is outlined in Section 4.5. The allowed capex for the 2017 and 2018 is outlined in Section 5.4.
- Allowed opex for 2017 and 2018 is added. The allowed opex is outlined in Section 5.2.
- Any additional adjustments relating to the IRC1 decision are added i.e. through the operation of a k-factor adjustment. The k-factor is outlined in Section 7.4.
- The next stage of the calculation is to determine the present value (PV) of the total revenue required by Irish Water (to cover the above figures), using the WACC as the basis for discounting (the WACC is outlined in Section 7.3). This includes the PV of the requirement relating to IRC2 opex, the IRC1 k-factor adjustment, IRC2 capex and the change in the RAB over IRC2;
- The amounts calculated under the previous bullet point are added to give the total PV revenue for the IRC2 period.

The model, and below table, give the total IRC2 revenue requirement in 2015 prices, PV at the start of IRC2 (i.e. 1 January 2017).

7.5.2.3 PROFILING OF IRC2 REVENUE FOR RECOVERY

The calculation outlined in the below table calculates the revenue requirement for the IRC2 period. Information is also provided below on how this revenue is profiled for recovery during the period. The revenue will be recovered by Irish Water through a combination of charges to customers and Government subvention.

The figure included in the below table for non-domestic (line 18) is based on the 2016 value. The indicative figure for Government subvention (line 17) has been calculated as the difference between the total revenue requirement (line 19) and that assigned to non-domestics (line 17).

---

111 i.e. the opening value less the discounted value of the closing RAB, with the discount rate set at the cost of capital.
For illustrative purposes the Government subvention figure has been profiled equally across 2017 and 2018, but this would not necessarily have to be the case.\footnote{HICP would be used to covert below (e.g. line 17+18) into nominal prices. The most recent NTMA forecast references HICP of -0.1\% for 2016, 1.3\% for 2017 and 1.8\% for 2018.}

### 7.5.2.4 CONCLUSION ON IRC2 REVENUE

The CER has set the revenue requirement for IRC2 at €1,752m (in 2015 prices, PV at the start of IRC2 i.e. 1 January 2017). This is equivalent to the €1,843m outlined in Line 19 of Table 7.17.

An indicative profile of how this revenue would be recovered is also outlined in the below table for illustrative purposes. This assigns €370m (€m, 2015 prices) to non-domestic charges and €1,473m (€m, 2015 prices) to Government subvention (and/or domestic charges) for the IRC2 period.

The below table is an extract from the IRC2 revenue model and shows Irish Water’s total revenue requirement for IRC2. For further detail on the calculations, please refer to the CER’s IRC2 revenue model (CER/16/272) which is published alongside this decision paper.
### Table 7.17: IRC2 revenue calculation (€m, 2015 prices)

#### Opening and closing RAB

<table>
<thead>
<tr>
<th>Line</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Opening RAB</td>
<td>1,942.3</td>
</tr>
<tr>
<td>2</td>
<td>Closing RAB</td>
<td>2,353.8</td>
</tr>
</tbody>
</table>

#### Revenue required to reimburse opex and adjustment related to IRC1

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Opex</td>
<td>710.1</td>
<td>684.2</td>
</tr>
<tr>
<td>4</td>
<td>Present Value (PV) of opex</td>
<td>692.3</td>
<td>634.1</td>
</tr>
<tr>
<td>5</td>
<td>PV of adjustment related to IRC1</td>
<td>(113.9)</td>
<td>0.0</td>
</tr>
<tr>
<td>6</td>
<td>PV of opex plus adjustment related to IRC1</td>
<td>578.4</td>
<td>634.1</td>
</tr>
</tbody>
</table>

#### Revenue required to reimburse capex incurred in IRC2

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Capex incurred in IRC2</td>
<td>523.0</td>
<td>629.0</td>
</tr>
<tr>
<td>8</td>
<td>Present Value (PV)</td>
<td>509.9</td>
<td>582.9</td>
</tr>
</tbody>
</table>

#### Revenue required to reimburse the change in the RAB over IRC2

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Opening RAB balance</td>
<td>1,942.3</td>
<td>189.0</td>
</tr>
<tr>
<td>10</td>
<td>PV of closing RAB balance</td>
<td>2,575.5</td>
<td>109.0</td>
</tr>
<tr>
<td>11</td>
<td>Difference</td>
<td>(633.2)</td>
<td>80.0</td>
</tr>
</tbody>
</table>

#### Total required revenue for the period

| 12| Revenue to reimburse opex & clawbacks / deferrals | 1,212.5 |
| 13| Revenue to reimburse capex                      | 1,092.8 |
| 14| Revenue to reimburse change in RAB              | (633.2) |
| 15| Revenue to reimburse change in side RAB         | 80.0   |
| 16| Total revenue required for the period (PV)      | 1,752.1 |

#### Expected real revenue for the period

| 17| Revenue - domestic and subvention               | 736.3 | 736.3 | 1,472.6 |
| 18| Revenue - non-domestic                          | 185.0 | 185.0 | 370.0  |
| 19| Revenue total                                   | 921.3 | 921.3 | 1,842.6 |
| 20| PV expected revenue - beginning of period       | 898.2 | 853.8 |
| 21| PV expected revenue                             | 1,752.1 |

### 7.5.3 High-level outline of revenue update mechanism

Section 7.5.2 above outlines how the revenue is calculated in real prices. The CER has decided to update the annual revenue related to each year to allow for relevant factors, which are outlined below.
7.5.3.1 INFLATION

The CER has decided to continue using an approach whereby the utility’s allowed revenue is initially set in real prices and then converted to nominal prices using an inflation index.

The CER has decided to continue to use the Irish Harmonised Index of Consumer Prices (Irish HICP) as the inflation index.\textsuperscript{113}

This is consistent with the inflation index used in recent CER decisions for network utilities (both water and energy).

7.5.3.2 UNCERTAIN COSTS

Uncertain costs are defined as those that could not reasonably be foreseen by Irish Water when the IRC2 revenue control was being put in place. It is the CER’s decision that any future request by Irish Water for such costs would be dealt with on a case-by-case basis. There would not be an automatic pass-through of such costs. Section 7.4.2 contains the CER’s principles in carrying out a revenue control which sets out the process for considering uncertain costs.

7.5.3.3 UNCONTROLLABLE COSTS

The first revenue control contained a provision for the pass-through of certain types of costs, that is, the CER and EPA levies, which are deemed to lie outside of the utility’s control. The CER has decided to continue using this approach. An allowance is granted for uncontrollable costs and the actual amount of these costs is corrected for on outturn in the next revenue control period.

Further information is provided in Sections 4 and 5 of this paper.

7.5.3.4 ADDITIONAL INCENTIVE MECHANISMS

The CER has decided that the IRC2 revenue control has the following incentives:

- An incentive to encourage the utility to make efficiency savings in operating costs above that set by the CER, resulting in reduced running costs in the medium term;
- An incentive to improve collection and billing relating to non-domestic customers.

The CER has decided to adjust the allowed revenue in relation to incentives accordingly in the next revenue control period.

\textsuperscript{113} The same inflation index is also used in the IRC2 revenue control model (CER/16/272).
In future revenue controls the CER may place further incentives on the utility. Further detail on possible areas for consideration in the future and the incentives mentioned above are outlined in Section 6 of this paper.

7.5.3.5 INTEREST APPLIED TO ADJUSTMENTS

Consistent with the CER’s treatment of over/under-recoveries in the gas sector, the CER has decided the following:

- Revenue under-recoveries and over-recoveries of up to 103% of allowed revenue attract an interest rate of Euribor +2%.
- Revenue over-recoveries over 103% of allowed revenue attract an interest rate of Euribor +4%.

In calculating the interest rate to be applied for each year, the average was taken of the 12-month maturity daily Euribor rates. For both 2014 and 2015 the Euribor rate used was the average of the daily rate for the full 12-month period (January–December). For 2016, a seven-month average was used (January-July) which may be corrected on outturn.

7.6 Summary of Revenue Requirement

Summary of key decisions

Irish Water Regulated Asset Base

Valuation methodology

- The CER has decided to continue using the methodology employed during the first revenue control period. This is a variation of replacement cost approach, which uses the inflation cost, indexed upwards to allow for inflation, as a proxy for replacement cost.

Asset lives

- The CER has decided to continue using the methodology employed during the previous control period which covered the period from 1 October 2014 to 31 December 2016. Under this approach an assumed average life of 100+ years is applied to Irish Water’s infrastructure assets. The lifetimes applied to other assets are detailed in the revenue model published alongside this paper (CER/16/272).
Depreciation methodology

- The CER has decided to continue using the methodology employed during previous control periods. This is straight-line depreciation.

IRC2 Cost of Capital

- The CER has decided to set a risk-free rate and equity risk premium of 2.0% and 4.75%, respectively.
- The CER has decided on a debt premium of 1.0% for Irish Water based on analysis of comparator bond yield data.
- Based on analysis of UK and Eurozone comparators the CER has decided on an asset beta of 0.45 for Irish Water.
- The CER has decided to use a gearing level of 45% for Irish Water as a result of a general trend of deleveraging of UK and European comparator utilities.
- To reflect the asymmetry in over and underestimating the WACC, the CER has decided to aim up to the 80th percentile bringing the overall WACC to 5.2%.

Adjustment Related to 2014-2016

- The CER has decided to claw back €114m relating to IRC1 opex, IRC1 capex and the IRC1 opening RAB;
- The CER has decided to make a provision of €189m relating to revenue billed or collected by Irish Water.

Allowed Revenue

- The CER has decided a total revenue figure of €1,843m for the IRC2 period for Irish Water (2015 prices).
8. Conclusion

8.1 Overview

This paper outlines the CER’s decisions in relation to the revenue that Irish Water can recover over the 2017-2018 period. The CER has decided to allow €1,843m for the two-year period. This represents a reduction of €165m (or 8.2%) relative to Irish Water’s request, as outlined below in Table 8.1.

Table 8.1: Allowed Revenue, Irish Water Request vs. CER Decision

<table>
<thead>
<tr>
<th>Revenue allowance</th>
<th>Irish Water request</th>
<th>CER decision</th>
<th>Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenue for 2017-2018</td>
<td>2,008</td>
<td>1,843</td>
<td>165</td>
</tr>
</tbody>
</table>

The detailed proposals and decisions behind the revenue figures are outlined in each section within this paper. The above table includes allowance for operating costs, depreciation and return on capital costs, and an adjustment relating to the previous two years.

The paper also provides decisions in relation to the monitoring of Irish Water’s performance during the 2017-2018 period and decision on financial incentives in relation to some metrics.

Please refer to each individual section for more details.
Appendix A: Irish Water’s CIP Targets

- **Number of People on Boil Water Notices**

  Irish Water’s target is to reduce to zero the number of people supplied from a public water supply where a Boil Water Notice (BWN) was in place for more than 200 days as identified by Irish Water in Q4 2013. Irish Water is monitoring this target against this static baseline. During IRC1 Irish Water has stated it will remove 19,022 people from this baseline BWN list. Investment over the period 2017-21 will remove the remaining 4,057 people.

- **Number of Water Treatment Plant’s on the Remedial Action List**

  Irish Water’s target is to reduce to zero the 121 water treatment plants included on the EPA’s remedial action list (RAL) in Q4 2014. Irish Water is monitoring this target against this static baseline. During IRC1 Irish Water has stated it will remove 50 WTPs from this baseline RAL list. Investment over the period 2017-21 will remove the remaining 71 WTPs from the list. Irish Water monitors a live RAL register and reports separately on proposed remedial measures and associated delivery timeframes to the EPA on a quarterly basis.

- **Compliance with the Parameters for Lead in Drinking Water**

  Irish Water is targeting completing environmental assessments and plumbosolvency\(^\text{114}\) control plans for 200 water treatment works by 2018. Irish Water is targeting 98% of samples meeting the lead compliance standard by 2021. IW has stated that this will be achieved through a combination of removing 16,926 backyard lead service pipes and 22,824 lead connections and orthophosphate dosing.

- **Leakage**

  Irish Water’s target is to save 226 megalitres per day in the period 2014 to 2021. Irish Water has stated in its investment output targets that it will have reduced leaks by 60 megalitres per day\(^\text{115}\) during IRC1. During 2017-18 Irish Water has targeted reducing leaks by an additional 57 megalitres per day. During the period 2017 to 21 Irish Water is targeting reducing leaks by 166 megalitres per day through a number of projects, capital maintenance and national programmes.

- **Water Treatment Plant Rationalisation**

  Irish Water is targeting rationalising 12 water treatment plants by the end of 2018 and 105 in total in the period 2017 to 2021 through the delivery of 32 projects. Some of these projects are

---

\(^{114}\) How likely the water will dissolve lead based on its chemical properties.

\(^{115}\) Irish Water has advised that it now expects to achieve savings of 65 ML/day by end 2016.
also contributing to the lifting of boil water notices and to the removal of schemes from the EPA’s RAL.

- **Wastewater Treatment Works – Compliance with the UWWTD**

Irish Water is targeting 4,839,000 p.e. being served by wastewater treatment plants that are compliant with the requirements of the UWWTD. Irish Water is currently in the process of standardising how hydraulic and biological loads are measured and will review the target once the methodology has been agreed with relevant stakeholders.

- **Overloaded Wastewater Treatment Plants**

Irish Water is targeting reducing from 45 to six the number of wastewater treatment plants with a capacity of more than 2000 p.e. that are overloaded as reported in Irish Water’s 2014 annual compliance returns to the EPA. Irish Water is monitoring this target against this static baseline. Similarly, Irish Water is targeting reducing from to 113 to 74 the number of wastewater treatment plants with a capacity of less than 2000 p.e. that are overloaded as reported in Irish Water’s 2014 annual compliance returns to the EPA.

- **No. of Agglomerations with no Treatment or Preliminary Treatment Only**

The EPA’s “Focus on Urban Waste Water Treatment in 2013” identified 44 areas where wastewater is discharged with no treatment or preliminary treatment only. Irish Water has targeted reducing this number to zero by 2021. Six plants will be removed from this baseline list during IRC1 and a further 19 during IRC2.

- **Wastewater Treatment Works – Compliance with Emission Limit Values**

Irish Water generated a register of Annual Environmental Reports submitted to the EPA in 2014 and estimated that 77 of 273 Licences granted for agglomerations >500 p.e were 100% compliant with their specified Emission Limit Values (ELVs). Irish Water has targeted increasing the number of licences compliant with the EPA’s discharge ELVs by 22 during IRC2 and a total of 50 during the period 2017-21 through a number of capital projects.

- **Sewer Flooding**

Irish Water has targeted establishing a register by 2018 to catalogue the extent, frequency and cause of flooding. The register will enable prioritised investment to reduce the number of incidents of flooding caused by inadequate capacity, blockages, collapses and equipment failures. Irish Water has targeted progressing work at 12 historic, high priority flood sites.
Energy Efficiency

Under the WSSP, Irish Water’s target is an improvement in energy efficiency of 33% by 2020 from the 2009 baseline in line with national targets for public sector bodies under the National Energy Efficiency Action Plan. In order to achieve a 33% improvement in energy efficiency Irish Water is developing a Sustainable Energy Strategy. Irish Water’s explanatory note states that this strategy is due for publication by the end of 2016, however Irish Water has revised this timeline and states that the strategy will be published in Q1/Q2 2017.

Headroom - Water

Irish Water has set two headroom targets for 2017-21:
- to increase from 54% to 60% the number of plants meeting headroom targets of:
  20% in large urban areas;
  15% in Regional Gateway Towns, and
  10% at all other plants.
  and
- to reduce the percentage of plants with headroom of <15% from 44% to 30%

Irish Water has also stated that headroom in the Greater Dublin Area (GDA) and Mid-East regions will deteriorate until the expected completion of the Water Supply Project in 2025. Improvements in headroom are not sufficient to facilitate growth and demand requirements in these locations. Headroom in the GDA and Mid-East regions is expected to be 7% by 2021.

Headroom – Wastewater

Irish Water has set a headroom target for wastewater as follows:
- to increase from 54% to 59% the number of plants meeting headroom targets of:
  20% in large urban areas,
  15% in Regional Gateway Towns, and
  10% at all other plants.

Network Capacity

Irish Water has targeted developing hydraulic models to cover 12 water supply zones by 2021. In addition, Irish Water has targeted completing drainage area plans for 14 agglomerations by the end of IRC2 and for 36 agglomerations by the end of 2021.