Consultation on October 2017 to September 2022 Transmission Revenue for Gas Networks Ireland

Consultation Paper

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Regulating Water, Energy and Energy Safety in the Public Interest
Executive Summary

The Commission for Energy Regulation (CER) is the independent economic regulator for the natural gas, electricity and water sectors in Ireland. Our mission is to regulate water, energy and energy safety in the public interest.

The CER seeks to ensure that Gas Networks Ireland (GNI) supplies gas in a safe and reliable way to customers, while operating the network in an efficient manner. This price control (PC4) will drive GNI to be more efficient so that they are in line with international best practice.

Part of the CER’s responsibilities involves regulating the level of revenue which GNI in its role as the gas network operator can recover from its customers. The CER does this by reviewing the GNI business and setting appropriate revenue allowances for operating costs, capital costs and other items. The CER’s main goal in this area is to protect the current and future interests of consumers, while ensuring a stable environment for investors.

This consultation paper begins the phase of public consultation in the process of setting GNI’s transmission revenues for the period October 2017 to September 2022 (known as PC4). The CER outlines the current position and calls for public comment at this stage, while acknowledging that further interaction with GNI and other stakeholders is expected to take place over the course of the consultation phase. Depending upon the outcome of the consultation process, there may be adjustments in the revenues outlined here.

Context for PC4

In carrying out this review the CER has taken into account the wider policy and regulatory landscape and is mindful that GNI will face challenges over the course of PC4. GNI will be required to continue to maintain the gas network to the highest safety and security of supply standards, whilst robust efficiency targets are realised. In addition the landscape of the energy sector is constantly evolving as Ireland moves towards a decarbonised economy. With this in mind, there will be an onus on GNI to ensure that investments in the network are thoroughly analysed and are beneficial for gas customers.
Although there is a move to a decarbonised economy, Government policy\(^1\) indicates that gas will continue to play a key role as a transitional fuel due to its ability to provide a flexible base load for the electricity network, with the benefits of a reduced carbon footprint when compared to oil, peat and coal.

Since the sale of the energy business GNI has become a pure networks company. With this change in mind it is reasonable to assume that GNI will able to draw on economies of scale and enhance the business’ ability to achieve greater efficiencies. In addition, GNI’s position within the Ervia group is intended to provide the benefit of shared services across the group leading to further efficiency improvements.

The following strategic challenges have been reflected in GNI’s Opex and Capex proposals for the PC4 period:

- GNI states that more than 40 per cent of its network is now more than 20 years old; presenting a maintenance and capital investment challenge during PC4.
- Due to the ageing asset base and GNI’s projected increase in customer numbers, GNI’s PC4 business plan involves a significant increase in work-loads and activities.
- GNI has also developed a growth and innovation strategy for PC4 to help increase the future utilisation of the gas network.

Key Areas of Review

PC4 Revenues

CER currently proposes to allow c. €936m to GNI for transmission over the period of PC4 with a WACC of 4.63%. GNI sought revenue of c. €1.05 billion based on their proposed WACC of 4.96%, over the period.

<table>
<thead>
<tr>
<th>Revenue Allowance</th>
<th>GNI Request</th>
<th>CER Proposal</th>
<th>Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PC4 revenue</td>
<td>€1054.6m</td>
<td>€935.7m</td>
<td>€118.9m</td>
</tr>
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</table>

Transmission Total Revenue

- 34.95% Revenue to reimburse depreciation and capital expenditure
- 65.05% Revenue to reimburse opex incl. PC3 adjustment (-€51.5m)

PC4 Capex

GNI Requested a Capex Allowance of €270m. CER currently proposes to allow €234m.

The CER has not accepted the full work programme requested by GNI which is reflected in the CER’s proposed allowance being 13% lower than GNI’s request. This is mostly due to the disallowance of a Capex funding request for renewable gas injection facilities (see innovation funding below) and a reduction in the pipe refurbishment and replacement work programme.

2 This figure is net of customer contributions.
A summary of GNI’s actual (outturn) Capex over PC3 and the CER’s proposed Capex for PC4 relative to GNI’s request is shown in Figure 1.1 below

![Transmission Capex trend](image)

**Figure 1.1: Transmission Capex trend**

**PC4 Opex**

GNI Requested an Opex Allowance of €424m. CER currently proposes to allow €383m. A summary of GNI’s actual (outturn) Opex over PC3 and the CER’s proposed Opex for PC4 relative to GNI’s request is shown in Figure 1.2 below

GNI has outlined that there is a necessary step-up in funding in this area relative to PC3 which is needed to address the strategic challenges it has set out for the PC4 price control, for example changing gas flows and an ageing asset base. The CER recognises that PC4 will present challenges and welcomes GNI’s proposals in this regard.

CER’s current proposed Opex is 10% lower than GNI’s Opex request. CER recognises that delivering quality outputs for lower Opex allowances will be challenging. The CER is committed to continuing to ensure that there is pressure on GNI to reduce costs where possible so that GNI operates as efficiently as possible and therefore has set challenging
efficiency targets for GNI over the PC4 period. Ensuring that GNI operates efficiently helps contain tariffs for consumers.

The CER has proposed a number of reductions in GNI’s requested Opex as stated in their business plan, including challenging efficiency targets where the CER consider there is scope for GNI to improve during PC4. These efforts to reduce costs must, however, be balanced against the requirements to deliver a reliable and safe service, thus the CER will continue to examine the appropriate level of operating costs and welcomes comments from all parties, including GNI, on this matter.

![Figure 1.2: Total controllable Opex](image)

**PC4 - Innovation**

GNI has requested €25m of innovation funding for PC4 which will be split 90/10 across the GNI’s transmission and distribution business respectively (the €25m is inclusive of €12.83m already allowed for the Causeway Study). The Causeway Study will see the roll out of a number of Compressed Natural Gas (CNG) stations across the Ten T Core Network³.

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The CER has carefully considered GNI’s request for this allowance and is mindful that ongoing utilisation of the gas network is important so as to ensure that gas remains competitive as a fuel and that tariffs are contained for customers. However, careful consideration needs to be given to requests allowing GNI to invest in certain innovative technologies which may or may not be to the benefit of gas customers in the medium to longer term. That said, the CER is of the view that it is important for GNI to continue to explore other types of technologies through the operation of the innovation group which was established during PC3 and has allowed funding of €17.5m of Opex in this regard. The CER will seek regular reports from GNI over the course of PC4 on the outputs from the various studies and the benefits to gas customers.

Incentives for PC4

A number of changes are proposed to the incentive regime that applies to GNI, these include a growth incentive and a customer performance incentive. Other incentives that were part of the previous gas price control (PC3) will continue for PC4.

- **Growth** - GNI set initial ambitious targets for new connections, which were challenged by the CER. In response, GNI proposed a reduced target figure which the CER has provided allowances for. However, the CER is proposing to introduce an incentive mechanism to challenge GNI to reach their original targets. This will be reviewed in the last year of PC4 and will carry a reward/penalty for GNI. There will be a cap on the amount of money, which will be the subject of the reward or penalty, this will be €4m.

- **Customer Performance Indicators** - The CER recently published a decision\(^5\) paper on a number of customer performance indicators against which GNI will be incentivised over the course of PC4. The CER is proposing that 0.25% of allowed revenue used for this incentive.

- **Capex** - Capex incentives are in place to increase efficient capital expenditure. When GNI come under the budget on a project or justifiably avoid carrying out a project in its entirety they receive a financial reward. When GNI go over budget, but can justify and explain the increase, the increase is allowed but GNI must finance the costs until the

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\(^4\) Not all incentives will be relevant to GNI’s Transmission Business  
\(^5\) CER/17/096 GNI Customer Performance Indicators Decision Paper
end of the price control (to encourage more accurate budgeting). It is also possible that some spend might be disallowed because it was not spent efficiently, in which case GNI would suffer the loss of that money, although spend of this type did not occur in the PC3 review period. It is difficult to specify figures for this incentive, these are quantified at the end of each price control.

- **Pass-through** – Some pass-through items are linked to incentive mechanisms in order to incentivise GNI to reduce costs in the areas over which they have some control e.g. In the case of commercial rates 25% of any over or underspend is incurred by GNI.

The CER has also reviewed the current incentive framework to ensure it remains fully appropriate for PC4 and beyond. The CER is mindful that a review of the incentive framework pertaining to the recent electricity price review (PR4) is currently underway. The CER will use this review as a guide to help inform future incentive mechanisms and the reporting associated with them for the next gas price control (PC5).

In addition the CER and its advisors will develop a workbook as part of the PC4 final determination, which will provide a clear summary of the projects, work programmes and assumptions (e.g. unit rates) that have been used to set the determination and would then form a key input to the PC4 close-out during the next price control (PC5). This will allow CER to assess what GNI has delivered for customers with the money it has spent.

**PC4 Efficiency Targets**

As with the previous price controls the CER has proposed an annual efficiency target of 1% to be applied to GNI’s transmission business for each year over PC4. The CER intends to review GNI’s outputs at the end of PC4 to ensure that they are delivering for gas customers.

**PC4 WACC**

The CER currently proposes to allow a WACC (Weighted Average Cost of Capital) of 4.63% pre-tax real, from 5.2% in PC3. The analysis of GNI’s cost of capital is being undertaken in a period of recovery following one of the most severe economic downturns in recent decades. Forecasts\(^6\) continue to suggest that the economy is going through a period of strong growth.

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with a GDP of 5.2%\textsuperscript{7} in 2016 outstripping other Eurozone countries. Ireland continues to benefit from a historically low cost of finance and this has influenced CER’s view of an appropriate WACC, but our approach is also balanced by a wish to ensure that regulatory precedence and stability is maintained. Detailed analysis supporting CER’s decision is set out in the consultation documents.

**PC4 Tariffs**

Given the forecast gas demands CER’s current proposal would lead to a 1.31% increase in transmission tariffs (15/16 monies).

Please note that there would be different price changes for different customers categories based on their consumption and bookings.

It is intended that the actual tariffs for the October 2017 to September 2018 period will be published following the PC4 decision.

\textsuperscript{7} Central Statistics Office (CSO) (2017) Quarterly National Accounts Quarter 4 2016 and Year 2016 (Preliminary) and Balance of Payments results for Quarter 4 2016 and Year 2016.

PC3 Capex

GNI reported Capex spend of €222m over the PC3 period. This compares to the PC3 forecast Capex expenditure of €174m (as forecast in the PC3 decision in 2012, adjusted to include any additional allowances granted by the CER since then).

The substantial Capex overspend is largely a result of the Twinning of the Southwest Scotland onshore system (SWSOS). The PC3 allowance of €1.9m was for miscellaneous SWSOS works only. An additional €48.8m was spent to design and construct the major gas pipeline, although this work was agreed by the CER it was not included in the original PC3 allowance.

If the spend related to Twinning during PC3 is removed from the outturn, GNI managed capital investment in the Transmission network within regulatory capital allowances.

PC3 Opex

GNI reported an Opex spend of €325m. This compares to the PC3 forecast Opex expenditure of €314m (as forecast in the PC3 decision in 2012, adjusted to include any additional allowances granted by the CER since then).

GNI’s Opex outturn for the period was 3.6% higher than originally allowed. The review of PC3 Opex does not involve making a judgement on the efficiency of the incurred expenditure. GNI bear in full any differences from the allowance, either over- or under-spends, for Opex that is not classified as pass-through under the price control. GNI state that the underlying issue which resulted in this overspend was the substantial variance in work type and volume between PC3 and preceding price control periods.
Gas Networks Ireland (GNI) owns and operates the gas network which supplies all gas customers in Ireland. GNI charges gas customers an amount towards the cost of safely operating and maintaining the gas network through gas customers’ bills.

The CER’s role is to protect gas customers by ensuring that GNI spends customers’ money appropriately and efficiently to deliver necessary services. The CER does this through what is called a Price Control which is carried out every 5-years, the next 5-year period starts on the 1st of October 2017 (PC4).

- A Price Control is an important process because the CER must carefully consider the level of money GNI needs to safely operate, maintain and invest in the gas network for the next 5 years.

The CER will continue to monitor GNI’s performance and will challenge GNI to become more efficient over PC4. The benefits to gas customers will be:

- A gas network that is operated to the highest safety standards, ensuring safe supply of gas to customers;
- A reliable and secure supply of gas to homes and businesses;
- The efficient management of the gas network resulting stable tariffs; and,
- A high standard of customer service at all times with timely resolution of complaints.

If the proposals in this consultation document and the distribution consultation document are carried out the average annual residential customer’s bill will rise by €7.60.
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## Glossary of Terms and Abbreviations

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<tr>
<td>BGE</td>
<td>Bord Gáis Éireann</td>
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<tr>
<td>BGN</td>
<td>Bord Gáis Networks</td>
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<tr>
<td>BPQ</td>
<td>Business Planning Questionnaire</td>
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<tr>
<td>CAPEX</td>
<td>Capital Expenditure (Capex) is the initial expenditure on investment in network infrastructure, such as underground cables.</td>
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<td>CER</td>
<td>Commission for Energy Regulation</td>
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<td>CNG</td>
<td>Compressed Natural Gas</td>
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<td>DBU</td>
<td>Distribution Business Unit</td>
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<td>DSO</td>
<td>Distribution System Operator</td>
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<td>GNI</td>
<td>Gas Networks Ireland</td>
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<tr>
<td>ITO</td>
<td>Independent Transmission Operator</td>
</tr>
<tr>
<td>OPEX</td>
<td>Operating Expenditure (Opex) is expenditure on operating and maintaining the network infrastructure, e.g. maintenance, inspection and IT.</td>
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<td>PC</td>
<td>Price Control</td>
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<td>RAB</td>
<td>Regulated Asset Base</td>
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<tr>
<td>REPEX</td>
<td>Refurbishment &amp; Replacement capital expenditure</td>
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<tr>
<td>RNG</td>
<td>Renewable Gas</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>SWSOS</td>
<td>Southwest Scotland Onshore System</td>
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<tr>
<td>TBU</td>
<td>Transmission Business Unit</td>
</tr>
<tr>
<td>TSO</td>
<td>Transmission System Operator</td>
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<tr>
<td>WACC</td>
<td>Weighted Average Cost of Capital (WACC) is a weighted average of the expected equity and debt for the transmission system operator, which is GNI.</td>
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1 INTRODUCTION

This chapter outlines the process of regularly reviewing the revenues that GNI is allowed to recover from customers.

To give a fuller picture of the process involved, it also lists the other papers that are published alongside this paper.

Finally it sets out the way in which people can respond to this consultation so that they can have their say in the process.

1.1 The Commission for Energy Regulation

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

Our mission is to regulate water, energy and energy safety in the public interest. CER regulates the revenues that GNI receives from gas tariffs. CER ensure that revenues provide for the efficient operation and maintenance of the gas networks. This is done on a 5-yearly basis, with the next 5-year control period due to start on October 1st 2017.

As part of its regulatory role the CER, every 5 years, carries out a review of the revenues that GNI are allowed to recover through gas tariffs for the ongoing operation and maintenance of the gas network. In reaching its decision the CER has reviewed expenditure by GNI over the previous price control (PC3), to ensure that revenue was spent efficiently, and has reviewed forecast revenue required by GNI over next Price Control (PC4).

1.2 Regulatory Review Process

The process followed by the CER in completing this review mirrors that used in the three previous gas price controls and is in line with those carried out by other utility regulators worldwide. The CER is now consulting on its proposals for GNI’s revenue allowance for the period of PC4. The CER is seeking views from interested stakeholders and will consider all responses received prior to reaching a final decision in July 2017.
Further detail on the review process can be found Appendix A of this document.

### 1.3 Purpose of this paper

This consultation paper sets out the CER's proposals on the level of revenue that the transmission business\(^8\) should be allowed to recover from its customers during October 2017 to September 2022 (PC4) to allow it to finance its activities associated with owning operating, and maintaining the gas transmission system in Ireland.

Further information on the CER’s role and relevant legislation can be found on the CER’s website at [www.cer.ie](http://www.cer.ie).

### 1.4 Key assumptions for PC4

Given the five-year scope of the review, it has been necessary to make a number of assumptions regarding the environment within which the transmission business will operate for the price control period. The key assumptions made by the CER are as follows:

- There will be no substantial change in the functions of the transmission business;
- and,
- There will be no material changes in the circumstances within which the transmission business is operating, e.g. change of ownership.

A change to these assumptions may lead to a reopening of the revenue control.

### 1.5 Legislative basis

The specific legislation under which the CER determines the transmission business's revenue and tariffs is detailed below.

Under Section 10A of the Gas Act 1976 (the ‘Act’) the CER may direct the transmission business on the basis for charges for transporting gas through the transmission system. In

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\(^8\) The relevant elements of Gas Networks Ireland business are referred to within this paper as the ‘transmission business’.
accordance with Section 10A of the Act, this consultation paper outlines the CER’s proposals regarding the revenue that the transmission business will be allowed to recover from its customers during the period from October 2017 to September 2022.

1.6 Structure of paper

The structure of this consultation paper is outlined in this section:

- Chapter 1 details the purpose of, and how to respond to, this paper;
- Chapter 2 details the corporate structure that GNI sits within today. How that structure has changed during the course of PC3 and the strategic challenges GNI faces during PC4 and beyond;
- Chapter 3 outlines a review of the transmission business’s historic operational expenditure and performance for the October 2017 to September 2022 period;
- Chapter 4 outlines a review of the transmission business’s forecast operational expenditure for the October 2017 to September 2022 period;
- Chapter 5 outlines a review of the transmission business’s historical capital expenditure for the October 2017 to September 2022 period;
- Chapter 6 outlines a review of the transmission business’s forecast capital expenditure for the October 2017 to September 2022 period;
- Chapter 7 provides information on performance and incentives;
- Chapter 8 provides information on the cost of capital that is proposed for application to the transmission business’s RAB over the October 2017 to September 2022 period;
- Chapter 9 details the review of the Corrib Linkline Element;
- Appendix A; and
- Appendix B.
1.7 Related documents

Reports provided by two consultancy advisors engaged by the CER to assist with this project have also been published alongside this paper\(^9\). These are:

- Two reports (one reviewing the transmission business and one reviewing the distribution business (CER/17127) by Cambridge Economic Policy Consultants (CEPA)\(^{10}\) providing recommendations on an appropriate level of operating and capital expenditure; and,
- A report by FTI on the appropriate cost of capital for GNI.

The views put forward in this consultation paper draw from the recommendations provided in those reports.

- GNI’s Executive Summary which accompanied the PC4 submission documents is also published with this paper.

Information on the CER’s role and relevant legislation can be found on the CER’s website at [www.cer.ie](http://www.cer.ie)

1.8 Responses

Responses on this paper should be received by Friday, 28\(^{th}\) July 2017. The responses should be sent to:

Daniel Ward  
Commission for Energy Regulation  
The Exchange  
Belgard Square North  
Tallaght  
Dublin 24

Email: dward@cer.ie  
Tel: (01) 4000800

\(^9\) Further information on the role of these advisors is provided in section 1.3.  
\(^{10}\) In association with Rune and Wavestone.
Submissions on any of the points listed in this paper should be clear and specific, with analysis or rationale to support the views provided.

Unless marked confidential, all responses may be published on the CER’s website at the following address: www.cer.ie.

Respondents may request that their response is kept confidential. The CER shall respect this request, subject to any obligations to disclose information. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality.
This chapter sets out the way that GNI’s business is organised and how it sits under its parent company Ervia.

The transmission system of GNI transports gas at high pressure through steel pipelines between cities and to large customers such as power stations. Residential customers should note that the transmission system feeds the lower pressure distribution system which feeds individual homes. Thus residential customers pay both transmission and distribution charges through their gas bill.

It briefly outlines GNI’s objectives for the next 5 years and the context as they see it.

Finally it briefly outlines the challenges that GNI sees over the next 5 years.

2.1 Introduction

When reviewing efficient expenditure and setting the allowances that GNI requires to deliver gas transmission services, it is important to understand the organisational structure in which GNI now sits. Ervia, (formerly Bord Gáis Éireann) is the parent company of GNI, it is a commercial semi-state multi-utility company responsible for the delivery of Ireland’s national gas and water infrastructure and services. The restructuring of Ervia, which was in line with the requirements of EU Third Energy Package, saw the creation of GNI as a standalone gas network business within the Ervia group.

In January 2014, Ervia established a Shared Services Centre to deliver common processes and consolidated systems across both GNI and Irish Water (IW). GNI estimate that the provision of Shared Services has resulted in cost savings for GNI of c. €6.4m in PC3.

At the time of the PC3 final determination, the gas network operator was part of Bord Gáis Éireann Group (BGÉ) and operated alongside an energy supply business Bord Gáis Energy. Significant change had occurred in the gas networks businesses in the previous price control period PC2. This included the implementation of an asset management transformation programme Networks Transformation Programme (NTP) and the High Performance Utility Model (HPUM) and the changes required by the European Third Energy Package including...
the unbundling of energy production and supply from transmission networks). The unbundling option chosen by BGÉ was to establish Bord Gáis Networks (BGN) as an Independent Transmission Operator (ITO). The expectation was that the adoption of an ITO business structure would increase GNI expenditure as it significantly reduced the extent of group shared service activities by creating standalone support activities within the ITO.

### 2.2 Independent Transmission Operator (ITO)

The restructuring brought about changes to GNI’s business during PC3, with GNI’s business being integrated into the Ervia Group, along with Irish Water (IW). The number of key business support functions (e.g. IT, HR and Finance) that have been delivered during PC3 is very different from what was envisaged at the time of the final PC3 determination.

In line with the EU 3rd Internal Energy Market Legislation the gas networks business was required to be separated from the energy business. While it was originally decided to adopt the ITO model, the subsequent sale of the Bord Gáis Energy business meant that GNI became a fully ownership unbundled networks company.

### 2.3 Transmission Business

GNI now delivers many of its indirect activities through a combination of internal network resources and group services. This means that there are significant costs allocated to GNI from the Shared Services Centre and the Ervia Group Centre. The organisational structure of the Ervia Group is illustrated in Figure 2.1.

![Figure 2.1: Ervia Organisational Structure (Source GNI)](image)
2.4 GNI objectives and business context

GNI have outlined in their submissions, that PC4 will not be a simple continuation of PC3 and that the nature of its business activities and the environment in which it operates will change significantly during the forthcoming price control period.

2.4.1 GNI – PC4 objectives

GNI have identified five criteria that they must fulfil in PC4:

- operate to the highest safety standard;
- ensure reliability and security of supply;
- ensure competitive tariffs;
- support Ireland’s least cost transformation to a low carbon economy; and
- respond to changing customer service demands.

2.4.2 GNI – context for PC4

To provide context to the analysis undertaken, the CER notes the key challenges identified by GNI for PC4 as the driving focus of its price control business plan. Looking forward into PC4, GNI have noted five key challenges which are summarised below, further detail is provided in Appendix B.

2.4.2.1 Maintaining utilisation of the gas network

 Longer term independent modelling suggests that gas demand could reduce by 40% - 60% or more by 2050 due to climate change policies, EU directives, and technological developments in areas such as energy storage, increased renewables, greater electrification and energy efficiency dynamics. If GNI is able to increase utilisation of its network without increasing costs, this will help keep tariffs competitive.

2.4.2.2 Supporting energy policy by building on the PC3 innovation funding

GNI has undertaken projects to expand the role of natural gas in transportation and to develop the renewable gas sector in Ireland. To play its role in supporting a low carbon energy policy, GNI state that an ongoing challenge for its business is to adapt its network and leverage its
assets and expertise to support and enable an ever increasing penetration of renewables in Ireland’s energy system.

2.4.2.3 Responding to changing gas flows

At the end of 2015, the first gas flows from the Corrib entry point were introduced to the gas network. Corrib replaces Moffat as the dominant gas supply point in Ireland. This new entry point has created a number of operational challenges for GNI’s networks business related to changing network flows. Plans are also being developed to decommission key network assets as production operations cease at the Inch supply point, which will have a knock-on effect to other parts of the network.

2.4.2.4 Managing an aging asset base

GNI report that more than 40 per cent of GNI’s network is now more than 20 years old. This presents a maintenance and capital investment challenge during the upcoming control period to ensure the long-term reliability and security of gas supply.

2.4.2.5 Resourcing for a low value high volume delivery company

GNI state that due to the ageing asset base and GNI’s projected increase in customer numbers, the required PC4 work programme is potentially larger and more challenging than the programme delivered in PC3. GNI has prepared a resource strategy which it believes will enable the delivery of PC4, but the strategy requires recruiting additional staff in critical technical and engineering roles.
3 REVIEW OF GNI’S HISTORICAL OPERATIONAL EXPENDITURE

This chapter describes the operating costs (called Opex) of GNI for the last 5 years (the PC3 period). The operating costs represent the money that GNI spent to maintain the transmission system so that it could safely and securely continue to transport gas to customers.

It outlines the ways in which CER examines the Opex costs breaking it down under various different headings for the different activities that GNI undertake.

It describes how GNI have full control over some costs (and are held to account for these costs) but have less control over some other costs (called pass through costs) and outlines how these pass through costs are updated regularly to reflect changes in these costs.

The CER set a total\(^\text{11}\) allowed Opex spend of €314m for the transmission business during the PC3 period. GNI’s outturn\(^\text{12}\) for the period was €325m or 3.6% higher than originally allowed.

The review of PC3 Opex does not involve making a judgement on the efficiency of the incurred expenditure. GNI bear in full any differences from the allowance, either over- or under-spends, for Opex that is not classified as pass-through under the price control. This historical review of operating expenditure is used to derive normalised or ‘business as usual’ costs that form the basis for proposed PC4 operating expenditure allowances. As a consequence, a high-level commentary of the activities undertaken in each category of Opex\(^\text{13}\) is provided below, as well as the key trends in the phasing of GNI’s expenditure during PC3. Further information can be found in the CEPA reports that are published alongside this document.

\(^{11}\) Includes innovation and pass-through costs.

\(^{12}\) It should be noted that actual cost figures are used for the period to September 2016. Figures used from October 2016 to September 2017 are estimated costs. This applies to all PC3 totals presented in this paper.

\(^{13}\) The disaggregated Opex categories are highlighted in Appendix A pg140.
The transmission business has over-spent in PC3 by €11 million. Key features of the outturn and over-spend are highlighted by the tables below. All costs presented below are in real 2015/2016 values and are rounded where appropriate.

The difference between the totals and allowance for each year in Table 3.1 shows that GNI underspent compared to its allowance in two of the first three years. However, GNI exceeded the allowance in 15/16 and is also forecasting that spend will be above its allowance in the last year of the price control. This is not an unusual profile for regulated networks, although the profile is more typically associated with Capex where, for example, it can take a period of time to mobilise contractors / Capex programmes.

### Table 3.1: PC3 outturn – transmission Opex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>21,129</td>
<td>25,599</td>
<td>26,189</td>
<td>27,971</td>
<td>35,340</td>
<td>136,229</td>
</tr>
<tr>
<td>Business Support</td>
<td>13,649</td>
<td>15,071</td>
<td>13,416</td>
<td>15,698</td>
<td>16,487</td>
<td>74,321</td>
</tr>
<tr>
<td>IT</td>
<td>5,427</td>
<td>4,748</td>
<td>5,209</td>
<td>6,241</td>
<td>6,643</td>
<td>28,268</td>
</tr>
<tr>
<td>Gaslink</td>
<td>2,129</td>
<td>2,395</td>
<td>3,118</td>
<td>1,469</td>
<td>2,302</td>
<td>11,413</td>
</tr>
<tr>
<td><strong>Total controllable</strong></td>
<td><strong>42,335</strong></td>
<td><strong>47,813</strong></td>
<td><strong>47,933</strong></td>
<td><strong>51,379</strong></td>
<td><strong>60,771</strong></td>
<td><strong>250,231</strong></td>
</tr>
<tr>
<td>Pass-through</td>
<td>12,485</td>
<td>12,999</td>
<td>13,721</td>
<td>12,651</td>
<td>17,410</td>
<td>69,265</td>
</tr>
<tr>
<td>Innovation</td>
<td>84</td>
<td>906</td>
<td>-223</td>
<td>1,197</td>
<td>3,901</td>
<td>5,864</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54,903</td>
<td>61,717</td>
<td>61,430</td>
<td>65,227</td>
<td>82,082</td>
<td>325,360</td>
</tr>
<tr>
<td>Allowance</td>
<td>58,537</td>
<td>61,201</td>
<td>62,907</td>
<td>63,980</td>
<td>82,082</td>
<td>313,947</td>
</tr>
</tbody>
</table>

Note: positive value indicates outturn expenditure above allowance.

### Table 3.2: PC3 variance with allowance – transmission Opex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>-2,558</td>
<td>191</td>
<td>-199</td>
<td>1,065</td>
<td>6,156</td>
<td>4,656</td>
</tr>
<tr>
<td>Business Support</td>
<td>1,501</td>
<td>2,348</td>
<td>442</td>
<td>-441</td>
<td>807</td>
<td>4,658</td>
</tr>
<tr>
<td>IT</td>
<td>-308</td>
<td>-1,135</td>
<td>-1,073</td>
<td>3,592</td>
<td>3,998</td>
<td>5,073</td>
</tr>
<tr>
<td>Gaslink</td>
<td>-333</td>
<td>32</td>
<td>775</td>
<td>-855</td>
<td>-22</td>
<td>-403</td>
</tr>
<tr>
<td><strong>Total controllable</strong></td>
<td><strong>-1,698</strong></td>
<td><strong>1,437</strong></td>
<td><strong>-55</strong></td>
<td><strong>3,361</strong></td>
<td><strong>10,938</strong></td>
<td><strong>13,983</strong></td>
</tr>
<tr>
<td>Pass-through</td>
<td>-539</td>
<td>-328</td>
<td>296</td>
<td>-1,840</td>
<td>1,753</td>
<td>-659</td>
</tr>
<tr>
<td>Innovation</td>
<td>-1,397</td>
<td>-592</td>
<td>-1,717</td>
<td>-275</td>
<td>2,069</td>
<td>-1,912</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-3,634</td>
<td>516</td>
<td>-1,477</td>
<td>1,246</td>
<td>14,761</td>
<td>11,412</td>
</tr>
</tbody>
</table>

Note: positive value indicates outturn expenditure above allowance.
3.1 Operations Opex (allowance €131.6m; outturn €136.2m)

GNI reported Operations Opex of €136.2m over the PC3 period against an allowance of €131.6m, a breakdown of the outturn by function is shown below. Details of the work carried out within the Operations function is provided in sections 3.1.1 to 3.1.5.

Table 3.3: PC3 outturn – transmission operations Opex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Management</td>
<td>2,940</td>
<td>3,586</td>
<td>3,981</td>
<td>3,671</td>
<td>4,046</td>
<td>18,224</td>
</tr>
<tr>
<td>Asset Operations</td>
<td>17,346</td>
<td>20,441</td>
<td>20,665</td>
<td>22,449</td>
<td>29,258</td>
<td>110,159</td>
</tr>
<tr>
<td>Commercial</td>
<td>-1</td>
<td>-16</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-13</td>
</tr>
<tr>
<td>HSQE¹⁴</td>
<td>726</td>
<td>1,212</td>
<td>1,250</td>
<td>1,552</td>
<td>1,683</td>
<td>6,423</td>
</tr>
<tr>
<td>Technical Competency</td>
<td>118</td>
<td>377</td>
<td>290</td>
<td>299</td>
<td>352</td>
<td>1,436</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21,129</strong></td>
<td><strong>25,599</strong></td>
<td><strong>26,189</strong></td>
<td><strong>27,971</strong></td>
<td><strong>35,340</strong></td>
<td><strong>136,229</strong></td>
</tr>
</tbody>
</table>

3.1.1 Asset Management

The Asset Management function is responsible for managing the assets of the transmission and distribution businesses. The function identifies, plans, and develops programmes of work on the asset base, in line with approved asset policy, to maintain asset performance and implement appropriate network investment.

Staff costs in Asset Management account for almost 80% of the costs in this area. Staff numbers have fluctuated during PC3 as GNI’s resourcing strategy has been implemented. Although there was a drop in staff numbers in 2014 this rose the following years as transfers within GNI where made. There has been an overall rising trend in asset management costs over PC3.

3.1.2 Asset Operations

The Asset Operations function is responsible for the day to day operation of the gas network in a safe and reliable condition. Asset Operations was established in 2012, following the merger of Workflow Management and Service Delivery.

¹⁴ Health & Safety, Quality & Environment
Asset Operations delivers across the full lifecycle of transmission projects from work initiation through build, commissioning and maintenance. Its purpose is to interface with customers and successfully deliver all field force based work.

Although the level of operational expenditure is driven by maintenance activities and irregular items such as 7 or 10 year inspections and the associated remediation activities, the level of operational expenditure has been on a rising trend during PC3. The categories of spend for maintenance are largely driven by the; length of installed pipeline, number of AGIs, and number of compressors.

One of the main drivers of increased Asset Operations spend over the course of PC3 is compressor based (rising from €3.2m in 2012/13 to €11.9m forecast for 2016/17). The ramp up of spend may be related to some resource issues for GNI at the outset of PC3, although it appears that the rising trend is driven more by operational costs linked to compressors (and less so AGIs and pipelines).

### 3.1.3 Commercial

The Commercial department was established in early 2015 to address the need to increase utilisation on the network. The resources in the department were a mix of transfers from other areas of the business and new hires. A priority of the function is to maximise the potential of the existing gas network while seeking opportunities to expand and diversify into new markets through research and innovation, the object of this being to maximise the benefit from the existing network asset base.

### 3.1.4 HSQE

The function facilitates the development, operation, integration and continuous improvement of its safety, quality and environmental management systems.

HSQE works closely with all areas of the business on all aspects of occupational and process safety, quality, environmental and risk management.
3.1.5 Technical Competency

The Technical Competency Development function was established in 2013 to develop and implement systems, processes and programmes necessary to significantly enhance the gas technical competencies within GNI, for both employees and for contract resources working on the gas network. The resources in the department were a mix of transfers from other areas of the business and new hires.

GNI has implemented a Technical Competency Framework for all gas technical roles and technical training and upskilling have then been targeted where the competency of any individual was misaligned with the desired level for that specific role.

CER is of the view that the introduction of a structured approach to setting and assessing technical competence of all gas technical roles and addressing any shortfall through training is appropriate.

3.2 Business Support Opex (allowance €69.7m; outturn €74.3m)

GNI reported Business Support Opex of €74.3m over the PC3 period against an allowance of €69.7m, a breakdown of the outturn by function is shown in Table 3.4.

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of Networks</td>
<td>1,733</td>
<td>2,248</td>
<td>1,480</td>
<td>2,029</td>
<td>2,123</td>
<td>9,613</td>
</tr>
<tr>
<td>R&amp;C Services</td>
<td>2,380</td>
<td>2,848</td>
<td>2,039</td>
<td>3,090</td>
<td>3,022</td>
<td>13,379</td>
</tr>
<tr>
<td>Finance</td>
<td>5,956</td>
<td>6,278</td>
<td>5,552</td>
<td>6,346</td>
<td>6,498</td>
<td>30,629</td>
</tr>
<tr>
<td>Human Resources</td>
<td>1,201</td>
<td>1,386</td>
<td>1,724</td>
<td>1,677</td>
<td>1,823</td>
<td>7,810</td>
</tr>
<tr>
<td>Facilities</td>
<td>2,379</td>
<td>2,312</td>
<td>2,621</td>
<td>2,557</td>
<td>3,021</td>
<td>12,890</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,649</strong></td>
<td><strong>15,071</strong></td>
<td><strong>13,416</strong></td>
<td><strong>15,698</strong></td>
<td><strong>16,487</strong></td>
<td><strong>74,321</strong></td>
</tr>
</tbody>
</table>

A key point to note from Table 3.4 is the significant variation in expenditure for a number of the functions (e.g. finance) during PC3. GNI have expressed that this is partly driven by changes in activities or increases in workload within individual functions (e.g. increased focus on growth related activities within the Regulation and Corporate Services function). The year-on-year variations are also driven by increased role of the Group & Shared Service Centre in...
delivering business support functions, with consequential changes in costs allocations across the business. Details of the work carried out within the Business Support function is provided in sections 3.2.1 to 3.2.5.

3.2.1 Head of Networks

Head of Networks refers to the office of the Managing Director of GNI. Each head of the various functions reports directly to the Managing Director.

The office is responsible for defining and implementing the overall business strategy for GNI and leads the senior management team in achieving these targets.

3.2.2 Regulatory & Corporate Services

The Regulation & Corporate Services function is responsible for ensuring compliance with, and development of, all aspects of the transportation licences and regulated contracts of GNI. It also has responsibility for customer and marketing strategy, revenue protection, price control co-ordination, commercial metering and shipper services. The function was significantly re-organised over the course of PC3.

3.2.3 Finance

The role of the Finance function is to ensure that appropriate structures are in place to support the business, ensure financial control and to manage and mitigate risks through compliance and insurance cover. In addition, the function is responsible for the management of both tariffs and commercial demand forecasting.

Finance is organised into specialised areas, namely Financial Reporting and Planning, Internal Audit, Insurance, Commercial Finance and Business Planning.

3.2.4 Human Resources

The HR function supports the business and provides generalist services and Learning and Development (L&D) services.

The HR function has changed significantly during the PC3 period with the establishment of Ervia as a multi utility. HR Central Services moved to the Shared Services Centre, HR strategy, compensation and benefits moved to the Group Centre while the GNI HR function reduced significantly in size.
3.2.5 Facilities

The Facilities function ensures that a safe and sustainable work environment, compliant with legislation, is provided for all employees across the Ervia Group, including GNI. Facilities services were incorporated into the Shared Services Centre in 2014 where they continue to deliver a full suite of facilities capabilities and property portfolio management to GNI. All aspects of Facilities are managed centrally.

3.3 IT Opex (allowance €23.2m; outturn €28.3m)

Table 3.5 below presents the total IT Opex costs for the transmission business. GNI reported IT Opex of €28.3m over the PC3 period against an allowance of €23.2m. This includes the IT function costs and the IT expenses from across the other GNI functions already discussed.

Table 3.5: PC3 Outturn – IT Opex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outturn</td>
<td>5,427</td>
<td>4,748</td>
<td>5,209</td>
<td>6,241</td>
<td>6,643</td>
<td>28,268</td>
</tr>
</tbody>
</table>

As IT Capex spend was skewed towards the later years of PC3, the associated IT Opex was also skewed. There was a drop from the first to the second year of PC3 in Opex and then a significant increase in the final two years of PC3. GNI stated that despite a growing IT user base and evolving business requirements, they had managed to control spend through improvements in processes and the establishment of the Shared Services IT function. The number of full-time equivalents (FTEs) started at 53 in the calendar year 2012 and was at 54 in calendar year 2016, remaining at this level on average during PC3.
3.4 Gaslink Opex (allowance €23.2m; outturn €28.3m)

GNI reported Gaslink Opex of €11.4m over the PC3 period against an allowance of €11.8m. Gaslink was historically an independent subsidiary of Bord Gáis tasked with the role of gas system operator in Ireland to comply with European regulations.

During PC3, Gaslink Opex has been reported as its own expenditure item under the pass-through cost items of the price control, although over the course of PC3 the company has been merged into GNI. The PC4 expenditure associated with Gaslink activities is included within the Regulation and Corporate Services function of business support costs.

Table 3.6: PC3 Outturn – Gaslink transmission Opex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outturn</td>
<td>2,129</td>
<td>2,395</td>
<td>3,118</td>
<td>1,469</td>
<td>2,302</td>
<td>11,413</td>
</tr>
</tbody>
</table>

3.5 Pass-through costs (allowance €69.6m; outturn €69.3m)

Pass-through costs are Opex items that receive a different regulatory treatment than core controllable Opex under the terms of GNI’s price control. The subsections below describe:

- the regulatory treatment of individual pass-through costs during PC3; and
- the level of reported pass-through costs (excluding Gaslink) during PC3.

3.5.1 Regulatory treatment of pass-through costs

For transmission, there were three items which were treated as full pass-through items for PC3. These were Gaslink, CER levies and CO2.

Rates were both subject to a 50% sharing factor which again meant that there was an incentive on GNI to reduce outturn expenditure below targets.
3.5.2 Level of pass-through costs

GNI reported Pass-through Opex of €69.3m over the PC3 period against an allowance of €69.9m as highlighted by Table 3.7 below. However, these items are not all pure pass-through. Further information is provided in section 7.1.2 of this report on the treatment of these items and associated incentives.

Table 3.7: PC3 outturn – Pass-through Opex (€000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>91</td>
<td>144</td>
<td>238</td>
<td>23</td>
<td>212</td>
<td>708</td>
</tr>
<tr>
<td>CER levy</td>
<td>1,538</td>
<td>1,563</td>
<td>1,287</td>
<td>981</td>
<td>1,246</td>
<td>6,616</td>
</tr>
<tr>
<td>Rates</td>
<td>10,855</td>
<td>11,291</td>
<td>12,195</td>
<td>11,647</td>
<td>15,952</td>
<td>61,941</td>
</tr>
<tr>
<td>Total</td>
<td>12,485</td>
<td>12,999</td>
<td>13,721</td>
<td>12,651</td>
<td>17,410</td>
<td>69,265</td>
</tr>
</tbody>
</table>

3.6 Innovation (allowance €8.0m; outturn €8.0m)

In its PC3 decision, the CER, set a total allowance of €8.0m for innovation, in the form of an Opex allowance. This allowance covered innovation activities for both the Transmission Business Unit (TBU) and Distribution Business Unit (DBU).

The adopted treatment of innovation funding as Opex avoided complications of including small capital projects in the Regulatory Asset Base and was seen to be more consistent with the focus on innovation funding. A subsequent proposal from BGN regarding the split of the allowed €8.0m between transmission and distribution was accepted by the CER, leading to a 90/10 split between the TBU and DBU, respectively.

Detailed governance arrangements were developed for BGN’s innovation fund and used to determine which projects were funded within PC3.

This included the formation of an innovation group called the Gas Innovation Group (GIG). This was formed to get a broader view of industry and technical developments, being made up of members of leading research centres in Ireland, key policy advisory groups, government agencies and government departments.

GNI have set up evaluation criteria on how to assess projects and shared this in their submission. These are separate for research projects and other funding requests. One of the primary evaluation criteria introduced by GNI is increasing utilisation of the gas network.
The innovation funding at PC3 has been allocated to five principle areas:

- CNG;
- biogas;
- research;
- business/technical; and
- programme management services.

The split of expenditure across these categories is shown below (across both distribution and transmission). The majority of this funding is expected to be incurred in the final year of the PC3 price control period. This backloading is said to be reflective of the time taken to establish the processes around the innovation fund.

Table 3.8: PC3 outturn - Innovation Opex for both transmission and distribution (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNG</td>
<td>0</td>
<td>157</td>
<td>224</td>
<td>1,004</td>
<td>2,615</td>
<td>4,000</td>
</tr>
<tr>
<td>Biogas</td>
<td>0</td>
<td>0</td>
<td>31</td>
<td>29</td>
<td>1,789</td>
<td>1,850</td>
</tr>
<tr>
<td>Research</td>
<td>0</td>
<td>0</td>
<td>45</td>
<td>30</td>
<td>875</td>
<td>950</td>
</tr>
<tr>
<td>Business/ Technical</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Programme management</td>
<td>95</td>
<td>222</td>
<td>252</td>
<td>303</td>
<td>78</td>
<td>950</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>95</strong></td>
<td><strong>379</strong></td>
<td><strong>553</strong></td>
<td><strong>1,366</strong></td>
<td><strong>5,607</strong></td>
<td><strong>8,000</strong></td>
</tr>
</tbody>
</table>

GNI note one of the benefits of the innovation fund is that their overall funding is expected to have leveraged additional funding from other sources. In their submission document, GNI note that funding totalling €7.7m has delivered a net benefit of over €14.5m (funding leverage of 187%). A number of projects have received full 100% funding, but the majority have involved co-funding.

GNI note benefits from this funding has included:

- development of a new source of demand for gas through the development of CNG in transport thus increasing the customer base for the gas network;
- potential for reduced tariffs to the gas customer over the long term as a result of increased utilisation of the natural gas network for transport;
- increased efficiency of the natural gas network through the potential for load management and off peak use of CNG stations;
• improved focus on the long term sustainability of the natural gas network and certainty of service;
• addressing the needs of gas customers by fostering a renewable gas industry in Ireland;
• lowering the carbon footprint of the network through the introduction of renewable gas into the gas network; and
• informing the policy debate through quality research publications and leveraging the innovation funding to secure other funding.

3.7 Summary

This chapter of the report has reviewed the outturn Opex across the different functions and items of Opex included in the PC3 determination. The bottom-up assessment of PC3 Opex has informed a “business as usual” Opex for the transmission business, which can then be revised to reflect additional items of core Opex forecast to be incurred in PC4. In addition, reviewing the functional areas during PC3 provides a baseline against which the PC4 profile of Opex spend and work programmes can be compared.

![Figure 3.1: Overall trends in controllable transmission Opex during PC3](image)

Figure 3.1 above illustrates the overall rising trend in controllable Opex by individual function over the course of PC4. Although the transmission business has over-spent in PC3 by €11m, GNI bear in full any differences from the allowance, either over- or under-spends, for Opex.
that is not classified as pass-through under the price control. Therefore the CER does not propose to allow additional revenue for overspends in Opex.

CER recognises that it set demanding Opex allowances for PC3 in order to protect the gas customer during a period of financial instability. There was substantial variance in work type and volume between PC3 and preceding price control periods. GNI moved towards an output of lower value high volume work, with resource issues at the outset of PC3 contributing to rising spend over the period. The change in operational trends combined with an exacting Opex allowance led to a challenging period for GNI.

### 3.8 Request for comment

Parties are invited to comment on the matter set out in this section, including the key proposals which relate to:

**3A. The review of operational expenditure during PC3.**

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
4 REVIEW OF GNI’S FORECAST OPERATIONAL EXPENDITURE

This chapter describes the forecast operating costs (Opex) of GNI for the next 5 years (the PC4 period covering 2017 to 2022). The operating costs represent the money that GNI expects to spend to maintain the transmission system so that it can safely and securely continue to transport gas to customers.

It outlines the ways in which CER examines the Opex costs breaking them down under various different headings for the different activities that GNI undertake.

It describes what GNI requested under the various headings and what CER is proposing under these headings, explaining the differences. One of the ways it does this is by comparing the proposed spend under these headings for the next period (PC4) with the actual spend over the last period (PC3).

It briefly describes how CER is setting challenging but achievable targets for GNI to become more efficient over the next 5 years.

The CER has proposed an allowed Opex spend of €383m (total Opex\textsuperscript{15}) for the transmission business during the PC4 period as highlighted in Table 4.1 below. GNI’s requested spend for the period is €424m\textsuperscript{16}, 10% higher than the proposed allowance. All costs presented below are in real 2015/2016 values and are rounded where appropriate.

<table>
<thead>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PC3 Outturn</td>
<td>54,903</td>
<td>61,717</td>
<td>61,430</td>
<td>65,227</td>
<td>82,082</td>
<td>325,360</td>
</tr>
<tr>
<td>PC4 Proposed</td>
<td>75,265</td>
<td>80,067</td>
<td>80,297</td>
<td>73,474</td>
<td>74,137</td>
<td>383,239</td>
</tr>
<tr>
<td>PC4 GNI request</td>
<td>81,839</td>
<td>87,853</td>
<td>88,936</td>
<td>82,870</td>
<td>82,525</td>
<td>424,024</td>
</tr>
<tr>
<td>PC4 Variance</td>
<td>-5,738</td>
<td>-7,333</td>
<td>-8,519</td>
<td>-9,448</td>
<td>-8,733</td>
<td>-39,771</td>
</tr>
</tbody>
</table>

\textsuperscript{15} Includes innovation and pass-through cost items.
\textsuperscript{16} It is noted that this is inclusive of its annual efficiency target and Opex growth forecast for the period.
A summary of the differences between the proposals and GNI’s request for each of the key areas of the Opex assessment is shown in Figure 4.1. The illustrated percentages show the implied percentage reduction of the CER’s proposal relative to GNI’s request for each individual area of transmission Opex.

The largest absolute difference between the proposal and GNI’s request is in Operations Opex where a 13% reduction has been proposed relative to the GNI request. The CER and its advisors have also proposed a higher ongoing net efficiency adjustment (detailed in section 4.1) than GNI proposed in its PC4 BPQ which also reduces the proposal when compared to GNI’s request.

![Figure 4.1: Summary of PC4 Opex proposal relative to GNI request](image)

Real unit operating expenditure (RUOE) is a simple productivity measure based on Opex. It is a partial productivity measure as it only takes into account part of the cost base (Opex) and a single output (in this case network length).

The RUOE of GNI’s transmission business increased during PC3 and is forecast to continue rising over the course of PC4 based on GNI’s request. There has been a gradual increase in RUOE over PC3 and an expectation of this trend continuing in the early years of PC4, peaking
around 2019, and falling in the later years of PC4. Figure 4.2 below illustrates how direct operating costs have changed per number of kilometres of the network with a step up relative to 2015/16 unit costs.

![Graph showing change in direct operating costs per km relative to 2015/16 base](image)

**Figure 4.2: Change in direct operating costs per km relative to 2015/16 base**

The main drivers of the forecasted increase in RUOE are Asset Operations, Commercial and Regulation & Corporate Services. The benefit of top-down analysis such as RUOE is that it moves away from detailed allocations/cost categorisations, recognising that companies may be able to trade-off between different types of expenditure in delivering network outputs. However, as stated this analysis is relatively simplistic it is not able to capture all the drivers of expenditure. It is therefore not used to set cost allowances directly but instead provides a cross-check against the bottom-up analysis when considering PC4 allowances.
4.1 Methodology

The previous chapter detailed how a bottom-up assessment was carried out to develop a base year of normalised transmission Opex costs that represents the core historic ‘business as usual’ Opex. This assessment was undertaken at an expenditure category/ business function level following a detailed review of GNI’s business plan for PC4. The CER and its advisors then analysed how GNI’s forecast Opex in PC4 compares to the normalised costs/ run rates of actual expenditure incurred by individual business functions during PC3.

The CER have then considered whether there is supporting rationale for increasing or decreasing allowed Opex in PC4 relative to reported PC3 normalised costs/ run rates. This has been informed by GNI’s original submission and subsequent discussions with GNI over earlier stages of the PC4 price review process.

A top-down benchmarking of transmission performance is difficult due to a lack of comparators, the CER considers that the bottom-up analysis provides the best estimates for GNI’s relative performance. While the CER does not apply top-down benchmarking as was the case for distribution, the CER has considered what might be an efficient cost path for GNI’s gas transmission business during PC4, in particular, scope for setting efficiency targets. This has included:

- evidence of historic and forecast unit cost trends for GNI’s transmission business implied by its business plan; and
- potential scope for ongoing (frontier shift) efficiency from GNI’s transmission business during PC4.

The CER and its advisors consider that there is scope for ongoing efficiency gains and have recommended an ongoing efficiency target of 1% per annum, which is applied to controllable Opex in order to reflect future frontier shifts. The bottom-up estimates are inclusive of expected changes in input prices during the price control. This is discussed further in section 4.6 of this document.
Continuing on from the previous chapter, a high-level commentary of the activities undertaken in each functional group of Opex\textsuperscript{17} is provided below, as well as the key trends in the phasing of GNI’s expenditure both entering and over the course of PC4.

### 4.2 Group & Shared Service Opex

The bottom up assessment of GNI functional expenditure was undertaken with GNI’s forecast for Group & Shared Service expenses excluded from the analysis. The process followed for Group & Shared Service allocations is illustrated in Figure 4.3 below.

#### Figure 4.3: Treatment of Group & Shared Service expenses in cost assessment

Ervia’s Group Centre sets the strategic direction for the company and includes functions such as the Chief Executive Office, Commercial and Regulatory, Group Finance and Group Human Resources (HR); and Shared Service Centre provides transactional services to the individual regulated and non-regulated businesses within the Ervia Group, including finance, procurement, facilities, HR and IT.

GNI are forecasting a general trend of increasing Group & Shared Service expenses during PC4. This might be expected given the expected growth of GNI as an organisation during

\textsuperscript{17} The disaggregated Opex categories are highlighted in Figure 1.1.
PC4 and the planned step-up in work-load / activity during the forthcoming price control period. For example, the CER would expect an increase in certain finance, procurement and HR initiatives to support the organisational change. However, the CER and its advisors do not believe the expected rate of increase is as clearly justified as other parts of GNI’s PC4 business plan, where increases in expenditure have been allowed. Therefore overall, the CER does not consider that GNI has sufficiently justified the forecast rate of increase in total Group & Shared Service expenses during PC4.

The CER have applied a 5.5% reduction to the forecast Group & Shared Service expense allocations for the first year of PC4 (for all business categories) with the reduction increasing in 0.5% increments to 7.5% by the last year of the price control, as highlighted in Figure 4.4 below.

Figure 4.4: Group and Shared Service Centre proposals

For the regulated GNI business as a whole (i.e. TBU and DBU), the proposed Group & Shared Service expenses (excluding IT) in PC4 are estimated to be an increase of €1.32m per annum on average over PC4 relative to reported Group & Shared Service allocations for 2015/16. The Group & Shared Service allocations allow for an 8% increase (in real terms) in this expense item relative to 2015/16 outturn levels.
4.3 Operations Opex (GNI €178.8m; CER €155.0m)

The CER proposes an Operations Opex of €155m over the PC4 period compared to a requested allowance of €178.8m, a breakdown of the allowance by function is shown below.

Table 4.2: PC4 proposal – Operations Opex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Management</td>
<td>3,978</td>
<td>3,963</td>
<td>3,963</td>
<td>3,962</td>
<td>3,961</td>
<td>19,828</td>
</tr>
<tr>
<td>Asset Operations</td>
<td>22,009</td>
<td>27,223</td>
<td>27,995</td>
<td>21,447</td>
<td>22,838</td>
<td>121,511</td>
</tr>
<tr>
<td>Commercial</td>
<td>623</td>
<td>663</td>
<td>668</td>
<td>668</td>
<td>668</td>
<td>3,290</td>
</tr>
<tr>
<td>HSQE</td>
<td>1,722</td>
<td>1,717</td>
<td>1,706</td>
<td>1,726</td>
<td>1,723</td>
<td>8,593</td>
</tr>
<tr>
<td>Technical Competency</td>
<td>360</td>
<td>361</td>
<td>362</td>
<td>363</td>
<td>363</td>
<td>1,809</td>
</tr>
<tr>
<td><strong>Total proposed</strong></td>
<td>28,692</td>
<td>33,926</td>
<td>34,695</td>
<td>28,166</td>
<td>29,552</td>
<td>155,031</td>
</tr>
<tr>
<td><strong>Total request</strong></td>
<td>33,171</td>
<td>38,880</td>
<td>39,867</td>
<td>33,430</td>
<td>33,482</td>
<td>178,829</td>
</tr>
<tr>
<td><strong>Total variance</strong></td>
<td>-4,479</td>
<td>-4,953</td>
<td>-5,172</td>
<td>-5,264</td>
<td>-3,930</td>
<td>-23,798</td>
</tr>
</tbody>
</table>

4.3.1 Asset Management

GNI have set out plans to increase their expenditure in this area well above the average expenditure incurred during PC3. The CER recognise the positive steps GNI are making in developing their asset management strategy and reflecting this in their asset maintenance policy. In recognition of these plans the CER has allowed for a 20% increase on PC3 average staff costs compared to a requested increase of 25% increase. In addition, the CER has applied the adjustments to Group and Shared Service costs as set out in section 4.2.
4.3.2 Asset Operations

Expenditure in this group relates to maintenance activities and irregular items such as 7 or 10 year inspections and the associated remediation activities. The level of Asset Operations Opex has been on a rising trend during PC3, GNI have forecasted this increase continuing throughout PC4 as highlighted by Figure 4.6 below. These maintenance activities are one of the main areas driving increased Operations Opex, with the PC3 Asset Operations outturn Opex of €110m rising to €121m in PC4. According to GNI increased compressor maintenance due to changing gas flows brought on by production at the Corrib Gas Field is one such cause of the increase in maintenance activities.
4.3.3 Commercial

As explained in section 3.1.3 the commercial department was established in early 2015 to address the need to increase utilisation on the network. GNI’s requested expenditure of €3.29m is focused on supporting the growth strategy. The CER have not proposed any adjustment to this area, see Figure 4.7, as attracting new customers will increase the use of the installed network asset base, which should lead to downward pressure on tariffs.
4.3.4 HSQE

The CER propose to allow GNI its full requested allowance in this area. Figure 4.8 below illustrates the allowances in the context of the trend across PC3 and PC4. The function continued to grow over PC3 with a minor increase from the end of PC3 to PC4 which can be explained by an increase in headcount. There are some new initiatives proposed by GNI e.g. electronic documentation and systemization, as well as improving risk and asset management.
4.3.5 Technical Competency

The CER propose to allow GNI its full requested allowance in this area, recognising the importance of ensuring that GNI can provide specialised industry related training. Figure 4.9 below illustrates the allowances in the context of the trend across PC3 and PC4. This function is performing as ‘business as usual’ in PC4 with costs very close to 16/17 forecast costs. There is a slight increase in cost due to some potential new activities and a larger staff base to train.
The methodology applied to setting the allowances for business support Opex has been to use GNI’s historic costs and forecast costs to derive a recommended forecast for PC4, this involved a three step approach.

- **Step 1** – develop a normalised cost range for each business support function based on reported PC3 expenditure.
- **Step 2** – using the normalised cost range (based on PC3 values), consider where in the range a “base” Opex estimate should sit looking forward to PC4.
- **Step 3** – consider the need for any additional step-up or step-down adjustments for additional activities, or activities no longer required during PC4.

The normalised cost ranges seek to remove costs not expected to occur in future e.g. reorganisation costs, or incurred costs in PC3 that are expected to be one-off in nature (e.g.
a one-off regulatory or legal project). These can then be revised to reflect additional items of core Opex forecast to be incurred in forthcoming years of the price control.

The proposed adjustment (5.5% reduction in Year1 to 7.5% in Year5) to GNI’s forecast Group & Shared Service allocations as described in section 4.2 is applied to each Business Support Department within section 4.4 to derive a final Opex trend.

The tables below compare the allowances for the functions that make up Business Support Opex for PC4, to GNI’s funding request.

**Table 4.3: PC4 proposal– business support costs (€’000s)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of Networks</td>
<td>2,614</td>
<td>2,759</td>
<td>2,757</td>
<td>2,747</td>
<td>2,751</td>
<td>13,628</td>
</tr>
<tr>
<td>R&amp;C Services</td>
<td>4,552</td>
<td>4,522</td>
<td>4,522</td>
<td>4,519</td>
<td>4,516</td>
<td>22,631</td>
</tr>
<tr>
<td>Finance</td>
<td>6,176</td>
<td>6,113</td>
<td>6,125</td>
<td>6,109</td>
<td>6,102</td>
<td>30,624</td>
</tr>
<tr>
<td>Human Resources</td>
<td>1,750</td>
<td>1,732</td>
<td>1,732</td>
<td>1,728</td>
<td>1,725</td>
<td>8,667</td>
</tr>
<tr>
<td>Facilities</td>
<td>3,097</td>
<td>3,117</td>
<td>3,136</td>
<td>3,133</td>
<td>3,125</td>
<td>15,609</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18,189</strong></td>
<td><strong>18,244</strong></td>
<td><strong>18,272</strong></td>
<td><strong>18,237</strong></td>
<td><strong>18,218</strong></td>
<td><strong>91,159</strong></td>
</tr>
</tbody>
</table>

**Table 4.4: PC4 variance – business support costs (€’000s)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of Networks</td>
<td>-42</td>
<td>-55</td>
<td>-59</td>
<td>-63</td>
<td>-68</td>
<td>-288</td>
</tr>
<tr>
<td>R&amp;C Services</td>
<td>-181</td>
<td>-445</td>
<td>-284</td>
<td>-655</td>
<td>-475</td>
<td>-2,040</td>
</tr>
<tr>
<td>Human Resources</td>
<td>-84</td>
<td>-91</td>
<td>-94</td>
<td>-101</td>
<td>-104</td>
<td>-474</td>
</tr>
<tr>
<td>Facilities</td>
<td>-62</td>
<td>-161</td>
<td>-247</td>
<td>-221</td>
<td>-182</td>
<td>-874</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>-568</strong></td>
<td><strong>-884</strong></td>
<td><strong>-1,079</strong></td>
<td><strong>-1,412</strong></td>
<td><strong>-1,283</strong></td>
<td><strong>-5,226</strong></td>
</tr>
</tbody>
</table>
4.4.1 Head of Networks

The only adjustments applied to this area of expenditure are to Group and Shared Service costs as set out in section 4.2, otherwise the CER accepts the GNI forecasts.

![Head of Networks Opex Trend](image)

**Figure 4.10: Head of Networks Opex Trend**

4.4.2 Regulatory and Corporate Services

Allowed base Opex

A range has been established for transmission Regulation and Corporate Service normalised cost of €1.2m - €1.8m per annum, excluding Group & Shared Services, IT expenses and a number of items identified as “one-off” in GNI’s submission. The lower end of the range is more reflective of the earlier years of PC3 and the upper end of the range more reflective of forecast increase in expenditure of the department during 16/17.

GNI has also made a provision for an increase in growth activities in its PC4 Opex projections. As detailed in Chapter 6, the PC4 allowances for Capex have reduced growth activities\(^\text{18}\) in

\[^{18}\text{The reduction in growth activities refers to a variety of pipe Capex at the total business level e.g. CNG, RNG injection points and a reduced level of connections to what was initially requested by GNI. Reasons put forward by GNI for proposed increases in commercial and reg & corp were linked to these new activities they were undertaking, as well as marketing type costs for new customers.}\]
PC4 relative to GNI’s business plan. However, the CER also recognise the benefits to existing gas customers of growth related initiatives that continue to optimise utilisation of the existing gas network and thereby placing downward pressure on gas tariffs. The CER therefore included provision for growth (market development) related support activities as part of the normalised cost ranges for the Regulatory and Corporate Service function.

The CER has adopted the upper quartile of the normalised cost range (PC3 expenditure) as “base” Opex for PC4 Opex recommendations. This reflects the ongoing growth activities undertaken in PC4 and an expected increased number of connections relative to PC3, meaning there is an expected need to support a greater scope of service in PC4.

**Allowed step-up/ down Opex items**

The following step-up/down Opex items have been taken into account when setting allowances:

- Two additional legal staff are expected to be added in light of the growth related activities and ramp up in activities for the PC4 period;
- Atypical costs not foreseen at the time of this review e.g. Litigation and dispute costs; and,
- For PC4, Gaslink costs will be included within the reported expenditure of the Regulation and Corporate Services function rather than as a separate item. The have accepted GNI's forecasts in full for Gaslink Opex costs.
Overall proposal

The significant increase in this area for PC4 as illustrated in Figure 4.11 below is mostly attributable to the subsuming of Gaslink activities, which were previously reported as a pass-through cost.

![Figure 4.11: Regulatory and Corporate Services Opex Trend](image)

### 4.4.3 Finance

#### Allowed base Opex

The CER have taken the mid-point of the normalised cost range (c. €4.1m - €5.0m per annum) as a proposed base Opex level which is broadly consistent with the 2015/16 outturn level but below the 2016/17 forecast expenditure (excluding Group & Shared Service allocations).

#### Allowed step-up/ down Opex items

The following step-up/down Opex items have been taken into account when setting allowances:

- Increases in insurance rates and premiums
- Reduction in finance function people costs to reflect lower projected people costs in GNI's submission during PC4.
GNI face additional costs from acting as a subsidiary which were previously undertaken at the Ervia Group level or within the Bord Gáis Group. This includes credit rating agency fees, legal advice, costs related to the Euro Medium Term Note (EMTN) programme, statutory audit fees and administrative pension fees.

Overall proposal

The proposed adjustments derive an Opex trend as illustrated in Figure 4.12 below.

![Finance Opex Trend](image)

**Figure 4.12: Finance Opex Trend**

4.4.4 HR

Allowed base Opex

GNI states that it expects HR headcount to remain flat in PC4. The CER have used the mid-point of the normalised cost range (c. €0.7m - €0.9m per annum) as the adopted base level of Opex for the HR function in PC4.

Allowed step-up/ down Opex items

The following step-up/down Opex items have been taken into account when setting allowances:

- Additional initiatives (e.g. learning and Development programme)
Overall proposal

The proposed adjustments derive an Opex trend as illustrated in Figure 4.13 below.

![HR Opex Trend](image)

**Figure 4.13: HR Opex Trend**

### 4.4.5 Facilities

**Allowed base Opex**

GNI have stated that they expect increases in facilities Opex during PC4 because there will be an increase in costs due to rent renewal as well as increases in a series of other facilities contracts that will be up for renewal. Overall the CER considers that this function appears to be operating close to business as usual. As such, the CER have used the mid-point of the normalised cost range (c. €1.8m - €2.2m per annum) to establish a base level of expenditure for PC4.

**Allowed step-up/ down Opex items**

The following step-up/down Opex items have been taken into account when setting allowances:
Further step-up adjustments for changes in establishment costs and the expected rent increases in PC4, i.e. buildings and equipment maintenance, power and equipment, and rental expenditure.

**Overall proposal**

The proposed adjustments derive an Opex trend as illustrated in Figure 4.14 below.

**Figure 4.14: Facilities Opex Trend**

### 4.5 IT Opex

GNI stated that the PC3 Capex projects would deliver €6.4m of Opex benefits realisation and the CER notes the links between Capex and Opex in investment decisions. GNI is requesting an increase of 35% in IT Opex in PC4 relative to PC3 IT Opex actual spend.

The reasons explaining increased IT Opex, have not been individually quantified and therefore are difficult for the CER and its advisors to validate. In addition, Opex benefits to be realised as a result of PC4 ICT Capex projects have not been quantified in GNI’s submission and it is unclear what assumptions have been made or whether these Opex benefits have been factored into the submission. Without this information it is difficult to justify the level of increase requested. The CER and its advisors have as consequence built up
recommendations for GNI IT Opex using a benchmarking methodology that compares GNI to utility peer groups and IT expenditure by the GB GDNs.

Based on a benchmark of GNI's IT Opex spend as a percentage of total expenditure, the analysis indicates that GNI on average is forecasting to spend 9% more on IT Opex during PC4 than their peers. The corresponding figure for PC3 was also 9%.

The CER proposes that GNI be encouraged to reduce the variance between their requested IT Opex spend and industry averages in a linear fashion over the 5-year period. However, given uncertainties around the benchmarking analysis and specific factors potentially impacting on GNI IT spend during PC4 the most conservative benchmark has been applied. By decreasing the forecasted IT Opex over time GNI's year-on-year IT Opex would be brought closer in line with its peers at the end of PC4. This gradual approach would result in an overall 5.9% reduction in GNI's requested total PC4 IT Opex spend. This adjustment would correspond to a PC4 IT Opex allowance (TBU and DBU combined) of €71.9M. The CER's proposal on transmission Opex relative to PC3 trends and GNI's PC4 request are illustrated in Figure 4.15 below.

![Figure 4.15: IT Opex Trend](image-url)
4.6 Adjustment to bottom-up analysis

As described in section 4.1, there is an ongoing efficiency adjustment made to the bottom-up assessment of Opex. This adjustment factor is compounded each year over the five year life of the PC4 control.

The CER and its advisors carried out an analysis of net ongoing efficiency, concluding that there was a basis for a range of efficiency factors between 0.5% and 3.0% per annum. GNI’s proposed ongoing efficiency factor of 0.5% p.a. is at the lower bound of this range and regulators have previously tended to select a conservative value from the range of plausible estimates. Alternatively, a more challenging efficiency factor in excess of 1% p.a. can be justified in light of strong productivity growth observed in the electricity, gas and water supply sector.

Given this the CER proposes a 1.0% annual ongoing efficiency assumption, consistent with the precedent of the ongoing efficiency challenge that that CER adopted for GNI at the PC3 review. This strikes a balance of taking a relatively conservative view from within the derived range, whilst still challenging GNI to improve its ongoing efficiency during PC4.

4.7 Innovation (GNI €25.0m; CER €17.5m)

GNI has requested €25.0m of innovation funding during PC4 for transmission and distribution. This inclusive of the funding already included in the CER decision on the Causeway Study (€12.83m)\(^{19}\) which will fund the roll-out of a number of CNG stations during PC4. The request is split 90/10 transmission and distribution respectively.

The request includes a request for funding for biogas purification, power-to-gas, low carbon heating solutions and carbon capture and storage projects, as well as research and programme management funding.

In developing a proposal for innovation Opex in PC4, the CER considered regulatory precedent of percentage of allowed innovation funding within allowed revenues, and the

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\(^{19}\) CER (2016) Compressed Natural Gas Funding Request, Decision Paper, CER16/313.
submission on innovation in GNI’s further detail can be found in the CEPA report which is published alongside this paper.

4.7.1 Overall assessment

As part of the Causeway funding decision, the CER noted that there would need to be exceptional circumstances to justify an increase in the innovation fund above the €12.83m allowed over PC4 for the Causeway Study. However, given the investment that has been made in establishing innovation activities, the CER is of the view that it is appropriate to provide GNI with some funding provision to maintain these activities in PC4.

Given the above, the CER recommends that there should be an additional €0.5m in total (i.e. €100k per annum) of innovation funding provided by the CER for programme management in addition to the €12.83m allowance already set out in the Causeway Study decision. This funding would be used to maintain the innovation framework developed at PC3 and support funding for GNI to obtain grants and other sources of funding for supporting innovation initiatives during PC4 e.g. energy research funding at EU level.

In addition, one of the features of the PC3 innovation fund has been the ability of GNI to leverage research funding with other organisations. We would recommend including a further €1.0m in total for research (i.e. €200k per annum).

The CER propose an innovation funding allowance of €17.5m over PC4 inclusive of the €12.83m allowed as part of the Causeway Study. Using CER’s proposed transmission and distribution allowed revenues in PC4 this would imply innovation funding in PC4 of 0.9% of allowed revenue. This will include a provision for project management, research and a small number of strategic projects in addition to the existing allowance for the Causeway study.

An innovation allowance of €17.5m will provide GNI with the ability to examine alternative uses for the natural gas grid as Ireland moves to a decarbonised economy by 2050.

- The CER will ensure that GNI report annually on the outputs of the innovation funding and the benefits to customers. The CER will advise GNI that the use of the innovation allowance is to leverage rather than fully fund innovation projects and that GNI should be more proactive in securing funding from other sources.
4.8 Pass-through costs (CER €92.5m)

As previously discussed, pass-through costs no longer include Gaslink, which is included in business support service costs.

The Transmission business is relatively limited in terms of the number of pass-through line items relative to Distribution. Regulatory levies and CO2 items are subject to full pass-through, while the item subject to incentives is rates. The CER have proposed changes in the treatment of rates so that GNI will now retain 25% of any outperformance or underperformance (previously 50%). Further information on incentives and rates is contained within Chapter 9 of this report. Table 4.6 below summarises the CER’s pass-through proposals.

During PC3, the CER have monitored these line items on an annual basis and have updated the forecast estimates accordingly for tariff setting purposes. This process will continue during the PC4 control.

Table 4.6: PC4 proposal – Pass-through Opex (€'000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2</td>
<td>212</td>
<td>238</td>
<td>280</td>
<td>316</td>
<td>281</td>
<td>1,327</td>
</tr>
<tr>
<td>CER levy</td>
<td>1,246</td>
<td>1,246</td>
<td>1,246</td>
<td>1,246</td>
<td>1,246</td>
<td>6,230</td>
</tr>
<tr>
<td>Rates</td>
<td>16,980</td>
<td>16,980</td>
<td>16,980</td>
<td>16,980</td>
<td>16,980</td>
<td>84,898</td>
</tr>
<tr>
<td>Total</td>
<td>18,437</td>
<td>18,464</td>
<td>18,506</td>
<td>18,542</td>
<td>18,507</td>
<td>92,455</td>
</tr>
</tbody>
</table>
4.9 Summary

This chapter of the report has reviewed the forecast Opex across the different business functions. The bottom-up assessment has been undertaken at an expenditure category/business function level.

This was based on a detailed review of GNI’s business plan for PC4 and analysis of how GNI’s forecast Opex in PC4 compares to the normalised costs/run rates of actual expenditure incurred by individual business functions during PC3. The CER has then considered whether there is supporting rationale for increasing or decreasing allowed Opex in PC4 relative to reported PC3 normalised costs/run rates. Drawing together the findings from this evidence the CER has then applied an ongoing efficiency adjustment.

Figure 4.16 below illustrates the overall trend in expenditure of controllable Opex. This illustrates that the proposals do reflect a significant step-up in allowed expenditure relative to PC3. This occurs mostly in the areas of Asset Operations (maintenance) and Regulatory and Corporate Services (implementing growth strategy).

The CER recognises that the deferral of some non-essential work took place during PC3 as a result of the economic climate at the time and the need to reduce expenditure. The CER
accepts that there is now a requirement for some of this work to take place. This work combined with the challenges highlighted by GNI (e.g. aging asset base) has led to the CER developing the view that it is necessary to allow a PC4 allowance above the PC3 outturn.

However, the CER has not allowed the full work programme requested by GNI which is reflected in the CER’s proposed allowance being 10% lower than GNI’s request. As highlighted by Figure 4.1 the areas of Operations (more specifically asset operations) and Innovation have seen the greatest reductions. When combined these reductions make up nearly three quarters of the difference between the CER’s proposal and GNI’s request.

The CER has proposed a lower Innovation allowance than GNI’s request for a number of reasons. Firstly the allowance for PC3 was €8.5m, therefore, the PC4 allowance of €17.5m provides an increase of over 100%. In addition, this allowance is 0.9% of total revenues, which is in line with that provided by Ofgem in its RIIO-GD1 decision and therefore this decision also incorporates an element of regulatory stability. Finally, with regard to Innovation funding the CER aim to ensure that the money invested by the Irish gas consumer is worthwhile and there is a strategy in place for how the investment would lead to benefits. By limiting the Innovation allowance the CER hopes that GNI will only choose the projects that best meet the objectives of the innovation fund.

4.10 Request for comment

Parties are invited to comment on the matter set out in this section, including the key proposals which relate to:

4A. The total operational expenditure allowance for PC4.

4B. The CER’s proposed Innovation allowance.

4C. The ongoing efficiency applied to the transmission business’ operational costs for PC4.

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
This chapter describes the capital spend or expenditure (called Capex) of GNI for the last 5 years (the PC3 period). The capital expenditure represents the money that GNI spent to build new pipelines and other equipment or replace or refurbish existing pipelines and equipment. This expenditure was made so that the transmission system could safely and securely continue to transport gas to existing and new customers.

It outlines the ways in which CER examines the Capex costs breaking them down under various different headings for the different equipment that GNI install or purchase.

It outlines that when customers pay a contribution towards the cost of a new connection these costs are removed from the total cost of the works. This way the allowance that the CER set reflects GNI’s actual spend.

It details the incentives that are in place to increase efficient capital expenditure. When GNI come under the budget on a project or justifiably avoid carrying out a project in its entirety they receive a financial reward. When GNI go over budget, but can justify and explain the increase, the increase is allowed but there is a small penalty applied (to encourage more accurate budgeting). It is also possible that some spend might be disallowed because it was not spent efficiently, in which case GNI would suffer the loss of that money, although spend of this type did not occur in the PC3 review period.

Finally the section notes that while GNI spent significantly more that had been budgeted for, this was in large part due to a decision that was made that was made in the middle of the price control to build a new gas pipeline (and so had not been in the original budget).

The CER set an allowed Capex spend of €174m for the transmission business during the PC3 period. GNI’s outturn for the same period net customer contributions was €222m. The CER reviewed this spend in detail to assess if it had been incurred efficiently while delivering the outputs agreed at the last determination in order to set the actual outturn.

The transmission business has overspent by €36 million. Key features of the outturn and over-spend are highlighted by Table 5.1 and Table 5.2 below. All costs presented below are
in real 2015/2016 values and are rounded where appropriate. The narrative included within sections 5.2 to 5.4 below further detail spend across the various Capex categories.

Table 5.1: PC3 outturn – transmission Capex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Capex</td>
<td>19,762</td>
<td>29,065</td>
<td>36,448</td>
<td>27,609</td>
<td>55,010</td>
<td>86,800</td>
<td>254,695</td>
</tr>
<tr>
<td>IT Capex</td>
<td>3,604</td>
<td>3,320</td>
<td>2,425</td>
<td>5,382</td>
<td>5,050</td>
<td>5,224</td>
<td>25,005</td>
</tr>
<tr>
<td>Other non-pipe</td>
<td>754</td>
<td>816</td>
<td>468</td>
<td>541</td>
<td>1,374</td>
<td>1,130</td>
<td>5,083</td>
</tr>
<tr>
<td><strong>Total outturn (gross)</strong></td>
<td>24,120</td>
<td>33,201</td>
<td>39,340</td>
<td>33,532</td>
<td>61,434</td>
<td>93,154</td>
<td>284,782</td>
</tr>
<tr>
<td>Contributions</td>
<td>-519</td>
<td>-1,066</td>
<td>-1,851</td>
<td>-4,173</td>
<td>-7,535</td>
<td>-24,277</td>
<td>-39,420</td>
</tr>
<tr>
<td><strong>Total outturn (net)</strong></td>
<td>23,601</td>
<td>32,136</td>
<td>37,490</td>
<td>29,360</td>
<td>53,899</td>
<td>68,877</td>
<td>245,362</td>
</tr>
<tr>
<td>Allowance (net)</td>
<td>36,012</td>
<td>42,188</td>
<td>37,717</td>
<td>34,010</td>
<td>32,679</td>
<td>27,121</td>
<td>209,728</td>
</tr>
</tbody>
</table>

Note: The inclusion of the final year of PC2, 2011/12 stems from the fact that the outturn values were not known at the time of the PC3 determination.

Table 5.2: PC3 variance – transmission Capex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Capex</td>
<td>-11,546</td>
<td>-9,121</td>
<td>890</td>
<td>-2,240</td>
<td>18,264</td>
<td>38,155</td>
<td>34,403</td>
</tr>
<tr>
<td>IT Capex</td>
<td>-394</td>
<td>-870</td>
<td>-998</td>
<td>-2,245</td>
<td>2,255</td>
<td>2,976</td>
<td>724</td>
</tr>
<tr>
<td>Other non-pipe</td>
<td>-471</td>
<td>-62</td>
<td>-119</td>
<td>-166</td>
<td>700</td>
<td>625</td>
<td>508</td>
</tr>
<tr>
<td><strong>Total outturn (gross)</strong></td>
<td>-12,411</td>
<td>-10,053</td>
<td>-227</td>
<td>-4,651</td>
<td>21,220</td>
<td>41,756</td>
<td>35,634</td>
</tr>
<tr>
<td>Contributions</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total outturn (net)</strong></td>
<td>-12,411</td>
<td>-10,053</td>
<td>-227</td>
<td>-4,651</td>
<td>21,220</td>
<td>41,756</td>
<td>35,634</td>
</tr>
</tbody>
</table>

Note: The inclusion of the final year of PC2, 2011/12 stems from the fact that the outturn values were not known at the time of the PC3 determination.

### 5.1 Methodology

#### 5.1.1 PC3 incentive framework

Under PC3 regulatory arrangements, GNI is rewarded for making savings against its Capex allowances. Tariffs were set at the start of PC3, on the basis of an opening RAB value, together with a stream of project Capex figures (set out in the PC3 decision) for capital works projects and programmes approved by the CER.
In general terms, where GNI is able to achieve a saving compared to its project investment allowance, then it would be allowed to earn the rate of return plus a depreciation payment on the expenditure saved. It would retain this benefit for five years, at which point the notional RAB and depreciation payments are recalculated on the basis of the actual investments. The Capex incentive is thus a rolling incentive mechanism.

The CER supplemented this regime with specific guidance in the PC3 determination on how it would approach assessing under and over spends of Capex. This included cases where GNI may have achieved efficiency savings, but also cases where specific projects were not carried out or deferred, or GNI exceeded the allowance for the project / programme.

5.1.2 PC3 clawback

Unlike with PC3 Opex, there is a potential revenue impact from Capex over- or under-spends due to the incentive framework, the CER is required to make an assessment of the reasons why Capex outturn has differed from the allowance initially provided. This review includes the final year of PC2 Capex, which was not known at the time of the PC3 determination when a forecast figure was used.

Our assessment mechanism for the Capex incentive is based on a two-step approach;

**Step 1: establish work quantities and unit costs**

Firstly, the CER and its advisors draw upon the information presented by GNI to establish the following:

- The quantity of work anticipated when the PC3 allowances were set;
- If more work (or an equal amount) is delivered than the allowance anticipated;
  - The quantity of work delivered up to the quantity anticipated by the allowance;
  - The additional quantity of work justified which is above the allowance quantity;
- If less work is delivered than anticipated by the allowance;
  - The quantity of work delivered;
  - The quantity of work deferred (not exceeding the allowance amount, less the quantity delivered).
Step 2: establish the appropriate adjustments to the financial allowance

There are a number of categories for assessing PC3 Capex. The CER make an assessment of the work efficiently delivered and efficiently deferred to establish the appropriate adjustment to the financial allowance, by reference to the corresponding rate or amounts at the time of setting the PC3 allowance, to produce a Revised Allowance.

This assessment leads to one of two variance scenarios between the expenditure incurred and the adjusted allowance; an underspend or an overspend.

All of the expenditure that has been categorised as Unfinanced Overspend, can be summarised as instances where GNI delivered a volume of work at a higher unit cost than was assumed at the time of the PC3 determination, but in the view of the CER and its advisors there is no justification for why the operator exceeded the allowed unit rate.

As was the case in the previous two price controls, outturn analysis, for expenditure that falls within Unfinanced Overspend category, the CER will not remunerate GNI for financing these higher capex costs in PC3, but the actual capex incurred will be included in the starting RAB for PC4.

5.1.3 Summary of assessment

Table 5.3 below shows the assessment of PC3 Capex using this methodology.

Table 5.3: Assessed PC3 Capex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Efficient Spend</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipe Capex</td>
<td>215,274</td>
<td>150,017</td>
</tr>
<tr>
<td>IT Capex</td>
<td>25,005</td>
<td>25,005</td>
</tr>
<tr>
<td>Other non-pipe</td>
<td>5,083</td>
<td>5,083</td>
</tr>
<tr>
<td><strong>Total (gross)</strong></td>
<td><strong>245,362</strong></td>
<td><strong>180,105</strong></td>
</tr>
<tr>
<td>Contributions</td>
<td>-39,420</td>
<td></td>
</tr>
<tr>
<td><strong>Total (net)</strong></td>
<td><strong>205,942</strong></td>
<td><strong>140,685</strong></td>
</tr>
</tbody>
</table>
5.2 Pipe Capex (allowance €220.3m; outturn €254.7m)

GNI reported net expenditure of €215m against an allowance of €181m, a breakdown of these figures into the main categories, Inch, Interconnector, Onshore Network Development, and Onshore Refurbishment/ Upgrade is shown in Table 5.4.

Table 5.4: PC3 outturn – transmission pipe Capex (€’000s)

<table>
<thead>
<tr>
<th>Category</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inch</td>
<td>37</td>
<td>115</td>
<td>139</td>
<td>824</td>
<td>1,620</td>
<td>952</td>
<td>3,687</td>
</tr>
<tr>
<td>Interconnector Repex</td>
<td>3,233</td>
<td>1,633</td>
<td>983</td>
<td>6,238</td>
<td>8,322</td>
<td>7,603</td>
<td>28,011</td>
</tr>
<tr>
<td>Interconnector Reinforcement</td>
<td>-</td>
<td>-</td>
<td>146</td>
<td>96</td>
<td>-</td>
<td>153</td>
<td>395</td>
</tr>
<tr>
<td>Onshore Network Dev. - CNG</td>
<td>7</td>
<td>35</td>
<td>391</td>
<td>6</td>
<td>14</td>
<td>-</td>
<td>454</td>
</tr>
<tr>
<td>Onshore Network Dev. - Diversion</td>
<td>18</td>
<td>276</td>
<td>2,178</td>
<td>423</td>
<td>50</td>
<td>-</td>
<td>2,945</td>
</tr>
<tr>
<td>Onshore Network Dev. - New Connections</td>
<td>1,591</td>
<td>3,111</td>
<td>4,381</td>
<td>-90</td>
<td>1,856</td>
<td>1,480</td>
<td>12,329</td>
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<tr>
<td>Onshore Network Dev. - Reinforcement</td>
<td>2,977</td>
<td>5,155</td>
<td>9,012</td>
<td>1,691</td>
<td>1,185</td>
<td>1,760</td>
<td>21,780</td>
</tr>
<tr>
<td>Onshore Network Dev. - Twinning</td>
<td>906</td>
<td>152</td>
<td>287</td>
<td>358</td>
<td>20,189</td>
<td>28,779</td>
<td>50,671</td>
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<tr>
<td>Onshore Repex</td>
<td>4,056</td>
<td>4,677</td>
<td>7,771</td>
<td>7,557</td>
<td>10,780</td>
<td>14,277</td>
<td>49,117</td>
</tr>
<tr>
<td>Onshore: System Upgrades</td>
<td>6,418</td>
<td>12,846</td>
<td>9,308</td>
<td>6,335</td>
<td>3,460</td>
<td>7,518</td>
<td>45,885</td>
</tr>
<tr>
<td>Total (net)</td>
<td>19,243</td>
<td>27,999</td>
<td>34,597</td>
<td>23,437</td>
<td>47,475</td>
<td>62,523</td>
<td>215,274</td>
</tr>
<tr>
<td>Contributions</td>
<td>519</td>
<td>1,066</td>
<td>1,851</td>
<td>4,173</td>
<td>7,535</td>
<td>24,277</td>
<td>39,420</td>
</tr>
<tr>
<td>Total (gross)</td>
<td>19,762</td>
<td>29,065</td>
<td>36,448</td>
<td>27,609</td>
<td>55,010</td>
<td>86,800</td>
<td>254,695</td>
</tr>
<tr>
<td>Allowance (gross)</td>
<td>31,308</td>
<td>38,186</td>
<td>35,557</td>
<td>29,849</td>
<td>36,746</td>
<td>48,645</td>
<td>220,292</td>
</tr>
</tbody>
</table>

The following sections provide information on spend within some key areas. Additional details surrounding this spend can be found within the CER’s consultant’s (CEPA) reports.
5.2.1 Inch
GNI indicated at the time of the PC3 submission, that with the expected closure of the Kinsale field, the Midleton compressor station would terminate operating in 2014/15, subsequently during the PC3 period, KEL, the field operator, stated their intention to remain in operation until at least 2021.

The planned work and allowance requested for the PC3 period reflected the original assumption and with the revised end date GNI indicated that additional investment of €0.32m was required to keep Midleton Compressor Station operational until 2021, this variance will be treated as Financed Overspend.

Table 5.5 below provides a summary of Capex for this category of spend over the review period.

<table>
<thead>
<tr>
<th>Table 5.5: Assessed PC3 Capex – Inch (€’000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Table 5.5: Assessed PC3 Capex – Inch (€’000s)" /></td>
</tr>
</tbody>
</table>

5.2.2 Onshore Network Development - CNG
GNI indicated that they were granted a carryover allowance from PC2 to construct a fast-fill CNG refuelling station at Gasworks Road, Cork. The station was developed as planned and is in ongoing use for refuelling a number of Gas Networks Ireland vans and a Celtic Linen trial vehicle and GNI indicated that the full allowance was not required to complete the project, the difference (€129k) will be taken back by the CER.

Table 5.6 below provides a summary of Capex for this category of pipe Capex.

<table>
<thead>
<tr>
<th>Table 5.6: Assessed PC3 Capex – Onshore network development CNG (€’000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Table 5.6: Assessed PC3 Capex – Onshore network development CNG (€’000s)" /></td>
</tr>
</tbody>
</table>

![CER Logo](image)
5.2.3 Onshore Network Development – New Connections

The allowance for this category covered expenditure to extend the transmission network to connect new towns as well as large industrial and commercial customers. There was an underspend on the overall allowance which was primarily due to lower than expected industrial and commercial new connections, however with the exception of Glanbia and New Towns Phase 3, expenditure on the other projects exceeded the allowance.

Table 5.7: Assessed PC3 Capex – Onshore network development New Connections (€'000s)

<table>
<thead>
<tr>
<th>Description</th>
<th>Actual</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Efficient Spend</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overspend</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unfinanced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Efficient Saving</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deferred Work</td>
</tr>
<tr>
<td>Binney AGI to Macroom New Town</td>
<td>1,645</td>
<td>1,092</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>552</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Cootehill New Town</td>
<td>2,000</td>
<td>1,534</td>
</tr>
<tr>
<td></td>
<td></td>
<td>466</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Glanbia</td>
<td>3,752</td>
<td>3,752</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>217</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Large I&amp;C Connections</td>
<td>1,601</td>
<td>1,601</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Listowel &amp; Foynes Trans032</td>
<td>1,200</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>New Towns Phase 3</td>
<td>189</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Wexford New Town</td>
<td>1,942</td>
<td>1,154</td>
</tr>
<tr>
<td></td>
<td></td>
<td>240</td>
</tr>
<tr>
<td></td>
<td></td>
<td>548</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>12,329</td>
<td>9,323</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,906</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>218</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

5.2.4 Onshore Network Development – Twinning

GNI is currently constructing the remaining 50km of transmission pipeline to complete the onshore section of the second interconnector linking the Irish gas network and National Grid (UK) transmission systems. The project aims to address security of supply concerns and by adding this remaining section it will fully complete a dual pipeline system between Ireland and the United Kingdom.

The allowance for PC3 was granted to progress the planning of this project. An additional allowance was not granted in PC3 to fund the Twinning design and construction works when the project was subsequently approved. A decision was made that cost recovery for the residual Twinning expenditure would be made as an adjustment to revenue requirements in PC4.
Work appears to have delivered the intended objectives at an appropriate cost and the CER have concluded that €48.8m of the total expenditure should be assessed as Financed Overspend. Table 5.8 below summaries the outturn for this category of pipe Capex:

### Table 5.8: Assessed PC3 Capex – Onshore network development Twinning (€’000s)

<table>
<thead>
<tr>
<th>Actual</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Efficient Spend</td>
</tr>
<tr>
<td>Twinning</td>
<td>50,671</td>
</tr>
</tbody>
</table>

#### 5.2.5 Onshore – Repex

Onshore refurbishment/replacement (Repex) covers the range of projects. GNI has a maturing gas network with elements now reaching end of life and requiring appropriate interventions in order to continue to operate safely and reliably. This is reflected in the increase in replacement and refurbishment programmes carried out during PC3. Table 5.9 below illustrates outturn Capex for Onshore - Repex.

### Table 5.9: Assessed PC3 Capex – transmission pipe Capex; Onshore system upgrades (€’000s)

<table>
<thead>
<tr>
<th>Actual</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Efficient Spend</td>
</tr>
<tr>
<td>Total</td>
<td>49,117</td>
</tr>
</tbody>
</table>

#### 5.2.6 Onshore – System Upgrades

Table 5.10 below provides a summary of Capex for this category of spend over the review period. This category involves work to improve safety, security, adherence to new codes and standards and deliver required engineering improvements and covers a range of project areas listed in the CEPA documents. Overall actual expenditure was €12.7m less than the allowance of €58.6m, and the majority of projects show a negative variance.

### Table 5.10: Assessed PC3 Capex – Onshore system upgrades (€’000s)

<table>
<thead>
<tr>
<th>Actual</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Efficient Spend</td>
</tr>
<tr>
<td>Total</td>
<td>45,885</td>
</tr>
</tbody>
</table>
5.3 IT Capex (allowance €24.3m; outturn €25.0m)

GNI underspent on Capex significantly in the first three years of the regulatory period, with backloading in the final two years. From a review of GNI’s submissions the CER and its advisors are of the view that the delays to the project do appear reasonable and GNI remained within the Capex allowance for the period. Table 5.11 below illustrates outturn Capex for IT on transmission.

<table>
<thead>
<tr>
<th>Category</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17f</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outturn</td>
<td>3,604</td>
<td>3,320</td>
<td>2,425</td>
<td>5,382</td>
<td>5,050</td>
<td>5,224</td>
<td>25,005</td>
</tr>
<tr>
<td>Allowance</td>
<td>3,998</td>
<td>4,190</td>
<td>3,424</td>
<td>7,627</td>
<td>2,795</td>
<td>2,248</td>
<td>24,281</td>
</tr>
</tbody>
</table>

5.4 Other non-pipe Capex (allowance €4.6m; outturn €5.1m)

Other non-pipe Capex covers investment in GNI’s property and facilities services, together with their fleet of vehicles and associated equipment. Allowances were granted in transmission and distribution for the upkeep of buildings and fleet. GNI anticipate spending in-line with this allowance over PC3 as highlighted in Table 5.12.

<table>
<thead>
<tr>
<th>Category</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outturn</td>
<td>754</td>
<td>816</td>
<td>468</td>
<td>541</td>
<td>1,374</td>
<td>1,130</td>
<td>5,083</td>
</tr>
<tr>
<td>Allowance</td>
<td>1,225</td>
<td>878</td>
<td>587</td>
<td>707</td>
<td>673</td>
<td>505</td>
<td>4,575</td>
</tr>
</tbody>
</table>

5.5 Recovery of ITO setup costs

As previously stated, in December 2011, the Statutory Instrument which transposed the European Union’s Third Gas Package into Irish Law and implemented the requirements for the ITO to be established in Ireland was issued. At that time, it was envisaged that the new ITO business would be an independent subsidiary of Bord Gáis Éireann and would involve the integration of Gaslink (as the network operator at that time) into the new ITO business. The CER provided ITO setup costs to support the creation of the new ITO business. ITO setup costs totalling €15.4m were entered into the Transmission Business’ RAB in 2011.
However, the Minister for Public Expenditure and Reform announced the Government’s intention to proceed with the sale of Bord Gáis Energy this led to an Ownership Unbundling option being sought under the Third Package rather than an ITO model. The CER provided ITO setup costs in order to fund the establishment of a separate ITO entity. These setup costs therefore contributed to the value of the separate entity (Bord Gáis Energy). As with any asset on the RAB, the CER must remove the asset from the RAB at the point of its sale. This has led to the CER removing ITO setup costs from the RAB in 2014, the year of the Bord Gáis Energy sale, and therefore treating them as a disposal of an asset.

5.6 Summary

This chapter of the report has reviewed the outturn Capex for PC3 and examined spend within a selection of categories. The historical review of Capex spend during PC3 provides a baseline against which the PC4 profile of Capex spend and work programmes can be compared.

The capital investment in PC3 has delivered a programme of work including the connection of new towns and customers, refurbishing and replacing end-of-life assets, reinforcing the onshore and interconnector network.

Although the PC3 outturn was significantly above the PC3 allowance, the substantial overspend (deemed necessary by the CER and its advisors) was largely a result of the Twinning project onshore in Scotland.

The removal of Twinning from the outturn spend results in a Capex spend of €173m which is below the allowance of €174m. GNI state that they prioritised projects to manage spend within the overall cap, and delivered efficiencies. Therefore, the CER considers that GNI has been prudent in spending below the enduring level of capital expenditure.

Finally, the CER have proposed to remove ITO setup costs from the RAB due to the sale of Bord Gáis Energy in 2014 as described in section 5.5.
### 5.7 Request for comment

Parties are invited to comment on the matter set out in this section, including the key proposals which relate to:

**5A.** The review of the PC3 capital expenditure and the CER’s proposals for efficiency savings.

**5B.** The removal of ITO setup costs from the RAB due to the sale of BGE.

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
This chapter describes the forecast capital spend or expenditure (Capex) of GNI for the next 5 years (the PC4 period covering 2017 to 2022). The capital expenditure represents the money that GNI expects to spend to build new pipelines and other equipment or replace or refurbish existing pipelines and equipment. Money spent on replacing and refurbishing existing equipment is sometimes called Repex. The capital expenditure is made so that the transmission system can continue to safely and securely transport gas to existing and new customers.

It outlines the ways in which CER examines the Capex costs breaking them down under various different headings for the different equipment that GNI install or purchase.

It describes what GNI requested under the various headings and what CER is proposing under these headings, explaining the differences. One of the ways it does this is by comparing the proposed spend under these headings for the next period (PC4) with the actual spend over the last period (PC3).

GNI have requested a total Capex allowance of €270m during PC4, which is €35m higher than the CER’s proposed allowance (15% variance) as highlighted in Table 6.1. A breakdown of the Capex spend into categories is presented in Table 6.1 to Table 6.3 below. All costs presented below are in real 2015/2016 values and are rounded where appropriate.

<table>
<thead>
<tr>
<th>Table 6.1: PC4 proposed– transmission total Capex (€’000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC3 Outturn (net)</td>
</tr>
<tr>
<td>PC4 Proposed (net)</td>
</tr>
<tr>
<td>PC4 GNI request (net)</td>
</tr>
<tr>
<td>PC4 Variance</td>
</tr>
</tbody>
</table>
Table 6.2: PC4 proposed – transmission Capex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Capex</td>
<td>47,775</td>
<td>52,573</td>
<td>43,016</td>
<td>33,937</td>
<td>40,285</td>
<td>217,587</td>
</tr>
<tr>
<td>IT Capex</td>
<td>4,415</td>
<td>3,821</td>
<td>4,761</td>
<td>4,763</td>
<td>4,420</td>
<td>22,180</td>
</tr>
<tr>
<td>Other non-pipe</td>
<td>973</td>
<td>1,010</td>
<td>3,029</td>
<td>3,058</td>
<td>2,322</td>
<td>10,392</td>
</tr>
<tr>
<td><strong>Total (gross)</strong></td>
<td>53,163</td>
<td>57,404</td>
<td>50,806</td>
<td>41,758</td>
<td>47,027</td>
<td>250,159</td>
</tr>
<tr>
<td>Contributions</td>
<td>-6,685</td>
<td>-4,424</td>
<td>-1,793</td>
<td>-1,193</td>
<td>-513</td>
<td>-14,609</td>
</tr>
<tr>
<td><strong>Total (net)</strong></td>
<td>46,477</td>
<td>52,980</td>
<td>49,013</td>
<td>40,565</td>
<td>46,514</td>
<td>235,550</td>
</tr>
</tbody>
</table>

Table 6.3: PC4 variance – transmission Capex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Capex</td>
<td>-2,782</td>
<td>-6,023</td>
<td>-6,266</td>
<td>-8,421</td>
<td>-6,715</td>
<td>-30,208</td>
</tr>
<tr>
<td>IT Capex</td>
<td>-128</td>
<td>-227</td>
<td>-438</td>
<td>-603</td>
<td>-721</td>
<td>-2,118</td>
</tr>
<tr>
<td>Other non-pipe</td>
<td>-156</td>
<td>-240</td>
<td>-928</td>
<td>-899</td>
<td>-678</td>
<td>-2,900</td>
</tr>
<tr>
<td><strong>Total (gross)</strong></td>
<td>-3,065</td>
<td>-6,491</td>
<td>-7,631</td>
<td>-9,923</td>
<td>-8,114</td>
<td>-35,225</td>
</tr>
<tr>
<td>Contributions</td>
<td>41</td>
<td>41</td>
<td>123</td>
<td>122</td>
<td>81</td>
<td>408</td>
</tr>
<tr>
<td><strong>Total (net)</strong></td>
<td>-3,024</td>
<td>-6,450</td>
<td>-7,508</td>
<td>-9,801</td>
<td>-8,034</td>
<td>-34,817</td>
</tr>
</tbody>
</table>

The allowances have been broken down further and linked to projects or a broader overall programme in setting allowances. A summary of the differences between the proposals and GNI’s request for each of the key areas of the Capex assessment is shown in Figure 6.1. The illustrated percentages show the implied percentage reduction of the CER’s proposal relative to GNI’s request for different areas of transmission Capex. The largest difference between the proposal and GNI’s request is in Onshore Network Development where a 24% reduction has been proposed relative to the GNI request, see section 6.1.5.
The following sections provide information on spend within some key areas. Additional details surrounding this spend can be found within the CER’s advisors' (CEPA) reports.
6.1 Pipe Capex (GNI €232.8m; CER €203.0m)

Table 6.4 below provides a summary of Capex proposals for pipe Capex over PC4. GNI has requested transmission pipe Capex of €232.78m. Following review, the CER have proposed a total of €202.98m.

Table 6.4: PC4 proposed – transmission pipe Capex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inch</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,020</td>
<td>4,080</td>
<td>5,100</td>
</tr>
<tr>
<td>Interconnector Repex</td>
<td>5,503</td>
<td>6,618</td>
<td>7,062</td>
<td>3,160</td>
<td>2,021</td>
<td>24,364</td>
</tr>
<tr>
<td>Interconnector System Upgrades</td>
<td>3,248</td>
<td>6,971</td>
<td>2,977</td>
<td>4,582</td>
<td>12,644</td>
<td>30,423</td>
</tr>
<tr>
<td>Onshore Network Dev. - New Connections</td>
<td>821</td>
<td>1,400</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2,221</td>
</tr>
<tr>
<td>Onshore Network Dev. - Reinforcement</td>
<td>2,735</td>
<td>7,735</td>
<td>7,400</td>
<td>2,400</td>
<td>2,400</td>
<td>22,670</td>
</tr>
<tr>
<td>Onshore Network Dev. - Renewable Gas</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Onshore Network Dev. - Twinning</td>
<td>8,635</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8,635</td>
</tr>
<tr>
<td>Onshore Network Dev. - Repex</td>
<td>12,281</td>
<td>12,666</td>
<td>13,606</td>
<td>11,943</td>
<td>10,277</td>
<td>60,773</td>
</tr>
<tr>
<td>Onshore System Upgrades</td>
<td>7,867</td>
<td>12,759</td>
<td>10,179</td>
<td>9,639</td>
<td>8,350</td>
<td>48,793</td>
</tr>
<tr>
<td><strong>Total (net)</strong></td>
<td><strong>41,089</strong></td>
<td><strong>48,149</strong></td>
<td><strong>41,223</strong></td>
<td><strong>32,744</strong></td>
<td><strong>39,772</strong></td>
<td><strong>202,978</strong></td>
</tr>
<tr>
<td>Contributions</td>
<td>6,685</td>
<td>4,424</td>
<td>1,793</td>
<td>1,193</td>
<td>513</td>
<td>14,609</td>
</tr>
<tr>
<td><strong>Total (gross)</strong></td>
<td><strong>47,775</strong></td>
<td><strong>52,573</strong></td>
<td><strong>43,016</strong></td>
<td><strong>33,937</strong></td>
<td><strong>40,285</strong></td>
<td><strong>217,587</strong></td>
</tr>
</tbody>
</table>

Note: Some projects require customers to provide contributions to the cost of a project, these are removed to set an allowance net customer contributions.
6.1.1 Inch

The CER has proposed an allowance of €5.1m for Inch during PC4, which is the total sum requested by GNI. The main item in this category is the decommissioning of the Midleton compressor station following the cessation of operations at the Kinsale field. KEL has advised its intention for full cessation in early 2021, unless a major change to current market conditions, i.e. winter-summer gas price differential or a significant find in the Celtic Sea occurs the Kinsale field is expected to shut down as currently predicted.

![Image: PC4 Capex - transmission pipe Capex profile; Inch (€'000s)](image)

6.1.2 Interconnector System Upgrades

The CER has proposed an allowance of €36.3m for this category during PC4, compared to the GNI request of €38.4m. Proposed work in this category includes improvements to security, both physical and cyber, at the compressor stations on the Southwest Scotland Onshore System (SWOS) as well as work to enable continued compliance with emissions limits set out in PPC permits issued by the Scottish Environmental Protection Agency.

This category of spend includes a number of new items and is one of the largest categories of spend in PC4 Capex. However, system upgrades are an integral part of the development and maintenance of the transmission network, through the process of upgrading the network components, the asset base can remain supported, more efficient and compliant with new standards and legislation. Having carefully considered GNI’s request the CER is of the view that the vast majority of the allowance requested is appropriate and justified.
6.1.3 Onshore Network Development – New Connections

The CER has proposed an allowance of €2.8m for this category during PC4, which is the total sum requested by GNI. The two work areas in this category relate to the completion of the Listowel new town project and some large I&C industrial customers that may require a transmission connection to the gas network. In the latter case, GNI indicates that it will seek further approval from the CER on an ad hoc basis for such large I&C connections and hence the allowance requested is a provisional sum and further allowances will be subject to CER’s approval upon foot of a robust business plan provided by GNI.

6.1.4 Onshore Network Development – Twinning

GNI is proposing to continue the pipeline twinning project that was started in PC3, the forecast gross expenditure is €13.319m, with a related contribution of €4.684m in PC4.

The costs proposed for the continued construction of the Twinning project appear within reasonable limits and the CER propose a net expenditure of €8.635m, taking the total for this project over PC3 and PC4 to €59.3m. Figure 6.5 below shows proposed and requested Capex for each year of the PC4 period.
6.1.5 Onshore Network Development – Repex

The CER has proposed an allowance of €60.8m for Onshore Repex during PC4, compared to the GNI request of €75.5m. Figure 6.6 below illustrates the proposed and requested Capex for this category during each year of the PC4 period.

Onshore Repex sees a significant increase in spend when compared to PC3 (c. €45m). The CER and its advisors have reviewed this work in detail and recognise that the majority of this work is essential, with work in this category consisting of age and condition based asset replacement and overhaul programmes on the RoI onshore system, to improve the safety, operation and reliability of the network while avoiding obsolescence. However, the CER have identified a number cases where the level of forecast expenditure is not justified, this mostly relates to the proposed volume of work but in some cases also the unit cost. For this reason the CER have proposed an allowance of €60.8m, below the GNI request of €75.5m.
6.1.6 Onshore System Upgrades

The CER has proposed an allowance of €49.1m for Onshore system upgrades during PC4, compared to the GNI request of €52.3m. This category has also seen increased spend when compared to PC3 (€39.5). However, system upgrades are an integral part of the development and maintenance of the transmission network, through the process of upgrading the network components, the asset base can remain supported, more efficient and compliant with new standards and legislation.

Proposed work in this category includes improvements to security, both physical and cyber, at the AGIs on the Republic of Ireland onshore transmission system as well as work to to ensure transmission pipelines comply with the necessary technical codes and standards.

Physical reverse flow at Moffat from SWOS into the National Grid GB system is a future possibility and to export gas from Ireland would potentially require major work and expenditure within the RoI network on compression facilities into the interconnectors, at Brighouse Bay and Beattock. GNI has obtained EU Connecting Europe Facility (CEF) funding for a study which requires a 50% contribution from GNI of €925k. In the view of the CER and its advisors, examining and scoping the implications of reverse flow through Moffat appears prudent and therefore recommend that the amount is allowed.

The chart below shows recommended and requested Capex for each of the work areas within this category of spend for each year of the PC4 period.

![Graph showing recommended and requested Capex for Onshore System Upgrades](image-url)

*Figure 6.7: PC4 Capex - transmission pipe Capex profile; onshore system upgrades (€’000s)*
6.2 IT Capex (GNI €24.3m; CER €22.2m)

GNI has requested €48.75m of IT Capex for both GNI and Ervia Centrally Delivered IT capital initiatives, an increase of 12% on PC3 IT Capex spend. The IT Capex within a price control period can vary significantly by company and by price control period depending on the individual circumstances of each business, e.g. the company asset profile. Based on the benchmark of GNI's IT Capex spend as a percentage of total expenditure over the combined 10-year period of PC3 and PC4 (forecast), GNI spends 16% more on average of IT Capex in comparison to their peers.

As with IT Opex GNI have not provided a thorough breakdown of the main capital initiatives including the estimated implementation timeline and benefits that are assumed to be realised in order to demonstrate value for money for end consumers. Following the same logic as with the IT Opex forecast, the CER have adopted a gradual approach that results in an overall 9% reduction in GNI's requested total PC4 IT Capex spend. Table 6.5 below illustrates how the CER's proposal differs to the GNI request for PC4 IT Capex for the transmission business.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed</td>
<td>4,415</td>
<td>3,821</td>
<td>4,761</td>
<td>4,763</td>
<td>4,420</td>
<td>22,180</td>
</tr>
<tr>
<td>GNI request</td>
<td>4,543</td>
<td>4,048</td>
<td>5,199</td>
<td>5,366</td>
<td>5,141</td>
<td>24,298</td>
</tr>
<tr>
<td>Variance</td>
<td>-128</td>
<td>-227</td>
<td>-438</td>
<td>-603</td>
<td>-721</td>
<td>-2,118</td>
</tr>
</tbody>
</table>

6.3 Non-pipe Capex (GNI €13.3m; CER €10.4m)

GNI’s submission has demonstrated that their PC4 non-pipe Capex proposal (excluding IT) is generally underpinned by a number of specific (scoped) buildings projects and/or drivers of fleet investment that are linked to wider changes taking place within the gas networks business (e.g. apprentice schemes). However, it is difficult to reach any conclusions on whether the business has already taken the difficult choices on behalf of the Irish gas consumers to control the scale and scope of planned investment in preparing its Capex plans.

For this reason, the CER will challenge GNI to deliver the major projects it has proposed for PC4 within a lower budget envelope. Table 6.6 below illustrates how the CER’s proposal differs to the GNI request for PC4 non-pipe Capex for the transmission business.
Table 6.6: PC4 – other non-pipe Capex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed</td>
<td>973</td>
<td>1,010</td>
<td>3,029</td>
<td>3,058</td>
<td>2,322</td>
<td>10,392</td>
</tr>
<tr>
<td>GNI request</td>
<td>1,129</td>
<td>1,250</td>
<td>3,957</td>
<td>3,957</td>
<td>3,000</td>
<td>13,292</td>
</tr>
<tr>
<td>Variance</td>
<td>-156</td>
<td>-240</td>
<td>-928</td>
<td>-899</td>
<td>-678</td>
<td>-2,900</td>
</tr>
</tbody>
</table>

6.4 Summary

This chapter of the report has reviewed the forecast Capex across the transmission business. This was based on a detailed review of GNI’s business plan for PC4 and justification for the proposed works. When the SWOS Twinning project is removed from the PC3 and PC4 Capex outturn and forecasts respectively, there is an increase of €32m in pipe Capex from PC3 to PC4. This increase is mostly driven by spend in the categories of Interconnector System Upgrades, Onshore Repex and Onshore System Upgrades.

The CER recognise that the transmission capital programme must increase in PC4, driven by an ageing asset base and security, environmental, and compliance requirements. This has resulted in the step up in spend at the outset of PC4.

However, the CER has not proposed the full work programme requested by GNI which is reflected in the CER’s proposed allowance being 13% lower than GNI’s request. As highlighted by Figure 6.1 the areas of Onshore Network Development, Onshore Refurbishment and Non-pipe Capex have seen the greatest reductions. Due to the level of spend in Onshore Network Development and Onshore Refurb the reduction in these areas alone represents 82% of the difference between the CER’s proposal and GNI’s request.

The variation between the proposed allowance and the GNI request in Onshore Network Development is mostly due to the disallowance of a Capex funding request for renewable gas injection facilities (see innovation funding, section 4.7).

The majority of the reduction in Onshore Refurb relates to a reduction in the area of pipe Repex. The CER and its advisors have reviewed in detail each of the work areas in this category and identified a number cases where the level of forecast expenditure is not justified, this mostly relates to the proposed volume of work but in some cases also the unit cost.
6.5 Request for comment

Parties are invited to comment on the matters set out in this section, including the key proposals which relate to:

6A. The total capital expenditure allowance for PC4.

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
This chapter briefly outlines the incentives that are designed to encourage GNI to operate, maintain and invest in the gas network appropriately and as efficiently as possible.

It also describes certain costs that GNI do not have control over, these costs are deemed as pass through costs. In some cases it would be unfair to set an incentive that GNI could not meet, for example GNI cannot negotiate the CER levy as this is set by the CER and is mandatory. However in others GNI will have some level of control of the outcome of the costs and an appropriate incentive has been set against these.

It explains that CER are incentivising GNI to seek out more new gas customers.

It details incentives that encourage GNI to spend money on projects more efficiently. When GNI come under the budget on a project or avoid carrying out a project in its entirety they receive a financial reward. When GNI go over budget, but can justify and explain the increase, the increase is allowed but there is a small penalty applied (to encourage more accurate budgeting). It is also possible that some spend might be disallowed as not having been efficient, in which case GNI would suffer the loss of that revenue, though this did not occur in this review.

Finally, it outlines the CER’s intention to focus on the outputs and outcomes of the projects that GNI have committed to over the course of PC4.

### 7.1 Opex incentives

#### 7.1.1 Direct Opex

Direct Opex is assessed on a total Opex basis, rather than split into categories. As with the previous price control the treatment of direct Opex for PC4 is that if GNI underspend they keep the difference between the outturn Opex and the allowed Opex, if GNI overspend they bear the risk and are not reimbursed. There is no review of the efficiency of outturn Opex like there is for Capex.

The CER is of the view that a revenue cap on controllable Opex provides strong regulatory incentives for GNI to make efficiency savings and control Opex within the PC4 allowance.
7.1.2 Pass-through Opex

Pass-through items do not have the same incentive structure as direct Opex. There are some line items which GNI have no control over e.g. regulatory levies. These line items are complete pass-through and GNI can recover all outturn expenditure relating to them. The intention behind this is that the costs are out of the control of GNI and so placing an incentive on GNI would only lead to windfall gains or losses.

There are other items where there is seen to be a degree of control by GNI e.g. rates. As such, differences between outturn and allowed costs are shared with the customer.

The table below sets out CER’s proposals for how certain cost should be treated for PC4.

Table 7.1: Overview of treatment of pass-through costs

<table>
<thead>
<tr>
<th>Category</th>
<th>PC3 treatment</th>
<th>PC4 treatment – GNI proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory levies</td>
<td>Complete pass-through</td>
<td>Complete pass-through</td>
</tr>
<tr>
<td>CO2</td>
<td>Complete pass-through</td>
<td>Complete pass-through</td>
</tr>
<tr>
<td>Gaslink</td>
<td>Complete pass-through</td>
<td>Contained in controllable Opex</td>
</tr>
<tr>
<td>Rates(^{20})</td>
<td>50-50% sharing factor</td>
<td>Maintain 50% sharing factor in Ireland with respect to liabilities associated with the Value of Assets in Ireland. Pass-through of cost associated. Move to 100% pass-through for ARV rates liabilities in Ireland and Scotland, as reduced ability to control.</td>
</tr>
</tbody>
</table>

7.1.2.1 CER levy and CO2

GNI have no control over either. Therefore the revenues are adjusted for these costs each year as part of the tariff setting process. The CER propose to retain these items as complete pass-through costs consistent with GNI’s recommendations.

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\(^{20}\) GNI proposes that rates will be allocated 50% to Distribution, 50% to Transmission going forward.
7.1.2.2 Gaslink

Gaslink was historically an independent subsidiary of Bord Gáis tasked with the gas system operator role in Ireland to comply with European regulations.

During PC3, Gaslink Opex was reported as its own expenditure item under the pass-through cost items of the price control. Over the course of PC3 the company has been merged into GNI. During PC4, expenditure associated with Gaslink activities is included within the Regulation and Corporate Services function of business support costs and is no longer treated as a pass-through item.

7.1.2.3 Rates

Irish rates

GNI are subject to commercial property rates. The liability is estimated as the product of the Value of the Asset (with a Global Valuation every five years) and the Annual Rate on Valuation (ARV) from each local authority.

GNI reference that they have some limited control over the Value of the Asset e.g. participation in determination and right to appeal, but none over local ARVs due to the dissolution/ merger of councils and no right to appeal. As such GNI have proposed a 50-50% sharing factor on the Value of the Asset, but a full pass-through on the ARV.

Scottish rates

The liability in the form of Non Domestic Rates (NDR) is similar to the approach in Ireland, with a Rateable Value of the Asset multiplied by the Poundage (similar to ARV). GNI note that there is limited right to appeal the proposed value with a National Pricing Matrix being used, while the Poundage is set by the UK government with no right to appeal. GNI propose a 100% pass-through in Scotland on both the value and the applicable rate.

CER proposal

For Scotland, CER agree with GNI that a 100% pass-through incentive should apply to both the value and applicable rate in light of GNI’s inability to influence the outcome. A summary of the proposed approach to rates for Ireland and Scotland is shown in Table 7.2 below.
Table 7.2: PC4 proposal for Irish and Scottish rates

<table>
<thead>
<tr>
<th>Category</th>
<th>Inputs</th>
<th>PC3 treatment</th>
<th>PC4 proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish rates</td>
<td>Value of the Asset</td>
<td>50-50% sharing factor</td>
<td>25-75%* sharing factor</td>
</tr>
<tr>
<td></td>
<td>Annual Rate on Valuation(^{21})</td>
<td>50-50% sharing factor</td>
<td>100% pass-through</td>
</tr>
<tr>
<td>Scottish rates</td>
<td>Non Domestic Rate x Poundage(^{22})</td>
<td>50-50% sharing factor</td>
<td>100% pass-through</td>
</tr>
</tbody>
</table>

\(^*\) 25% under or over recovery related to rates will be incurred by GNI, 75% will be incurred by the gas customer.

### 7.2 Growth related incentives

The CER is also proposing a new incentive around new connections, however this incentive largely relates to the distribution business and therefore further information on this incentive can be found within the distribution consultation document published alongside this paper.

### 7.3 Capex incentives

As was referenced in the PC3 review (chapter 5), strong Capex incentives are important for capital intensive businesses such as GNI. The CER propose to retain a rolling Capex incentive mechanism in PC4 which was used in PC3 further detail on this can be found in the CEPA documents that are published alongside this paper.

#### 7.3.1 Incentives for general Capex in PC4 and beyond

The CER has reviewed the current incentive framework to ensure it remains fully appropriate for PC4 and beyond. The CER is mindful that a review of the incentive regime pertaining to the recent electricity price review (PR4) is currently underway. The CER will use this review as a guide to help inform future incentive regimes and the reporting associated with them for PC5.

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\(^{21}\) Set by local authority.

\(^{22}\) Set by UK government.
The CER has also considered the following for PC4 and future price controls:

1. **Should the assessment be made on an annual basis?**

   The CER is of the view that the assessment on a total period basis avoids issues of creating perverse consequences and is a simpler and more transparent approach. The CER has adopted this proposal in deriving the capex allowances for PC4. The CER is therefore minded to continue this approach for close out of PC4.

2. **Are the incentive categories the correct ones?**

   The CER is of the view that the category of efficient deferral should be retained in the PC4 capex guidelines, to ensure that money is not wasted on unnecessary projects, as it is very difficult to review the business rationale for all transmission and distribution investment projects over the five year cycle.

   However, the CER expects a high burden of proof from GNI of why it considers deferred projects/programmes should be deemed ‘efficiently’ deferred, to avoid risks of double funding. The CER is of the view that claimed efficient deferrals should be outputs tied to completion of tangible work.

3. **Regulatory treatment of over and under spends for delivered work**

   The CER propose that for the lookback of PC4, there is symmetric treatment of efficiency savings and unfinanced overspend in terms of the timing of retention of any variations against PC4 allowances. Both relate to the unit costs the work is conducted at. Having a symmetric approach means there are not different effects applied where costs are moved to one area, leading to a higher unit cost, from another, where there would be a lower unit cost.

   As consequence, the CER propose that for unfinanced overspend category variances, GNI are required to finance the overspend for 5-years, to be symmetric with the 5-year rolling incentive that applies to efficiency saving variations.
4. How does the CER ensure future reviews are predictable and transparent

In light of incentives for capex being linked to projects, it is important that there is a clear understanding of the outputs that GNI has been funded to deliver. The UK Competition Commission (CC) Northern Ireland Electricity (NIE) Transmission and Distribution RP5 determination\(^{23}\) for example included an annex that set out the projects that were to be delivered in the price control and the financial amounts linked to this expenditure.

In preparation for the final PC4 determination, a workbook has been developed which provides a clear summary of the projects, work programmes and assumptions (e.g. unit rates) that have been used to set the determination which will form a key input to the PC4 close-out at the PC5 review.

7.4 Customer service incentive

The CER is also proposing a new incentive around customer service, however this incentive largely relates to the distribution business and therefore further information on this incentive can be found within the Distribution paper published alongside this document.

7.5 Request for comment

Parties are invited to comment on the matters set out in this section, including the key proposals which relate to:

7A. The proposed opex incentives.

7B. The proposed incentive on rates.

7C. The proposed capex incentives.

Comments relating to the proposed incentives related to growth and customer service should be submitted in response to the distribution document.

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
This chapter describes how the CER established an appropriate cost of capital for GNI.

GNI is financed through debt and equity. Debt is borrowed funds (e.g. loan), while equity is funds invested by the shareholders (owners). Both the provider of the loan (lender) and the investor (equity holder) will expect to receive certain returns on the funds they have provided. For example the interest that the borrower pays on a loan is the return that the lender receives. Similarly a person that invests in a company expects some reward for this investment.

By taking an average of the returns associated with the different types of financing (debt and equity) the CER effectively determines how much return GNI will need for each euro it invests. This average is known as the Weighted Average Cost of Capital or WACC, which is the average of the cost of debt and the cost of equity.

The WACC is calculated using a formula. This chapter outlines how the CER decided upon the inputs that are entered into the formula, with the resulting WACC reflecting the appropriate cost of capital for GNI.

8.1 Introduction

In line with established regulatory precedent the CER allows GNI to recover revenues to cover the total economic costs of its operations over a price control period. Economic costs include a rate of return on the Regulatory Asset Base (“RAB”). The appropriate rate of return is the expected Weighted Average Cost of Capital (“WACC”) for the regulated businesses over PC4.

The CER engaged FTI financial advisers to provide assistance in determining the level of WACC to be applied to GNI over PC4.

GNI submitted financial information to the CER for review. Further engagement with GNI and its advisers took place to clarify and understand the financial information provided. Following a detailed and careful analysis of the information provided the CER has set out below its proposals in relation to the level of WACC to be applied over the PC4 period. Further detail
on the approach in determining the level of WACC can be found in the FTI report which accompanies this document.

8.1.1 Context

The CER is mindful of regulatory precedent and the value of regulatory stability, and has sought in its assessment of the WACC to generally minimise the extent and magnitude of changes in regulatory policy within a short time frame. On that basis, a conservative approach has been taken in determining the various parameters of the WACC.

However, the CER intends to continue to take account of market conditions in future determinations. In particular, to keep under review the current low interest rate environment and to continue to consider how this should be reflected in the allowed cost of capital.

8.2 Inputs to the WACC

Table 8.1 below summarises the CER’s proposal for each input and the resulting proposed WACC. These inputs are discussed in detail in the following sections and within the FTI report on the cost of capital for GNI.
Table 8.1: CER proposed WACC for GNI

<table>
<thead>
<tr>
<th>Input</th>
<th>GNI proposal</th>
<th>CER proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk free rate</td>
<td>1.9%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Equity risk premium</td>
<td>4.75%</td>
<td>4.75%</td>
</tr>
<tr>
<td>Asset beta</td>
<td>0.44</td>
<td>0.42</td>
</tr>
<tr>
<td>Equity beta</td>
<td>0.98</td>
<td>0.93</td>
</tr>
<tr>
<td><strong>Cost of equity (post tax)</strong></td>
<td><strong>6.54%</strong></td>
<td><strong>6.32%</strong></td>
</tr>
<tr>
<td>Tax rate</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td><strong>Cost of equity (pre-tax)</strong></td>
<td><strong>7.48%</strong></td>
<td><strong>7.22%</strong></td>
</tr>
<tr>
<td>Reference bond yield</td>
<td>1.9%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Debt premium</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Cost of debt</strong></td>
<td><strong>2.9%</strong></td>
<td><strong>2.5%</strong></td>
</tr>
<tr>
<td>Gearing</td>
<td>55%</td>
<td>55%</td>
</tr>
<tr>
<td><strong>WACC (pre-tax)</strong></td>
<td><strong>4.96%</strong></td>
<td><strong>4.63%</strong></td>
</tr>
</tbody>
</table>

8.3 Cost of debt – 2.5%

The cost of debt can be calculated in two ways. Firstly, by reference to GNI’s actual cost of debt, reflecting a combination of debt previously issued (i.e. embedded debt) and new debt to be issued over the relevant period (i.e. PC4). However, this approach is often dismissed by regulators due to *inter alia* efficiency concerns.

Secondly, the cost of debt can also be considered on a notional basis (i.e. the cost to a hypothetical entrant (a new gas network operator)). In these circumstances, the cost of debt can be measured by reference to the expected yield to maturity on GNI’s own recently issued bonds and/or by reference to a range of current empirical market evidence.

The notional approach to calculate the cost of debt was used previously by the CER\(^{24}\) and will be used again for PC4. That is, the cost of debt as the sum of the reference yield (i.e. estimated yield on government bonds) plus a debt premium. The debt premium reflects the

difference between the yield on benchmark corporate bonds and the yield on government bonds.

8.3.1 GNI proposal

GNI proposed the same approach to setting the cost of debt, as described above. GNI added a debt premium of 1.0% to the “long term” real risk free rate that it used for the calculation of the cost of equity (i.e. 1.9%). GNI were of the view that the “long run” estimate of the cost of debt was preferable as it maintains:

“...consistency with the CER’s recent WACC determinations and provides the stability and predictability of the regulatory regime that is required by investors and also underpins the long-term investment in the sector.”

GNI estimated the debt premium by calculating the difference between the nominal yield on a set of comparator corporate bonds and the nominal, current yield on government bonds of similar tenor. GNI proposed a range for the debt premium of 0.96% to 1.14%, with a point estimate of 1.0%. This debt premium was then added, not to the current yield on government bonds (from which it was derived), but to the “long term” real risk free rate that it used for the calculation of the cost of equity (i.e. 1.9% in line with the preference for a “long run” estimate).

This resulted in a proposed a range for the real cost of debt of between 2.86% and 3.14%, with a point estimate of 2.90%.

8.3.2 CER proposal

8.3.2.1 Empirical evidence on government bond yields

The CER agrees with GNI’s approach to deduct the nominal yield on government bonds (of similar tenor) from the nominal yield of benchmark corporate bonds. A benchmark yield, such as government bond yields, is used in two steps of the cost of debt calculation. First, the debt premium is calculated by deducting the nominal government bond yield from the yield of comparator corporate bonds. Second, the estimated debt premium is added to the real government bond yield (reference yield) to calculate the real cost of debt. It is important in each step to use consistent estimates of the government yields.
It is common regulatory practice to use the yield on government bonds of the relevant economy: in this case, Irish government bonds. However, during the Eurozone financial crisis, a substantial spread opened up between the yields on bonds issued by different Eurozone governments. This reflected an increase in the perceived risk that some Eurozone countries – including the Irish state – might default on their debts. Given this, it might be argued that Irish government bonds can no longer be considered risk free. The CER understand that the current Irish sovereign credit rating is currently A/A3, rather than AAA, which is typically taken to represent a risk-free bond.

To overcome this issue, in recent determinations, the CER used the yields on other AAA rated Eurozone government debt. This approach has been adopted again.

Figure 8.1 below presents the nominal yield on a generic 10-year maturity German government bond over the last two price control periods. The yield on 10-year maturity UK and Irish government bonds is included for reference.

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25 CER/12/196 - Decision on October 2012 to September 2017 transmission revenue for Bord Gáis Networks: pg 104.
The figure above shows that nominal yields to maturity have fallen over time and are now close to zero. The annualised rate of Eurozone HICP inflation in December 2016 was 1.1%.\(^{26}\) Inflation is forecast to increase by the ECB to 1.3% in 2017 and to 1.5% and 1.7% in 2018 and 2019, respectively.\(^{27}\) Given that the yield on 10-year German government bonds is currently below 0.5%, this implies that the expected real yield is currently negative.\(^{28}\)

A further variant on the above graph (figure 4-4 in the FTI report) notes that the market implied forward 10 year nominal yield on 10 year German government bonds is rising out to 2022 (though the graph also indicates that inflation is expected to rise over the same period). However both nominal yields and future inflation are uncertain and this uncertainty is greater.

\(^{26}\) ECB Statistical Data Warehouse.

\(^{27}\) ECB (December 2016) ‘Eurosystem staff macroeconomic projections’.

\(^{28}\) The Fisher equation holds that, for low values of inflation and interest rates: 

\[
\text{nominal RFR} \approx \text{real RFR} + \text{inflation}
\]
over longer forecast horizons. This uncertainty needs to be considered when determining the reference real government bond yields for regulatory purposes.

### 8.3.2.2 Empirical evidence on the debt premium

The debt premium is the difference between the yield on the benchmark corporate bonds and the market yield on benchmark government bonds. The CER and its advisors have estimated the debt premium based on the comparable corporate bonds considered by GNI and those considered in the CER PC3 determination. The debt premiums are calculated as the premium over the term-matched benchmark government bond. GNI’s recently issued debt instruments were also considered.

Figure 8.2 plots the spread of corporate bonds issued by PC3 comparators and highlights the similarity in these spreads over time.

![Graph of corporate bonds spread over time](image)

Source: Bloomberg data and FTI calculations

**Figure 8.2: Spread of corporate bonds issued by PC3 comparators over time (bps)**

29 The specific bonds considered in PC3 have matured, so we use other bonds issued by the same companies.

30 That is a government bond with a maturity date close to that of the subject bond.
The analysis carried out by the CER and its advisors suggests that higher debt premiums, which were associated with the Irish sovereign debt crisis, have reduced to lower levels. The debt premiums have become more stable from the start of 2015. Consequently, the calculated average premiums are based on the last 12 months of available data (i.e. post financial crisis). Table 8.2 and Table 8.3 summarise the average spreads for two groups of comparators over the last year.

Table 8.2: Spread of Euro and Sterling denominated bonds used by GNI

<table>
<thead>
<tr>
<th>Corporate bond</th>
<th>Currency</th>
<th>Credit Rating</th>
<th>Years to maturity</th>
<th>2 year average spread (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bord Gáis Eireann</td>
<td>Euro</td>
<td>A</td>
<td>1</td>
<td>63.4</td>
</tr>
<tr>
<td>ESB Finance</td>
<td>Euro</td>
<td>A-</td>
<td>1</td>
<td>61.2</td>
</tr>
<tr>
<td>ESB Finance</td>
<td>Euro</td>
<td>A-</td>
<td>3</td>
<td>73.7</td>
</tr>
<tr>
<td>ESB Finance</td>
<td>Euro</td>
<td>A-</td>
<td>7</td>
<td>108.1</td>
</tr>
<tr>
<td>ESB Finance</td>
<td>Euro</td>
<td>A-</td>
<td>10</td>
<td>128.7</td>
</tr>
<tr>
<td>ESB Finance</td>
<td>Euro</td>
<td>A-</td>
<td>14</td>
<td>141.1</td>
</tr>
<tr>
<td>NIE Finance</td>
<td>Sterling</td>
<td>NR</td>
<td>2</td>
<td>114.2</td>
</tr>
<tr>
<td>ESB Finance</td>
<td>Sterling</td>
<td>A-</td>
<td>3</td>
<td>115.3</td>
</tr>
<tr>
<td>NIE Finance</td>
<td>Sterling</td>
<td>BBB+</td>
<td>9</td>
<td>127.3</td>
</tr>
<tr>
<td><strong>Average (Euro-denominated)</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>96.0</strong></td>
</tr>
<tr>
<td><strong>Average (Sterling-denominated)</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>118.9</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>103.7</strong></td>
</tr>
</tbody>
</table>

Source: Bloomberg data and FTI calculations.

Table 8.3: Spread of Euro denominated bonds issued by PC3 comparators

<table>
<thead>
<tr>
<th>Corporate bond</th>
<th>Currency</th>
<th>Credit Rating</th>
<th>Years to maturity</th>
<th>2 year average spread (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.ON</td>
<td>Euro</td>
<td>BBB+</td>
<td>6</td>
<td>117.2</td>
</tr>
<tr>
<td>RWE</td>
<td>Euro</td>
<td>BBB-</td>
<td>7</td>
<td>138.2</td>
</tr>
<tr>
<td>TenneT</td>
<td>Euro</td>
<td>A-</td>
<td>10</td>
<td>104.2</td>
</tr>
<tr>
<td>TenneT</td>
<td>Euro</td>
<td>A-</td>
<td>13</td>
<td>115.7</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>118.8</strong></td>
</tr>
</tbody>
</table>

Source: Bloomberg data and FTI calculations.

The CER and its advisors observe that longer-maturity bonds attract higher premiums. GNI proposes to raise new debt with a range of maturities, but with a weighted average tenor of 10 years.
GNI has also issued corporate bonds on 28 November 2016. The average spread over benchmark government bonds from 1 December 2016 to 31 December 2016 has been calculated.

Table 8.4: Spread of newly issued GNI corporate bonds

<table>
<thead>
<tr>
<th>Years to maturity</th>
<th>Credit Rating</th>
<th>Average spread (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years</td>
<td>A</td>
<td>103.7</td>
</tr>
<tr>
<td>20 years</td>
<td>A</td>
<td>152.2</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>127.9</td>
</tr>
</tbody>
</table>

Source: Bloomberg, S&P CapitalIQ and FTI calculations.

Based on the analysis above, the CER agree with GNI that an appropriate estimate of the debt premium is around 100 bps (i.e. 1.0%).

The CER and its advisors reviewed GNI’s debt and observed that it is reasonable to set the cost of debt by reference to forward-looking estimates of the cost of debt over PC4 rather than GNI’s “long-run” estimate.

8.3.2.3 Regulatory precedent

The CER has considered regulatory precedent on the real cost of debt and whether expected future changes in cost of debt should be taken into account.

Table 8.5 below highlights recent regulatory precedent on the cost of debt and notes the assumed credit rating for the regulated businesses.

---

31 One was for €500m, due to mature in 2026, and one of €125m due to mature in 2036.
Table 8.5: Regulatory precedent on the cost of new debt

<table>
<thead>
<tr>
<th>Regulatory decision</th>
<th>Date</th>
<th>Assumed credit rating</th>
<th>Debt premium</th>
<th>Real cost of new debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>CER Irish Water IRC2</td>
<td>Dec 2016</td>
<td>BBB+ or above</td>
<td>1.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>CER ESBN/EirGrid PR4</td>
<td>Dec 2015</td>
<td>BBB+ or above</td>
<td>1.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Uregni GD17</td>
<td>Sep 2016</td>
<td>BBB- or above</td>
<td>N/A</td>
<td>2.53% to 3.13%(1)</td>
</tr>
<tr>
<td>CMA Bristol Water</td>
<td>Oct 2015</td>
<td>BBB+</td>
<td>N/A</td>
<td>1.6%</td>
</tr>
<tr>
<td>Ofwat PR14</td>
<td>Dec 2014</td>
<td>A/BBB</td>
<td>N/A</td>
<td>2.00%</td>
</tr>
<tr>
<td>ComReg</td>
<td>Dec 2014</td>
<td>BBB-</td>
<td>1.75%</td>
<td>3.58%</td>
</tr>
<tr>
<td>Ofgem RIIO ED1</td>
<td>Jul 2014</td>
<td>A/BBB</td>
<td>N/A</td>
<td>See chart</td>
</tr>
<tr>
<td>CAR</td>
<td>Oct 2014</td>
<td>BBB</td>
<td>N/A</td>
<td>3.0%</td>
</tr>
<tr>
<td>CC Northern Ireland Electricity</td>
<td>Mar 2014</td>
<td>BBB+</td>
<td>N/A</td>
<td>2.14%</td>
</tr>
<tr>
<td>CER PC3</td>
<td>Nov 2012</td>
<td>BBB+ 1.3% to 1.6%</td>
<td>N/A</td>
<td>4.8% to 7.1%(2)</td>
</tr>
</tbody>
</table>

Sources: Published documents from relevant authorities. Notes: (1) range of values due to different costs of new debt for PNGL and FE; and (2) this includes a Eurozone Crisis Premium.

For its ED1 and other recent determinations, Ofgem adopted an annual indexed approach to setting the cost of debt. Ofgem calculated the current real cost of debt on a daily basis using benchmark indices and allowed a real cost of debt calculated on a trailing average basis. For “slow track” companies, this is an up to 20-year average (calculations begin from November 2004) and for “fast track” companies, this is a 10-year trailing average. Figure 8.3 below illustrates the calculated real cost of current debt and the resulting trailing average.
Ofgem calculates that the real cost of current debt has been below 2.9% since October 2009 and has remained below 2.0% since October 2012. With respect to the overall allowed cost of debt, CER and its advisors observe that this has fallen over time and stands at 2.3% for slow track companies at the end of November 2016. The allowed cost of debt for “fast track” companies is 2.2%, and this is calculated over a period that spans the financial crisis.

8.3.3 Summary – cost of debt

GNI suggested that a “long-term approach” to setting the allowed cost of debt was preferable because regulatory stability reduces the cost of capital and, over the long-run, under and over estimates of the cost of capital will offset one another. CER agree that regulatory stability is desirable and that the CER should make incremental and conservative adjustments to the WACC framework in response to new market data.

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32 Ofgem Cost of Debt Indexation Model 31 October 2016.
33 Frontier (GNI’s consultant) response to CER follow up questions.
In reaching our conclusion on a range and point estimate for the cost of debt, we have considered the following:

1. Current real government bond yields are close to zero or even negative. When combined with debt premium of 1.0%, this implies an overall real cost of debt up to 1.0%;

2. Direct evidence based on GNI’s currently issued bonds would correspond to this;

3. Uncertainty in relation to future yields;

4. To the extent that historical debt costs are an appropriate cross-check. The average real yield during the period outside the crisis from January 2006 to December 2016 was 2.5% and the average since the crisis (i.e. August 2012 to December 2016) was 2.3%.

5. Recent CER determinations have allowed an overall cost of debt of between 2.9% and 3.0%; and

On the basis of the evidence, a reasonable range for the cost of debt for GNI is between 1.0% and 2.5%. The lower end of this range is based on current market evidence, while the upper end of this range takes account of recent precedent from the CER and other regulators. The upper end allows headroom for the possibility that real yields may increase during PC4.

Striking the balance between regulatory stability responding to current market data the CER views a point estimate for the cost of debt of 2.5%, which is at the top end of the above range.
8.4 Cost of equity – 6.32% (post-tax)

The Capital Asset Pricing Model (“CAPM”) framework to assess the cost of equity has been used. This is consistent with prior CER determinations and with GNI’s approach.

The cost of capital is calculated using the formula:

\[ k_e = r_f + \beta \times (r_m - r_f) \]

where:

- \( k_e \) is the expected rate of return for the risky asset;
- \( r_f \) is the rate of return on a ‘risk free’ asset (the “risk free rate” or “RFR”);
- \( \beta \) is the ‘beta’ factor, which is correlation of the return on the risk asset with the expected returns on a diversified portfolio of all investable assets; and
- \( r_m \) is the expected rate of return on a market value-weighted portfolio of all assets (the ‘market portfolio’). The term \( r_m - r_f \) in the CAPM is referred to as the market risk premium (“MRP”).

8.4.1 Risk Free Rate – 1.9% (post-tax)

8.4.1.1 Theory and practice

The Risk Free Rate (RFR) theoretically represents the return required by investors on an investment that is devoid of all risk, including interest rate risk, inflation risk, default risk and liquidity risk. Established regulatory practice estimates the RFR empirically, by reference to the returns on a risk free asset. The identification of the risk free asset is not always straightforward, though government bonds have traditionally been considered the best proxy. Consequently, the RFR is commonly calculated from the yield on longer-dated government bonds in the country for which the cost of capital is to be calculated.

The CER has previously considered evidence from the yields on AAA-rated Eurozone government debt (rather than Irish government bond yields). In principle, the CER consider that this approach remains appropriate.

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34 CER/15/193 Europe Economics - PR4 WACC for EirGrid and ESB Network
It is generally accepted that an estimate of the long term RFR is required. However, market yields, even on longer-dated government debt, have fluctuated over time. Since the global financial crisis, academics and practitioners have argued that factors may have distorted bond markets. Consequently, it is necessary to consider whether observed market yields today provide evidence for the long term expected RFR.

8.4.1.2 GNI proposal

GNI proposes a risk free rate of between 1.9% and 2.0%. They suggest that current market evidence understates RFR, and adopt a “long term view on the risk free rate” consistent with the CER and other regulators. GNI stated that:

“…the rationale to date behind the CER’s approach in relation to the RFR has been to discount short term data due to a concern that that a combination of QE and a ‘flight to safety’ has been artificially depressing sovereign yields. In our view, this rationale makes sense and continues to hold.”

8.4.1.3 CER proposal

**Current bond yields and interpretation**

Figure 8.1 highlighted that the current real yields on government bonds are close to zero or even negative. The current yield curve implies that yields are expected to rise over the course of PC4, but to a level that remains substantially lower than the historical average.

A number of explanations have been advanced for the underlying cause of these historically low yields and the period for which they are likely to persist. Explanations include long-term macroeconomic changes and short-term market dislocations. These include demographic changes, 35 expectations of weak future growth, 36 market distortions resulting from extraordinary monetary policy; and a flight to quality / increase in risk-aversion by investors.

The last two of these explanations imply that current yields are affected by shorter-term one-off factors. Hence, the yields may understate the “true” long run risk free rate, which should be embedded in an investor’s long run expected return on equity. By contrast, the first two explanations imply that the risk free rate itself may have fallen. It is not straightforward to distinguish between these alternative explanations, and ultimately the assessment will require regulatory judgment.

The CER and its advisors note that there is some empirical analysis that suggests the fall in real interest rates around the world began prior to the financial crisis. An interpretation of this data might support the view that some of the observed fall reflected longer-term factors, rather than transient market dislocations stemming from the global financial crisis. The ECB also published a paper in 2014 discussing specific challenges in estimating a Euro area RFR. It noted that yields have been affected by a number of factors and that some implied that the current low yields are a temporary distortion. However, other factors implied a longer-term change.

The CER and its advisors consider that there is mixed evidence on the factors that have influenced the RFR and that it is not possible to determine with certainty the degree to which short term and long term factors have affected current yields.

38 ECB Monthly Bulletin (July 2014) ‘Euro area risk-free interest rates: measurement issues, recent developments and relevance to monetary policy’.
**Regulatory precedent**

We have reviewed recent regulatory precedent regarding the interpretation of current market conditions and the implications for the risk-free rate. Table 8.6 sets out recent regulatory decisions from the UK and the Republic of Ireland.

<table>
<thead>
<tr>
<th>Regulatory decision</th>
<th>Determination date</th>
<th>Real risk free rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CER Irish Water IRC2</td>
<td>Dec 2016</td>
<td>2.00%</td>
</tr>
<tr>
<td>CER ESBN/EirGrid PR4</td>
<td>Dec 2015</td>
<td>1.90%</td>
</tr>
<tr>
<td>Uregni GD17</td>
<td>Sep 2016</td>
<td>1.25%</td>
</tr>
<tr>
<td>CMA Bristol Water</td>
<td>Oct 2015</td>
<td>1.25%</td>
</tr>
<tr>
<td>Ofwat PR14</td>
<td>Dec 2014</td>
<td>1.25%</td>
</tr>
<tr>
<td>ComReg</td>
<td>Dec 2014</td>
<td>2.10%</td>
</tr>
<tr>
<td>Ofgem RIIO ED1</td>
<td>Jul 2014</td>
<td>1.0% to 1.5%</td>
</tr>
<tr>
<td>CAR</td>
<td>Oct 2014</td>
<td>0% to 1.5%</td>
</tr>
<tr>
<td>CMA Northern Ireland Electricity</td>
<td>Mar 2014</td>
<td>1.0% to 1.5%</td>
</tr>
<tr>
<td>CER PC3(1)</td>
<td>Nov 2012</td>
<td>3.5% to 5.5%</td>
</tr>
</tbody>
</table>

Sources: Published documents from relevant authorities. Note: (1) The risk-free rate in this determination included a substantial uplift for the impact of the Irish financial crisis.

Since 2014, regulators in the UK have determined that the RFR falls in a range of 1.0% to 1.5%. This contrasts with earlier determinations, where regulators adopted an estimate of around 2.0%. However, in Ireland, ComReg concluded that the RFR was higher noting that, while the rate implied by the yield on German government bonds was lower, it placed weight on Irish regulatory precedent for a higher RFR. The CER also adopted a higher RFR of 1.9% to 2.0%. We note, the CAR concluded that the RFR fell in broad range of 0.0% to 1.5%.

**Summary – RFR**

Yields on all government bonds have fallen since the PC3 determination and the Irish sovereign debt crisis that affected that assessment has abated. There is some evidence to support that the fall is due to longer-term macroeconomic changes, rather than only the short-term market dislocations following the 2008 financial crisis. However, there is also some evidence that government bond yields may understate the true long-term risk free rate. The
CC has noted in the UK that there is no mechanistic way of interpreting current market yields. As such, a degree of regulatory judgment is required to determine an appropriate rate. Factors such as regulatory consistency are an input into this judgment.

UK economic regulators have recently selected an RFR in the range 1.0% to 1.5%, reflecting financial markets in the UK. However, recent CER and ComReg determinations in Ireland have adopted an RFR of 1.9% to 2.1%. The CER note that market conditions have not materially changed since these determinations.

CER’s advisers have indicated that a risk free rate in Ireland is likely to lie in the range 1.5% to 2.0%. This range is based on the upper end of recent UK regulatory determinations and the CER’s recent determination. In the interests of supporting stability in regulatory policy for Irish utilities, the CER propose to adopt a point estimate for the risk free rate of 1.9%, consistent with other recent determinations.

8.4.2 Market Risk Premium – 4.75% (post-tax)

8.4.2.1 Theory and practice

The Market Risk Premium (MRP) is the return that an investor expects in excess of the risk free return from a fully diversified portfolio of all investable assets. It is not practical to calculate the return on a true portfolio of all investable assets, so regulators estimate the expected return on a broad equity market portfolio as a proxy. The difference between the expected equity market return and the expected risk free return is referred to as the MRP or the equity risk premium (“ERP”).

The MRP is commonly calculated by reference to historical realised returns, historical ex-ante expected returns or forward-looking expectations. The first of these approaches has been widely used by regulators in the UK and abroad.39

There are two principal approaches to estimating the MRP on a historical basis. It can be estimated directly over time by calculating the return on the market in excess of an estimate

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of the RFR in each period. Alternatively, it can be derived by estimating the Total Equity Market Return (“TMR”) over time (i.e. total returns earned by equity investors) and then by deducting an estimate of the current RFR. The CER have used the second approach in this case due to common regulatory practice.40

8.4.2.2 GNI proposal

GNI proposed a range for the ERP of 4.6% to 5.1%, calculated by deducting their point estimate for the RFR of 1.9% from a range for the TMR of 6.5% to 7.0%. They noted that the CER’s recent determination on the ERP of 4.75%, was consistent with a point estimate for the TMR of 6.65% and an RFR of 1.9%.

8.4.2.3 CER proposal

Empirical evidence for the TMR

Due to the range of alternative approaches to estimating the TMR a range of evidence was considered such as Dimson, Marsh and Staunton (“DMS”).41 See the FTI report for further detail on the evidence base.

Regulatory Precedent

Table 8.7 below sets out the MRP in recent regulatory decisions in the UK and Ireland. It also shows the assumed TMR range, calculated by adding the RFR adopted in each determination to the MRP. Note that, in some determinations, regulators select a point estimate for the WACC without adopting a specific point estimate for each of the underlying parameters.

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41 First Frontier Report: page 19.
Table 8.7: Precedent regulatory decisions on market risk premium and implied total market return

<table>
<thead>
<tr>
<th>Regulatory decision</th>
<th>Determination date</th>
<th>Market risk premium</th>
<th>Total market return</th>
</tr>
</thead>
<tbody>
<tr>
<td>CER Irish Water IRC2</td>
<td>Dec 2016</td>
<td>4.75%</td>
<td>6.75%</td>
</tr>
<tr>
<td>CER ESBN/EirGrid PR4</td>
<td>Dec 2015</td>
<td>4.75%</td>
<td>6.65%</td>
</tr>
<tr>
<td>Uregni GD17</td>
<td>Sep 2016</td>
<td>5.25%</td>
<td>6.50%</td>
</tr>
<tr>
<td>CMA Bristol Water</td>
<td>Oct 2015</td>
<td>5.25%</td>
<td>6.50%</td>
</tr>
<tr>
<td>Ofwat PR14</td>
<td>Dec 2014</td>
<td>5.50%</td>
<td>6.75%</td>
</tr>
<tr>
<td>Ofgem RIIO ED1</td>
<td>Dec 2014</td>
<td>4.0% to 5.0%</td>
<td>5.0% to 6.5%</td>
</tr>
<tr>
<td>ComReg</td>
<td>Jul 2014</td>
<td>5.0%</td>
<td>6.75% to 7.5%</td>
</tr>
<tr>
<td>CAR</td>
<td>Oct 2014</td>
<td>5.0%</td>
<td>6.5%(2)</td>
</tr>
<tr>
<td>CMA Northern Ireland</td>
<td>Mar 2014</td>
<td>4.0% to 5.0%</td>
<td>5.0% to 6.5%</td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CER PC3(1)</td>
<td>Nov 2012</td>
<td>4.0% to 5.0%</td>
<td>7.5% to 9.5%</td>
</tr>
</tbody>
</table>

Sources: Published documents from relevant authorities. Note: (1) The risk-free rate in this determination included a substantial uplift for the impact of the Irish sovereign debt crisis. (2) In the CAR’s most recent airport charge determination, although it adopted a point estimate of the ERP of 5.0%, this was in conjunction with an RFR of 1.5%, implying an overall TMR of 6.5%.

The CER and its advisors observe that while there is wider range of values for the ERP, there appears to be regulatory consensus that the TMR lies in the range 6.5% to 6.75%.

**Summary - MRP**

Based on an assessment of the empirical evidence and regulatory precedent, a reasonable range for the total equity market return is 6.5% to 6.75%. Based on our proposed range for the risk free rate (i.e. 1.5% to 2.0%), this implies a range for the equity risk premium of 4.5% to 5.25%. Taking into account our recommended point estimate for the risk free, the CER propose a point estimate for the equity risk premium of 4.75%.

**8.4.3 Beta – 0.42**

**8.4.3.1 Approach**

The CER and its advisors have used an empirical approach to determine beta. As GNI is not publicly traded, its equity beta cannot be measured directly. Following common practice, the analysis has been based on a set of comparable companies. As estimates of beta can vary
over time and between companies, CER and its advisors have examined the historical evolution of beta over time.

### 8.4.3.2 GNI proposal

GNI proposed a range for the asset beta of between 0.43 and 0.45, with a point estimate of 0.44. This is based on a two-year average of traded regulated network utility companies in the UK.

### 8.4.3.3 CER proposal

Table 8.8 and Table 8.9 below highlight the average beta calculations for the GNI comparator group and for the PC3 comparator group.

#### Table 8.8: Average beta for Frontier comparator group (ex. SSE)

<table>
<thead>
<tr>
<th>Comparator</th>
<th>1 year average</th>
<th>2 year average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 year</td>
<td>2 year</td>
</tr>
<tr>
<td></td>
<td>daily</td>
<td>weekly</td>
</tr>
<tr>
<td>National Grid</td>
<td>0.396</td>
<td>0.388</td>
</tr>
<tr>
<td>United Utilities</td>
<td>0.380</td>
<td>0.404</td>
</tr>
<tr>
<td>Severn Trent</td>
<td>0.378</td>
<td>0.425</td>
</tr>
<tr>
<td>Pennon</td>
<td>0.413</td>
<td>0.426</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>0.392</strong></td>
<td><strong>0.411</strong></td>
</tr>
</tbody>
</table>

Source: Bloomberg and FTI calculations. Note: Averages are taken over the two-year period up to 31/12/2016. The reference index used to calculate all these betas is the FTSE All-share.

#### Table 8.9: Average beta for PC3 comparator group

<table>
<thead>
<tr>
<th>Comparator</th>
<th>1 year average</th>
<th>2 year average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 year</td>
<td>2 year</td>
</tr>
<tr>
<td></td>
<td>daily</td>
<td>weekly</td>
</tr>
<tr>
<td>APA Group</td>
<td>0.504</td>
<td>0.561</td>
</tr>
<tr>
<td>TC Pipelines</td>
<td>0.676</td>
<td>0.862</td>
</tr>
<tr>
<td>Piedmont Natural Gas</td>
<td>0.277</td>
<td>0.293</td>
</tr>
<tr>
<td>Northwest Natural Gas</td>
<td>0.317</td>
<td>0.290</td>
</tr>
<tr>
<td>ITC Holdings</td>
<td>0.304</td>
<td>0.282</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>0.416</strong></td>
<td><strong>0.458</strong></td>
</tr>
</tbody>
</table>

Source: Bloomberg and FTI calculations. Notes: Averages are taken over the period up to 31/12/2016; we have omitted AGL Resources due to data limitations. For APA group, the reference index is the Australian “All Ordinaries” index and for the other comparators we use the S&P 500.
Using UK comparators the 2-year data suggests that a reasonable range for the beta is 0.37 to 0.44 (see figures in bold in relevant table above). Based on this range the CER propose a point estimate of 0.42 (which is slightly above the mid-point).

A point estimate of 0.42 is consistent with the higher “average” for the international comparators based on two-year data. Betas for international comparators vary widely from a minimum of 0.26 to a maximum of 0.86, which suggests that some of these companies are less comparable to GNI and that an average across these comparators may be less meaningful.

8.4.4 Summary of the inputs to the cost of equity

Table 8.10 below summarises the proposals for each input for the cost of equity, GNI’s proposals are included for comparison.

Table 8.10: Summary of CER proposed cost of equity and GNI proposals

<table>
<thead>
<tr>
<th>Input</th>
<th>GNI proposed</th>
<th>CER proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Risk free rate</td>
<td>1.90%</td>
<td>2.00%</td>
</tr>
<tr>
<td>Equity risk premium(1)</td>
<td>4.60%</td>
<td>4.75%</td>
</tr>
<tr>
<td>Asset beta</td>
<td>0.43</td>
<td>0.45</td>
</tr>
<tr>
<td>Equity beta</td>
<td>0.96</td>
<td>1.00</td>
</tr>
<tr>
<td>Cost of equity (post tax)</td>
<td>6.30%</td>
<td>6.75%</td>
</tr>
</tbody>
</table>

Note: (1) Combined the ranges of estimates for the risk free rate and equity risk premium so as to be consistent with the estimated range for the total equity market return of 6.5% to 6.75%
8.5 Gearing – 55%

Theory and practice

Gearing is defined as the ratio of a company's debt to its equity capital, usually expressed in percentage form as follows:

\[
\frac{\text{Debt}}{\text{Debt} + \text{Equity}}
\]

Gearing primarily affects the WACC through the relative weighting of debt and equity. Equity capital typically has a higher required return than debt capital, due to the greater risk borne by equity investors. In isolation, higher gearing levels reduce the WACC. However, gearing also affects the WACC in two further ways.

First, higher gearing increases the riskiness of equity holders' returns. This increases the calculated equity beta, which increases the cost of equity. This partially offsets the reduction in the WACC discussed above. Second, gearing is one of the factors considered by credit ratings agencies in their assessment of the creditworthiness of companies. In general, companies with higher credit ratings have lower debt costs. Therefore, an increase in gearing may result in a higher cost of debt if the change leads to a lower credit rating.

GNI's proposal

GNI proposes a gearing assumption of 55%. They note that this is consistent with the PC3 determination and that it is "broadly consistent" with GNI's actual gearing.

Regulatory precedent

Table 8.11 below summarises the allowed level of gearing levels in recent regulatory determinations.
Table 8.11: Previous regulatory decisions on gearing

<table>
<thead>
<tr>
<th>Regulatory decision</th>
<th>Determination date</th>
<th>Gearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>CER Irish Water IRC2</td>
<td>Dec 2016</td>
<td>45%</td>
</tr>
<tr>
<td>CER ESBN/EirGrid PR4</td>
<td>Jan 2015</td>
<td>55%</td>
</tr>
<tr>
<td>Uregni GD17</td>
<td>Sep 2016</td>
<td>55%</td>
</tr>
<tr>
<td>CMA Bristol Water</td>
<td>Feb 2015</td>
<td>62.5%</td>
</tr>
<tr>
<td>Ofwat PR14</td>
<td>Dec 2014</td>
<td>62.5%</td>
</tr>
<tr>
<td>ComReg</td>
<td>Dec 2014</td>
<td>30%</td>
</tr>
<tr>
<td>Ofgem RIIO ED1</td>
<td>July 2014</td>
<td>65%</td>
</tr>
<tr>
<td>CAR</td>
<td>May 2014</td>
<td>50% to 60%</td>
</tr>
<tr>
<td>CMA Northern Ireland Electricity</td>
<td>Mar 2014</td>
<td>45%</td>
</tr>
<tr>
<td>CER PC3</td>
<td>Nov 2012</td>
<td>55%</td>
</tr>
</tbody>
</table>

Sources: Published documents from relevant authorities.

Recent Irish regulatory precedent is generally lower than the gearing levels adopted by UK regulators. This can be explained by differences in corporate tax regimes. Ireland has lower tax rates so the benefits of the tax shield are lessened.

**Summary - gearing**

CER consider that a reasonable notional gearing assumption for GNI is 55%, consistent with PC3. This also consistent with the gearing assumption proposed by GNI.

**8.6 Other factors affecting the WACC**

In PC3, the CER adjusted the WACC for the impact of exceptional market conditions.\(^{42}\) For PC4 the CER and its advisors have also considered the possibility of other factors affecting the WACC. These factors have been detailed and reviewed in the FTI report.

GNI have highlighted the impact of the UK’s withdrawal from the European Union (“EU”), commonly referred to as “Brexit”. Due to the importance of Brexit a summary of the GNI and

\(^{42}\) CER/12/196 - Decision on October 2012 to September 2017 transmission revenue for Bord Gáis Networks: section 11.3.
CER view is presented below, see FTI report for detailed review of possible Brexit implications.

8.6.1 GNI view - Brexit

GNI stated that:

“[T]here is currently significant market uncertainty due to the, as yet, unknown consequences of Brexit, which could result in severe financial market conditions in both the short and medium term. As a result, it is important that the CER is conservative in its approach to setting WACC allowances to ensure that there is sufficient headroom on the allowed WACC to allow for any volatility in the market due to Brexit.”

GNI expressed the view that an appropriate allowance for the risks associated with Brexit (e.g. “flight to safety”) could be made “either through an appropriately conservative approach to estimating the building blocks of the WACC or through an explicit aiming up allowance.”

8.6.2 CER view - Brexit

The impact of Brexit on Ireland is highly uncertain. In part, this is because the form of the UK’s future legal and economic relationships with the EU remain largely unknown.43 The Governor of the Central Bank of Ireland has stated that this could lead to volatility in financial markets and the macro-economy:

“Looking ahead, the design and timing of the new relationship between the UK and the EU remain quite uncertain. It is reasonable to expect some volatility in financial markets and macroeconomic variables as the negotiations move along.”

Even if the form of the future relationship were known, there would still be uncertainty surrounding the economic impact on the UK. In addition, the knock-on impact on the Republic of Ireland would be uncertain.

Irrespective of the impact of Brexit on the Irish economy, the CER and its advisors consider that the impact on GNI’s WACC over PC4 may be limited. For example GNI’s concern regarding the RFR is that a “flight to safety” and/or quantitative easing could reduce the yield

43 The UK Prime Minister, Theresa May, outlined some general objectives in a speech at Lancaster House on 17 January 2017.
on government bonds, implying a reduction in the RFR. As previously stated the proposed range for the RFR is above current real yields on government bonds, based on recent regulatory precedent pre-Brexit. Hence, it is unlikely that the CER has understated the RFR.

On balance, CER do not consider that the uncertain impact of Brexit on the Republic of Ireland financial markets and economy provide a strong justification for a higher cost of capital. In summary, CER consider that:

1. the Brexit referendum has impacted the markets during the period over which the empirical analysis of WACC inputs has taken place. On that basis, some of its impact will be reflected in the assessment;

2. Brexit is likely to have some further impact in the future, however the nature, direction and magnitude of this impact are uncertain, as GNI acknowledges. However, there are some reasons to believe that Brexit may reduce the cost of capital for utilities;

3. for the calculation of the cost of equity CER have adopted longer term estimates, which are not impacted by short term volatility;

4. GNI suggested that bonds yields may increase, resulting in an increase in the cost of debt. However, GNI also expresses the view that the cost of debt could fall. The IMF considers that Ireland’s financial system has become more robust and the main risk to the Irish economy from Brexit is that economic growth is lower; and

5. to the extent that GNI considers that there is a risk that the cost of debt might increase during PC4, it has the option to use financial instruments to “lock in” the current low cost of debt.
8.7 Regulatory Precedent

Table 8.12 below summarises the overall pre-tax WACC allowed in recent regulatory determinations in the UK and Republic of Ireland. CER provide these for comparison purposes and note that the overall WACC reflects the combined impact of estimates of each of the underlying parameters i.e. the costs of equity and debt and the gearing.

In reaching these proposals the CER and its advisers have taken into account recent determinations by the CER and other regulatory authorities.

Table 8.12: Regulatory precedent on real pre-tax WACC

<table>
<thead>
<tr>
<th>Regulatory decision</th>
<th>Date</th>
<th>Real pre-tax WACC (pre-aiming up)(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CER Irish Water IRC2</td>
<td>Dec 2016</td>
<td>5.05%</td>
</tr>
<tr>
<td>CER ESBN/EirGrid PR4</td>
<td>Dec 2015</td>
<td>4.74%</td>
</tr>
<tr>
<td>Uregn GD17(2)</td>
<td>Sep 2016</td>
<td>3.97% and 4.01%</td>
</tr>
<tr>
<td>CMA Bristol Water</td>
<td>Oct 2015</td>
<td>4.09%</td>
</tr>
<tr>
<td>Ofwat PR14</td>
<td>Dec 2014</td>
<td>4.04%</td>
</tr>
<tr>
<td>ComReg</td>
<td>Dec 2014</td>
<td>6.00%</td>
</tr>
<tr>
<td>Ofgem RIIO ED1</td>
<td>Jul 2014</td>
<td>4.09%</td>
</tr>
<tr>
<td>CAR</td>
<td>Oct 2014</td>
<td>5.80%</td>
</tr>
<tr>
<td>CC Northern Ireland Electricity</td>
<td>Mar 2014</td>
<td>4.49%</td>
</tr>
<tr>
<td>CER PC3(3)</td>
<td>Nov 2012</td>
<td>6.70%</td>
</tr>
</tbody>
</table>

**Sources:** Published documents from relevant authorities. **Notes:** (1) For the purposes of comparability, each WACC is expressed before any additional adjustments e.g. aiming up and UK determinations have been adjusted for the difference in corporate taxation rates between the UK and Republic of Ireland; (2) The Utility Regulator’s determination related to two firms for which it calculated different costs of debt and therefore a different overall WACC; and (3) the PC3 WACC included a substantial uplift for the impact of the Irish financial crisis.

Table 8.12 demonstrates that recent regulatory determinations in the UK have tended to adopt lower estimates of the real pre-tax WACC than recent CER determinations.
8.8 Financeability

The CER has a statutory duty to secure the financeability of GNI. The CER considers GNI to be financeable if it is able to maintain an investment grade credit rating, with some degree of headroom above the investment grade threshold. FTI Consulting has assisted the CER to assess whether GNI is expected to be financeable throughout PC4.

Ratings agencies assign credit ratings based on a combined assessment of both qualitative factors and financial ratios. Ratings agencies develop bespoke methodologies for assessing particular types of business and assets and these methodologies – including the definitions of financial ratios used – are published. The CER has forecast the key financial ratios examined by the ratings agencies that cover GNI for each year of PC4. These forecasts are based on the financial assumptions and forecasts set out elsewhere in this consultation for operating expenditure, capital investment, the allowed cost of capital and other known factors affecting GNI’s cash flows.

The CER’s advisers FTI have:

1. reviewed the credit ratings agencies’ quantitative methodologies for assessing utilities businesses; and

2. considered the CER’s calculations of following financial ratios for GNI:
   
   a) the funds from operations ("FFO") interest cover multiple;
   
   b) gearing;
   
   c) the ratio of FFO to net debt; and
   
   d) the ratio of retained cash flow to net debt.

Based on a review of these financial ratios, FTI Consulting agrees with the CER’s conclusion that, based on the information available at the time of preparing its consultation, GNI would be expected to be able to maintain an investment grade credit rating over the course of PC4. FTI Consulting notes that its conclusion:

1. is based on the credit ratings agencies’ current published methodologies at the time of preparing this consultation, which are subject to change at their discretion;
2. takes into account only quantitative factors (i.e. financial ratios) notwithstanding that ratings agencies’ methodologies also place significant weight on their assessment of qualitative factors. FTI provides no opinion on these qualitative factors; and

3. is based on financial inputs and assumptions set out in this consultation, which may be subject to change. FTI provides no opinion on the allowed level of operating and capital costs included within the CER’s assessment.

8.9 Summary of CER Proposed WACC for GNI

Table 8.13 below summarises the CER view on each input and the CER’s proposed overall WACC for GNI.

<table>
<thead>
<tr>
<th>Input</th>
<th>recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk free rate</td>
<td>1.9%</td>
</tr>
<tr>
<td>Equity risk premium</td>
<td>4.75%</td>
</tr>
<tr>
<td>Asset beta</td>
<td>0.42</td>
</tr>
<tr>
<td>Equity beta</td>
<td>0.93</td>
</tr>
<tr>
<td><strong>Cost of equity (post tax)</strong></td>
<td><strong>6.32%</strong></td>
</tr>
<tr>
<td>Tax rate</td>
<td>12.5%</td>
</tr>
<tr>
<td><strong>Cost of equity (pre-tax)</strong></td>
<td><strong>7.22%</strong></td>
</tr>
<tr>
<td>Reference bond yield</td>
<td>1.5%</td>
</tr>
<tr>
<td>Debt premium</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Cost of debt</strong></td>
<td><strong>2.5%</strong></td>
</tr>
<tr>
<td>Gearing</td>
<td>55%</td>
</tr>
<tr>
<td><strong>WACC (pre-tax)</strong></td>
<td><strong>4.63%</strong></td>
</tr>
</tbody>
</table>

The CER and its advisors do not consider that an additional separate “aiming up” allowance should be included in the WACC. This is because:

1. where an “appropriately conservative” point estimate of the WACC is adopted, then an explicit aiming up allowance is not required in addition. The CER and its advisor’s (FTI) assessment of each input of the WACC is appropriately conservative; and
2. the exceptional market conditions that existed at the time of the PC3 determination have now abated. While there is a risk that Brexit, or other events, might affect GNI’s cost of capital in the future, it is unclear what the scale and direction of the impact would be.

8.10 Request for Comment

Parties are invited to comment on the matter set out in this section, including the key proposals which relate to:

8A. The inputs used to set the overall WACC.

8B. The proposed level of the WACC.

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
9 CORRIB LINKLINE

The Corrib Linkline is the name of a pipeline that was built in order to get gas from the Corrib field (offshore Co. Mayo) to customers. It runs through Mayo and Galway.

The Corrib Linkline is treated differently to other transmission pipelines as the construction of the Corrib Linkline was funded by the Corrib Partners and is not underwritten by Irish gas customers. However, GNI operate and maintain the Corrib Linkline in the same way as the rest of the transmission system.

This chapter outlines the updated capital expenditure and operational expenditure required by GNI to maintain the Corrib Linkline so that it can continue to safely and securely transport gas to customers over the course of PC4 and into the future.

9.1 Introduction

9.1.1 Scope of work

This section of the paper considers the expenditure incurred in bringing the Corrib Linkline into use post 1 July 2016. All expenditure incurred prior to the 1 July 2016, both Capex and Opex has been considered as the Final Total Recoverable Cost (TRC). This expenditure was previously audited in 2016 and is therefore not considered within the scope of the CER's review.

9.1.2 Background

The Corrib Gas field was discovered in 1996 by Enterprise Oil and is located approximately 83km off the North West coast of Ireland. In 2004, the Corrib Partners commissioned the construction, under contract by Bord Gáis Networks, now Gas Networks Ireland (GNI), of a c.150km transmission pipeline from Bellanaboy to the existing ring main at Cappagh South to deliver flows of gas from the Corrib field to the Irish market (the Corrib Linkline).

The construction of the Corrib Linkline was funded by the Corrib Partners and is not underwritten by Irish gas consumers. This distinguishes it from other assets which form part of GNI’s transmission system. The Corrib Partners bear the commercial risk of the Corrib Linkline being used.
The Corrib pipeline was commissioned in advance of the availability of Gas imports from the Corrib gas field and during the period 2005 to 1 July 2016 the pipeline was used to supply gas to Mayo towns along the pipeline, supplying gas from the existing Ireland gas network.

During this period the pipeline was operated at a lower pressure (4 barg) than the final design pressure (85 barg) of the pipeline. The subsequent availability of Corrib gas required a validation and uprating operation to allow the pressure in the Linkline to be raised and placed into commission for the commercial flows of gas from the Corrib gas field into the main Ireland Gas Network at Cappagh South.

### 9.2 Review of Corrib PC4 Opex (GNI €13.9m; CER €12.8m)

This section details the review of GNI’s requested Opex for the PC4 period and provides proposed allowances for the period.

#### 9.2.1 Overview

The tables below show the proposed Corrib Linkline Opex for PC4, compared to GNI’s funding request.

<table>
<thead>
<tr>
<th>Table 9.1: PC4 Proposed – Corrib Linkline Opex (€’000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>Operations</td>
</tr>
<tr>
<td>Business Support</td>
</tr>
<tr>
<td>IT</td>
</tr>
<tr>
<td><strong>Total controllable</strong></td>
</tr>
<tr>
<td>Pass-through</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
Table 9.2: PC4 Variance – Corrib Linkline Opex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>-186</td>
<td>-155</td>
<td>-180</td>
<td>-171</td>
<td>-141</td>
<td>-833</td>
</tr>
<tr>
<td>Business Support</td>
<td>-26</td>
<td>-28</td>
<td>-62</td>
<td>-66</td>
<td>-84</td>
<td>-266</td>
</tr>
<tr>
<td>IT</td>
<td>-1</td>
<td>-2</td>
<td>-3</td>
<td>-4</td>
<td>-6</td>
<td>-17</td>
</tr>
<tr>
<td>Total controllable</td>
<td>-213</td>
<td>-185</td>
<td>-245</td>
<td>-242</td>
<td>-231</td>
<td>-1,116</td>
</tr>
<tr>
<td>Pass-through</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-213</td>
<td>-185</td>
<td>-245</td>
<td>-242</td>
<td>-231</td>
<td>-1,116</td>
</tr>
</tbody>
</table>

9.2.2 Methodology

The Corrib Linkline is a financially separate business, but is technically integrated into Irish gas network, the same resources within GNI support both the Linkline and the main network with costs either allocated or specifically attributed.

The CER and its advisors have used the overall assessment of Opex in the main PC4 review to establish a forecast of core GNI Opex for the PC4 price control period. A review of the allocation mechanism used by GNI for Corrib Linkline Opex was carried out to confirm that the CER considers the allocation between core network and Linkline represents a reasonable apportionment of the GNI cost base.

For pass through Opex we have proposed that the treatment of rates as a pass-through cost will be consistent with the core price control recommendations.

9.2.3 Pass-through costs

Rates are assessed annually, with an incentive mechanism currently applied which is currently a 50-50% sharing factor in Ireland on liabilities associated with the Value of Assets, while there is a full pass-through for the Annual Rate of Valuation (ARV) from each local Authority. GNI reference that they have some limited control over the Value of the Asset e.g. participation in determination and right to appeal, but none over local ARVs due to the dissolution/ merger of councils and no right to appeal.

As with the approach to the rates in the main PC4 review the CER is proposing to change the sharing factor from to 25% - 75%.
9.3 Review of Corrib PC4 Repex (GNI €4.2m; CER €1.6m)

This section details the review of GNI’s requested Repex for the PC4 period.

9.3.1 Overview

The tables below provide a summary of Repex recommendations over the review period, the GNI requested amount and the variance between this and our recommendations.

Table 9.3: PC4 Proposed – Corrib Linkline Repex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement</td>
<td>233</td>
<td>303</td>
<td>265</td>
<td>145</td>
<td>95</td>
<td>1,042</td>
</tr>
<tr>
<td>System Upgrades</td>
<td>20</td>
<td>172</td>
<td>172</td>
<td>172</td>
<td>20</td>
<td>555</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>474</td>
<td>437</td>
<td>317</td>
<td>115</td>
<td>1,597</td>
</tr>
</tbody>
</table>

Table 9.4: PC4 Variance – Corrib Linkline Repex (€’000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement</td>
<td>-24</td>
<td>-24</td>
<td>-24</td>
<td>-24</td>
<td>-24</td>
<td>-119</td>
</tr>
<tr>
<td>System Upgrades</td>
<td>-2,016</td>
<td>-316</td>
<td>-66</td>
<td>-66</td>
<td>-</td>
<td>-2,464</td>
</tr>
<tr>
<td>Total</td>
<td>-2,040</td>
<td>-340</td>
<td>-90</td>
<td>-90</td>
<td>-24</td>
<td>-2,583</td>
</tr>
</tbody>
</table>

9.3.2 Expenditure Recommended without Adjustment

The following six areas of expenditure are all similar to activities considered in the main PC4 report and having taken account of the difference in scale, the sums proposed are deemed appropriate\(^{44}\).

- Pipelines in Floodplains
- AGI Site Instrumentation
- Cathodic Protection Refurbishment
- Operational upgrades
- AGI Security Upgrades

\(^{44}\) Details of these projects can be found in sections 6.3.8 and 6.3.9 of CEPA’s Transmission Paper published alongside this document.
- Cyber Security Upgrades

In addition, the proposed expenditure for the following item, whilst specific to the Corrib submission, is consistent with cost expectations.

- Cappagh South Control System Refurbishment

CER is proposing to accept the above proposals without adjustment at a total cost over PC4 of €1.27m.

9.3.3 Expenditure with Adjustment

The following sets out recommendations for four areas of requested expenditure where the CER proposes adjustments to GNI’s requests.

**Remotely Actuated Line Valves**

This is a similar proposal to that for the main network, thus the CER’s view and proposal will be the same.

In the CER’s opinion the number of valves that it may be appropriate to consider for remote actuation will be determined by a range of network specific, geographic, and customer related factors, not by reference to a comparison of levels of ‘remote actuation’ capability in other networks.

Any proposal to increase the number of remote valves on the Corrib link would need to be supported by a cost benefit analysis and we recommend that the forecast PC4 expenditure of €264k is not allowed.

**Wayleave refurbishment and reinstatement**

The Pipeline Reinstatement project in the main PC4 review covers similar activity, based on transmission pipe length the PC4 requested and allowed spend in the main control equated to €1.10k/km compared with that proposed Corrib expenditure of €2.99k/km. Use of €1.10k/km would reduce Corrib from €446k to €164k. However, GNI indicates that Mayo-Galway Pipeline passes through particularly wet areas, including sections where concrete coated pipeline was required to prevent the pipeline from floating. It is reasonable to expect higher unit spend due to these conditions and as the Linkline is more recently built than most
of main network. As a consequence, CER propose use of a unit rate of €2.2k/km, giving a recommended allowance of €327k.

Gas Quality Monitoring Upgrades

GNI indicates the driver for this work as related to the addition of the Corrib supply, where different qualities of gas exist within the network and the effect this may have on billing accuracy.

The proposal is for installation of an additional three gas analysers at strategic locations throughout the network to enhance monitoring capabilities, allowing for a more accurate determination of the composition at all exit points, resulting in improved metering accuracy at the exit points. No information has been provided on these locations, the breakdown of costs nor any evidence to support the benefit of an investment of this size. We recommend that the proposed expenditure of €1.7m is not allowed and that a business case is prepared to quantify the benefits of the proposal.

SG and CV analysers related to Corrib

There is no separate description nor rationale provided for this item in the submission document. It is not clear whether this item is linked to gas quality monitoring upgrades. We recommend that the proposed expenditure of €500k is not allowed.
9.4 Review of Corrib (July 2016 – Sept 2017) Opex

This section details the review of the reported Opex for the period 1 July 2016- 30 September 2017.

9.4.1 Controllable Opex

Figure 4.1 below shows how controllable Opex has been changing over the period Sep-13 to Sep-16 and how GNI have forecast the trend to continue. Within the trend two figures have been included on an annualised basis (proportionate with elapsed time) for the year 2015/16 to capture the costs pre and post 1st July 2016.

*Figure 9.1: Corrib Linkline Controllable Opex Trend (€’000s)*

Figure 4.1 illustrates that although there is a dip in annualised Opex charged to the Linkline for the period Oct-15 to Jun-16 this possibly reflects the fact that the activity peak for preparations for commercial flows was several months prior to the official date for flows to commence. Based upon our analysis of the trend information we believe the Opex figures reported by GNI are consistent with the PC4 figures commented on in the report.
9.4.2 Pass though Costs

As with pass-through costs for the PC4 period, GNI are requesting funding for rates liabilities associated with the Corrib Linkline. Currently there is a 50-50% sharing factor in Ireland on liabilities associated with the Value of Assets, while there is a full pass-through for the Annual Rate of Valuation (ARV) from each local Authority, which the CER propose would apply to Opex within the July 2016 to September 2017 period. The CER have proposed revised sharing factors within our core price control review and would anticipate that treatment should be similar.

9.5 Review of Corrib (Jul 16 – Sep17) Capex

This section details the review of reported Capex for the period 1 July 2016 - 30 September 2017. GNI have explained that although there were costs of €2.3m incurred during this period on the following four projects, these are all amounts which were part of the final commissioning for commercial flows:

- Corrib C&I Control Philosophy (€19k)
- Mayo Galway Pipeline (€1.972m)
- Mayo Galway Pipeline MOP Redeclaration (€267k)
- Cappagh South to Ballymoneen (€90k)

GNI have provided information that these sums were included in the TRC and were subject to the audit carried out in August 2016. GNI have forecast no Linkline Capex in the year 2016/17.

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45 The audit carried out in August 2016 included a final accrual for all TRC sums which were not in the accounts at July 2016.
9.6 Request for Comment

Parties are invited to comment on the matter set out in this section, including the key proposals which relate to:

9A. The operational expenditure allowance for PC4.

9B. The refurbishment/replacement expenditure allowance for PC4.

When responding, please provide your reasons for your views on the CER’s proposals and propose alternatives with reasoning where you disagree with the CER’s views.
APPENDIX A

1 REGULATORY REVIEW PROCESS

This section provides information on the process that led to the proposals outlined in this consultation paper. It provides:

- Relevant areas of the CER’s role and the powers under which the CER will make its determination on the price control are outlined;
- The manner in which this price control follows on from previous price controls is discussed;
- The CER’s objectives for the September 2017 to October 2022 revenue are detailed; and
- The key assumptions underpinning the review are documented.

1.1 Introduction to regulatory process

The CER follows an economic regulatory process which is intended to ensure that:

- All gas customers are provided with safe and secure supplies of gas;
- Only reasonable and appropriate costs for the operation of the transmission network by GNI will be recovered from customers; and
- GNI, as the transmission network operator in Ireland, will have a strong incentive to improve service and reduce costs.

The regulatory process must drive GNI to constantly deliver, year-on-year, economic efficiencies to the benefit of customers. Essentially GNI 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 safety and security of supply.
1.1.1 Key components of review

Under the regulatory revenue cap regime, the CER determines the appropriate level of revenue that is required to allow GNI to operate the gas network. There are a number of components required to estimate the level of revenue that will be sufficient to finance GNI 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 the transmission business;
- The capital costs of investment in infrastructure; and
- The value of the assets in GNI’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.

1.1.2 Review of historic and forecast operational expenditure

The first component is the allowance for Opex, which can be summarised as the day to day running costs of GNI. 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 GNI is provided with a level of revenue that is sufficient enough to operate its business efficiently and to a high standard, 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 GNI’s proposals and is based on a level that is considered equivalent to efficient costs of a utility similar to GNI 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 (BPQs), Q&A sessions and written reports provided by GNI. 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 GNI over the course of the project ensures that GNI’s Opex allowance has been thoroughly analysed.

The Opex which the transmission business incurred over PC3 and forecasts costs it will incur over PC4 was reviewed. The PC3 review involved assessing improvements in efficiency
made by the business during that period and levels of network performance. The PC4 review focused on ensuring value for money and efficiency improvements.

1.1.3 Review of historic and forecast capital expenditure

Another key component is the allowance for the Capex to be undertaken by GNI over the course of the revenue control period. The Capex category relates to GNI’s physical assets i.e. pipelines, equipment etc. as well as the upgrade, repair and maintenance of the existing network. The allowance approved by the CER must be sufficient to promote a degree of investment in the infrastructure that is appropriate and justified, while also encouraging GNI to drive efficiencies.

In reviewing GNI’s Capex proposals for PC4 the CER analysed whether the proposals were appropriate, fully justified, will deliver benefits to the customer and whether estimated costs are realistic. Once again the CER utilised information provided by GNI through business planning questionnaires (BPQs), Q&A sessions and written reports. In addition, GNI were benchmarked against other comparable companies. 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 GNI’s proposed Capex submissions ensures that the revenue set by the CER is fair and appropriate.

The PC3 review involved assessing improvements in efficiency made by the business during that period and levels of network performance. The PC4 review focuses on ensuring value for money and efficiency improvements over the next price control.

1.1.4 Determining the Regulatory Asset Base

Following the above review of historic capital expenditure any variances between the approved and actual efficient expenditure were reflected by adjusting the asset base. The original asset base had been put in place as part of the first five-year review (October 2003 to September 2007) and was adjusted for the second (October 2007 to September 2012) and third (October 2012 to September 2017) price control reviews.

The asset base was also adjusted to allow for the proposed forecast capital expenditure. This adjusted asset base is proposed for use in the forthcoming PC4 review period and can be found in the Transmission Revenue Model published alongside this paper.
Appendix A Chapter 3 provides information on how the asset base is set on an 'as capitalised' basis up to September 2016 and on an 'as spent' basis thereafter.

1.1.5 Determining the appropriate rate of return

As mentioned above the CER sets the rate of return that GNI 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 GNI is in a position to achieve an investment grade credit rating. This is addressed in greater detail in Chapter 8.

1.1.6 Determining the 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 customers, by encouraging the utility to deliver better-than-required services.

Using the reviews of the transmission business’s historic and forecast performance as a basis, proposed incentives have been developed for the forthcoming period. Two new incentives have been proposed, one relating to growth (new connections) and the other related to customer performance indicators, see Chapter 7 for further detail.

1.1.7 Determining the allowed revenue

Combining all the component parts, as described above, the CER generates an overall revenue allowance for GNI for each gas year within PC4. This revenue will feed through into setting the gas transmission tariffs for each tariff period.

1.2 Process to date

In order to ensure that there is clarity as to the underlying data and assumptions as well as the analysis itself, this project has involved a high level of interaction with GNI. In addition, the high level steps associated with this process are provided here.
The first step involved the CER acquiring consultancy support for the provision of technical and financial advice over the course of the project. Detail on this is provided in Appendix A section 1.3.

To ensure that the CER and its advisors attained an adequate understanding of the transmission business, the CER engaged with the network business to ensure that relevant data was provided in a useable format. A questionnaire was issued to the network business outlining the technical, economic and financial data required by the CER. GNI then completed the questionnaire in two stages: providing historic data first and then progressing to forecast information. The network business also provided a significant amount of supporting documentation. Following submission there was a period of interaction between the CER and GNI during which clarifications and further information were sought.

This interaction allowed the CER to complete a comprehensive review of the network business’s historic and forecast performance, leading to the development of the proposals outlined in this paper. Prior to publication the proposals for consultation were discussed with the network business.

Regarding the next steps in this process interested parties can provide comments as detailed in section 1.8 of this paper. These, together with any other issues that arise during the consultation period, will be considered by the CER prior to publication of a decision paper.

1.3 The expertise used

The CER has completed numerous reviews of regulated utilities since its foundation in 1999 and has developed its internal abilities over that period. To augment these skills, and reflecting the range of analysis required, the CER has acquired the services of economic and engineering experts to assist in the review of the transmission business’s historic and forecast costs and performance.

Cambridge Economic Policy Associates (CEPA) is providing advice on the technical aspects of the review. This includes reviewing the network business’s capital and operational expenditure and providing advice on an efficient level which should be approved by the CER for recovery from the network business’s customers. This role includes completing the benchmarking studies necessary to provide relevant and well-founded advice. It also involves the provision of advice on appropriate incentive arrangements.
FTI is providing advice on the financial aspects of the review. The main body of work being completed by FTI is the provision of advice on the appropriate cost of capital for the network business.

The advice put forward by the CER’s consultancy support has fed through into the proposals put forward in this consultation paper. In addition, reports put forward by both CEPA and FTI are published alongside this paper.

1.4 Scope of this review

The review and proposals outlined in this paper relate to the regulated aspects of the transmission business activities. However, as part of this review the CER has also taken into account shared services within the Ervia group. There is currently a split of Group Centre, Shared Service Centre and Major Projects costs between Irish Water (65%) and Gas Networks Ireland (35%). This split will continue in PC4. The cost split is based on an overall proportion of how resource time is spent and what services are provided to each entity.

1.5 Methodology

As detailed above, this will be the fourth revenue control to be put in place for the network business. The previous reviews allowed some treatments (for example, depreciation methodologies) to become established practice. As a result the CER intends to continue using the methodologies established during the previous price controls (PC2 and PC3) and at the same time ensure that the transmission business is operated and developed in a cost-effective manner, these are highlighted in Appendix A Chapter 3.

1.5.1 Summary of methods

Our focus is on reviewing and setting the network business’:

- operating expenditure;
- capital expenditure;
- weighted average cost of capital (WACC);
- regulatory asset base (that is, adjusting for the level of expenditure incurred by the network business); and
- performance incentives.
This will allow for the continued protection of gas customers by ensuring that the gas transmission network business is operated and developed to meet customer needs in a cost-effective and efficient manner.

On the basis of regulatory certainty and maintaining regulatory precedent, certain methodologies which have become established during the previous control periods, which are retained in this price control. These are as follows:

- The length of the control period will not be changed. That is, it would continue to be a multi-annual revenue review covering a 5 year period;
- The Capital Asset Pricing Model (CAPM) will continue to be used to aid the determination of a WACC which would be applied to the network business’s regulatory asset base;
- The CPI-X model will continue to be used to set the level of revenue to be recovered by the network business; and,
- The existing methodologies used for valuation and depreciation of the business’s assets will continue to be applied.

The CER considers that the revenue controls for the transmission and distribution businesses should be set using a common set of principles.

### 1.6 GNI cost reporting process

GNI in their submissions supplied a breakdown of costs. The approach taken in order to assess the GNI business is highlighted below.

#### 1.6.1 Opex

For Opex, GNI presented its costs by functional area (column) and expense category (row), see Figure 1.1. When looking at Opex costs and breaking this down into a suitable fashion, there were two issues to overcome:

- IT is both an expense row and a functional area; and
- Group & Shared Service costs are apportioned across the functional areas.
It is difficult to assess IT in this format, so the CER combined the IT functional area costs, together with those IT expenses allocated to other functional areas. IT is, therefore, excluded from the analysis of other functional areas that GNI report against.

Group & Shared Services costs were reported separately by GNI. The CER have then added back an estimate of this expense within each of the functional areas to aid comparability with other data points.

These direct Opex costs are split into four different categories:

- **Operations Opex** = Asset Management, Asset Operations, Commercial, Head of Networks, HSQE and Technical Competency functional areas.
- **Business Support Services** = Regulation & Corporate Services, Finance, HR and Facilities functional areas.
- **Group & Shared** = Group & Shared expense.
- **IT** = IT functional area + IT expenses across other functional areas.

![Figure 1.1: Mapping approach to cost assessment of GNI cost reporting areas](image)

The CER have also made two other adjustments to how the data is presented:

- Innovation has been removed from the individual Opex lines when setting an allowance. This had been contained within the 'Commercial' functional area within the GNI business plan submission.
- In the GNI submission, there was a 0.5% ongoing efficiency assumption applied to total Opex. This was contained within the Head of Networks category. This was stripped out, such that it is possible to see this adjustment as a separate line item.

Pass-through costs are added back to the direct Opex total in order to give total Opex.
1.6.2 Capex

The analysis of Capex is split into three categories:

- **Pipe Capex** - this is the majority of expenditure and deals with pipelines, compressors, AGIs, block valves and minor works. This also includes Grid Control for transmission.
- **IT Capex** - this considers any capital investment for IT (at a total business level – i.e. including GNI internal and Group/Shared initiatives).
- **Non-pipe Capex** - this covers the remainder of Capex, including investment in the vehicle fleet, equipment and facilities.

The CER consider net Capex, i.e. net of customer contributions.

1.6.3 Cost reporting estimates

Within this paper, the figures provided by the transmission business on its expenditure during the PC4 period are forecast figures and are therefore estimates. In addition, the PC3 period has been labelled as actual or outturn values. This is not strictly correct, the values included for the October 2016 to September 2017 period are the transmission business’s best estimate of the expenditure it will incur during that period.

The outturn values for October 2016 to September 2017 will be reviewed when these are available in 2018 and if necessary the revenue that the transmission business should be allowed to collect from its customers will be adjusted at that time to reflect the outcome of the review. Additionally, the outturn values for the last year of PC2 October 2011 to September 2012 are reviewed as part of this price control.
2 FORM OF THE CONTROL

This section describes the overall form of the price control, specifying the approach taken by the CER and how the base and subsequent year revenues have been determined.

2.1 Structure of the price control

The CER believes that the price control for transmission business should be consistent with previous price controls. Applying different principles or models for each price control would risk creating an inconsistent set of incentives and uncertainty. Therefore, in developing the detailed proposals for PC4, the CER has substantially retained the model used in PC3.

The PC4 model will contain:

- Incentive regulation based broadly on the RPI-X model;
- A retention of benefits achieved through costs lower than target levels;
- Uncertain costs will be reviewed on a case by case basis by the CER;
- Pass-through costs should be kept to a minimum. Incentives to minimise pass-through will be applied where practical; and
- The ‘k’ factor and inter-year adjustments as being broadly the same as in the existing price control.

The CER’s position on each of the above is set out below in turn.

2.1.1 Incentive regulation

The CER has decided to continue the application of an incentive based approach. Efficiencies are built into the Opex and Capex allowances and the resulting revenue is profiled over the period.

2.1.2 Benefit retention

The transmission business will not be compensated for any overspends on operating expenditure during the period. It will be allowed to retain any underspends on operating costs during the period.

Regarding capital costs, the same mechanisms as those employed during PC3 are envisaged for use for PC4.
2.1.3 Uncertain costs

Uncertain costs are defined as those that could not reasonably be foreseen by the transmission business. The CER has decided that such costs should be dealt with on a case-by-case basis. In each case, the transmission business would be expected to ensure that changes in Opex or new Capex would take place in an efficient manner and this would be reflected in the allowance provided – that is, there would not be an automatic pass-through of such costs.

2.1.4 Pass-through items

The previous price control contained a provision for the pass-through of certain types of costs, such as business rates, that are deemed to lie outside the business’s control. The CER will continue to use this approach.

In some cases pass through items are subject to incentive mechanisms which shares savings between the transmission business and the network customers, for example, in areas such as rates and safety.

2.1.5 Inter-year adjustments for over- or under-recovery

The CER proposes to retain the current one-stage ‘k’ factor mechanism for PC4.

2.2 Profiling and indexation

2.2.1 Profiling

The CER has profiled the revenue by allowing a step change in when moving to year one of the control and no real change thereafter.

2.2.2 Indexation

The model used by the CER uses a base allowable revenue which is indexed to take account of price inflation. The index used should be the best reflection of the increases in prices faced by the transmission, such as wage inflation or materials inflation etc. Also the index needs to be practical to implement, robust and transparent. The CER proposes to continue to use HICP for the PC4 period.
The CER accepts that no one index can precisely mirror the transmission business’ input costs. It is also accepted that the majority of the annual revenue which the transmission business receives covers depreciation and return on its asset base, rather than operating costs.

It is worth noting that the CER does not necessarily believe that the use of this indexation mechanism results in additional efficiencies being built into the transmission business’ allowed revenue. Those are separately built into the allowances.
3 THE REGULATORY ASSET BASE

3.1 Introduction

The revenue that the transmission business recovers from its customers during each review period can be divided into three separate categories:

i. Revenue to cover the transmission business’s operational costs during that period;

ii. A return on capital on the transmission business’s assets; and,

iii. Revenue to cover depreciation of the transmission business’s assets.

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

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

- Detail on the type of assets within the transmission business’s RAB;
- The methodology used to value the assets within the transmission business’s RAB;
- The length of asset lives applied to the assets within the transmission business’s RAB;
- The depreciation methodology applied to the transmission business’s RAB;
- The regulatory practice when an asset is physically replaced prior to being fully depreciated; and,
- The regulatory treatment of (1) clawback of revenue earned on assets that were not put in place and (2) additions to the transmission business’s RAB.

Finally, section 3.9 provides a summary.

3.2 Composition of the RAB

The RAB is documented within the excel model which is published alongside this paper.
3.3 Valuation of the RAB

3.3.1 Introduction & current approach

The preceding section provides information on where to find detail on the valuation of the RAB. However, the approach to valuing the assets within the RAB is also an important decision within the price control process.

The CER intends to continue its current approach for valuation of the RAB into the next review period. On the basis of regulatory certainty and maintaining regulatory precedent the methodology for valuation of the RAB, which has become established practice during the first three control periods, will not be changed as part of this review.

3.3.2 Background

The core issue regarding the valuation of the transmission business’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.

**Acquisition cost:** Assets are valued at their original cost of construction/acquisition. The value of assets is not indexed for inflation nor is their 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: indexing the acquisition cost of the assets; and revaluing the asset based using a modern equivalent asset (MEA) 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).

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46 The advantages and disadvantages of each are detailed in Table 1 of the PC3 decision paper (CER/12/196).
The CER decided that the transmission business’s RAB would be valued using a replacement cost approach for the period October 2003 to September 2007. The use of this approach has continued during the prevailing price control periods and will be used in PC4.

While it is recognised that there are advantages and disadvantages associated with each methodology\(^47\), the replacement cost approach was taken as it is more likely to result in the correct level of network investment.

As documented above there are a number of variations of replacement cost that could be used. The version used by the CER uses the acquisition cost, indexed with inflation, as a proxy for the replacement cost.

### 3.4 Asset lives applied to the RAB

#### 3.4.1 Introduction & proposal to continue current approach

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

The CER proposes to continue the asset lives that were previously employed in PC3.

#### 3.4.2 Background

The CER has completed three revenue controls to date for the transmission business. Assets were grouped into seven main categories for depreciation periods, with straight line depreciation applied for all assets. The asset lives used in each of those controls (and assumed to be used previous to those controls) are detailed below in Table 3.1. The table also details the proposed asset lives for PC4.

\(^{47}\) These advantages and disadvantages are highlighted in Table 1 section 4.3.2 Decision on October 2012 to September 2017 transmission revenue for Bord Gáis Networks (CER/12/196).
Table 3.1: Asset lives applied to transmission assets

<table>
<thead>
<tr>
<th>Asset type</th>
<th>PC2</th>
<th>PC3</th>
<th>PC4 proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor stations</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Pipeline/Above Ground</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Gas to the West (GTTW)</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>IC2</td>
<td>100</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Land</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Buildings</td>
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</tr>
<tr>
<td>Equipment</td>
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<td>5</td>
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</tr>
<tr>
<td>ITO setup costs</td>
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<td>15</td>
<td>n/a</td>
</tr>
<tr>
<td>Meters</td>
<td>n/a</td>
<td>n/a</td>
<td>15</td>
</tr>
</tbody>
</table>

For PC4, the CER proposes to continue applying the assets lives used during PC3 with the addition of one new category. GNI proposed a new asset category for Transmission Metering Assets with a RAB life of 15 years. This is based on the technical life of the components, which is consistent with the useful life for meters in the distribution business’ RAB.

3.5 Depreciation method

3.5.1 Introduction & proposal to continue current approach

The CER proposes to continue using the same depreciation methodology (straight line depreciation) for the period October 2017 to September 2022 as was employed in PC3.

The following sections provide further information on this topic.

3.5.2 Background

Economic depreciation profiles allocate 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;
common relevant examples are straight-line, sum-of-years-digits\textsuperscript{48} and declining balance depreciation.

When setting the first revenue control, covering the period October 2003 to September 2007, the CER chose the straight-line method. Some of the benefits of this approach are as follows:

- 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 network assets and the load profile of the use of network assets, the straight-line method is considered to be a reasonable representation of economic depreciation for network assets.

The CER noted that the straight-line approach is simple, transparent and objective and also noted that it was the approach that had been chosen for electricity networks.

The straight-line approach to depreciation was then continued when setting the subsequent revenue controls. For PC4, the CER will continue applying the straight-line method of depreciation used during PC3. Maintaining regulatory certainty by continuing this methodology was a factor in developing this intention. However, regulatory certainty aside, the rationale that led to this approach being chosen in the first instance would still provide relevant arguments for choosing straight-line depreciation for the forthcoming period.

### 3.6 Replaced Assets/disposals

The area of replaced assets/disposals is more relevant in distribution than in transmission. Apart from the disposal of ITO setup costs which is discussed in section 5.5 the CER has decided that any issues surrounding these assets will be considered on a case by case basis.

\textsuperscript{48} This is considered more relevant/appropriate for industries with significant technical progress.
3.7 Capital expenditure approved but not incurred

The CER proposes that revenue collected by the transmission business to cover return and depreciation on projects which were planned for the PC3 period and subsequently not put in place will be clawed back and netted off the revenue to be collected by the transmission business during the PC4 period. Adjustments to this revenue prior to it being returned to the network customer are discussed in section 5.1.2.

In some cases the transmission business would be allowed to retain this revenue as part of an incentive mechanism to ensure only necessary assets are built. The details of these calculations for PC3 are provided in section 5.1.

It is intended that a similar treatment will be used at the end of PC4.

3.8 Additions to the transmission business’ RAB

3.8.1 Introduction & proposal to continue current approaches

The regulatory treatment of additions to the transmission business’s RAB is an important issue in a revenue control. This section details the regulatory treatment to:

- Additions to the transmission business’s RAB;
- Interest During Construction (IDC); and,
- Capital contributions and grants.

3.8.2 Additions as spent

The decision for the treatment of additions in PC4 is that assets will treated on an ‘as commissioned’ basis up to September 2016 and on an ‘as spent’ basis from October 2016 onwards.

The use of the ‘as spent’ basis when looking forward is primarily due to the fact that this is the way in which the transmission business provided its forecast Capex figures and consequently CEPA’s recommended figures were also provided on that basis.

The use of the ‘as commissioned’ basis when looking backwards is primarily due to the fact that the transmission business holds its own records of its assets on an ‘as commissioned’
basis. While it would not be strictly necessary for the CER approved RAB to line up with that format, having both on the same basis provides useful crosschecks.

When reviewing outturn PC2 expenditure (and clawing back revenue relating to assets that were not built), the CER essentially redid the calculation for October 2011 to September 2016 on an ‘as commissioned’ basis, even though the revenue had originally been provided to the transmission business when looking forward on an ‘as spent’ basis. The CER believes this is appropriate as it removes the possibility of more than an appropriate number of years of depreciation being provided (e.g. six years instead of five for equipment) if an asset was ‘spent’ in one year, but commissioned in a later year.

3.8.3 Interest During Construction (IDC)

The majority of the transmission RAB is on an as capitalised basis. The transmission business has a policy of charging interest to a project while construction is in progress and this interest charge is included in the value of the project when it is capitalised.

While the forward looking portion of the RAB is completed on an ‘as spent’ basis, the review of outturn expenditure on an ‘as capitalised’ basis ensures that there is no issue in relation to Interest During Construction (IDC).

3.8.4 Capital contributions and grants

In the three previous revenue controls, capital contributions and grants were subtracted from capital expenditure in the relevant year.

The CER proposes to continue this policy during the forthcoming revenue control period, covering October 2017 to September 2022.

3.9 Summary

This section provides a summary of the CER’s methodology when setting the transmission business’s RAB and the level of revenue that the transmission business is allowed to collect during each control period (or year) to cover its depreciation costs.

No changes in methodology relative to that employed during the October 2012 to September 2017 period are proposed for the October 2017 to September 2022 period.
Valuation methodology
The CER proposes to continue using the methodology employed during previous control periods. 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 proposes to continue using the methodology employed during previous controls. Under this approach a life of 50 years is applied to network pipelines. These make up the majority of the transmission business’s asset base. The lifetimes applied to other assets are detailed in section 3.4 of this paper.

Depreciation methodology
The CER proposes to continue using the methodology employed during previous control periods. This is straight-line depreciation.

Depreciation and return on capital expenditure approved but not incurred
The CER proposes that revenue collected by the transmission business to cover return and depreciation on projects which were planned for the 2012 to 2017 period and subsequently not put in place will be clawed back and netted off the revenue to be collected by the transmission business during the 2017 to 2022 period. Details of how this mechanism was implemented for PC3 are provided in Chapter 8 of the distribution document.
APPENDIX B

1 GNI – DETAILED PC4 CONTEXT

1.1 Maintaining utilisation of the gas network

1.1.1 Long term prospects for gas demand

In the longer term, energy and climate change policies, EU directives and technological developments in areas such as energy storage, renewable energy generation and energy efficiency, may lead to a significant reduction in demand for fossil fuels. As part of its PC4 submission, GNI cites independent modelling which estimates that these dynamics could reduce demand for gas by 40% - 60% or more by 2050.49 This trend indicates that there is a risk that customers may face increasing tariffs unless GNI is able to maintain demand on the network without additional cost. In order to ensure that the cost of gas to customers remains competitive over the longer term, the challenge to GNI is to maximise utilisation of the gas network by growing demand whilst driving cost efficiencies.

1.1.2 Promoting growth initiatives during PC4

GNI has argued in its BPQ submission for PC4 that a difficult economic climate, a heightened awareness of energy efficiency and the increasing impact of energy policy contributed to a challenging period for network growth and utilisation during PC3, as average domestic gas consumption fell. Residential demand fell by 3% over PC3 despite a 6% increase in residential customer numbers. Demand for gas from power generation also dropped significantly at the beginning of the period driven by the increasing penetration of renewables together with low coal prices and the economic downturn. This contraction of gas demand from power generation (which reduced by approximately 13% in 2013/14 compared to end of PC2) was offset by growth in the Industrial and Commercial sector (estimated to have increased by 40% by end of PC3). Driven by the extension of the network to Macroom, Nenagh, Wexford and

Cootehill, the growth in the Industrial and Commercial sector meant that, relative to the start of PC3, overall demand has remained flat.

However, GNI state that recent improvement in macroeconomic conditions may drive greater growth in the network during PC4. GNI has proposed to deliver over 100,000 additional domestic and commercial customers by the end of the price control. In total, GNI projections show that the number of connections will rise by c.14%. In addition to the direct costs associated with a larger customer base, such as meter reading and customer servicing, GNI plans to expand its maintenance and response capability to serve new geographic areas. It also anticipates that increased construction activity from economic growth will lead to an increase in siteworks and response activities (e.g. to react to damage caused to gas installations) requiring increased distribution Capex during PC4. However, if GNI is able to achieve these targets without incorporating additional long-term costs it should place downward pressure on network tariffs to the benefit of all gas customers.

GNI has devised a detailed growth strategy which identifies measures it believes can increase market share in the residential and industrial and commercial sectors during PC4. In the residential market, it proposes to target new housing by providing advice to industry participants and working with vendors to promote gas heat pumps and domestic Combined Heat and Power (CHP) units. In the industrial and commercial market, GNI has launched a number of initiatives to increase gas utilisation and deliver savings to customers. One initiative supports institutional customers such as schools, hotels and hospitals which are near but not yet connected to the network. It has also secured a first order for a large data centre site. GNI’s PC4 expenditure plans include forecast increases in Opex to help support these planned growth initiatives, including marketing and supporting regulatory and commercial schemes.

1.2 Supporting energy policy by building on the innovation funding in PC3

The Irish Government has a stated policy objective to guide the transition to a low carbon energy system that provides secure supplies of competitive and affordable energy to Irish citizens and businesses. Whilst the Government acknowledges that there will continue to be
a need for gas to meet Ireland’s energy needs, its energy policy is positioned to gradually reduce dependence on fossil fuels and transition to low carbon fuels like natural gas.50

Natural gas currently provides 27 per cent of Ireland’s primary energy requirement and fuels 52 per cent of national electricity generation, providing flexibility to react to and mitigate the challenge posed by the intermittency of renewable energy sources. A key challenge for GNI over this and subsequent price controls will be to adapt to, and support, the transformation of Ireland’s energy systems. This was a key focus of the PC4 BPQ submission and GNI has considered its role in facilitating the roll-out of Compressed Natural Gas (CNG) for transport purposes and the development of indigenous renewable gas.

Both CNG and renewable gas are also viewed as part of the wider growth initiatives identified by GNI for supporting long term utilisation of the gas network.

1.2.1 Compressed Natural Gas (CNG)

During PC3, GNI undertook a number of projects to expand the role of natural gas in transportation and to develop the renewable gas sector. In 2016, it carried out several CNG trials with industry and commenced the installation of three fast fill CNG refuelling stations. CNG has the potential to deliver benefits in terms of cheaper fuel for transportation, lower air and noise pollution and, with more gas flowing through the network, downward pressure on tariffs for all natural gas users. GNI has identified twenty five strategic locations for CNG refuelling stations around the country and it argues that construction of these stations are necessary for the development of a market for natural gas as a transport fuel and to meeting the requirements of the Alternative Fuels Infrastructure Directive.

In November 2016, the CER published a funding decision on a trial to examine the impact of introducing compressed natural gas (CNG), delivered through the development of 13 CNG stations throughout Ireland.51 This follows a request to the Connecting Europe Facility (CEF) by GNI for this trial (‘Causeway Study’). GNI received €5.96m from the CEF and could draw down €4.68m from the PC3 innovation fund. The CER approved funding the shortfall of the study (€12.83m) to permit GNI to recover the total cost of €23.47m.

50 For example, the Irish Government White Paper published in 2015, ‘Ireland’s transition to a low carbon energy future.’
51 Decision on CNG funding request (CER/16/313)
1.2.2 Renewable Gas (RNG)

GNI is also working to facilitate the first facility for injecting renewable gas directly into the network and, through the PC3 innovation fund, supported several decarbonisation research projects on gas quality, renewable gas feed stocks and the potential for “power-to-gas” (converting electricity to hydrogen). In addition, GNI believe that renewable gas can be part of the solution for national waste management through the conversion of waste to gas. Over PC4 GNI has proposed plans to facilitate the development and connection of six renewable gas production and injection facilities around the country as a necessary stimulus to this market. GNI has stated that “renewable gas is a versatile and sustainable energy source … renewable gas technology is mature and widely used in a number of European countries.”

1.3 Responding to changing gas flows

One of the challenges that GNI has stated it faces during PC4 is responding to changing gas flows on the transmission and distribution.

Gas supply flows changed significantly in the latter period of PC3, with flows from the Corrib gas field commencing in 2015-16.

Figure 1.1: Changing gas flows with Corrib

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52 GNI (2016): ‘PC4 Executive Summary – PC4 SD001’
Corrib has displaced Moffat as the dominant supply point in 2016/17. GNI argue that the new entry point creates a number of operational challenges, including:

- management of variable calorific values across the network;
- increased monitoring of gas quality and specification;
- balancing the configuration of network flows; and
- a requirement to operate the Southwest Scotland Onshore System (SWSOS) compressor stations on low and intermittent flows.

The SWSOS compressor stations, which were originally designed to cater for the full demand of the Ireland, Northern Ireland and Isle of Man networks, may experience additional wear in the future as a result of a start/stop operating profile due to the introduction of Corrib gas and the intermittency of wind generation. Any additional wear would result in an increased maintenance requirement.

Plans are also being developed to decommission historically key network assets. It is now expected that the Inch supply point will cease export operations in 2020/21 which will result in the decommissioning of Midleton Compressor Station. This will have a knock-on effect to other parts of the network, as during peak demand periods the Cork area depends on exports from Inch to maintain network pressures.

In response, GNI has planned a complex capital project at Ballough AGI, in order to increase pressure in the Dublin–Galway–Limerick pipeline and defer the requirement for a pipeline reinforcement between Limerick and Cork.

1.4 Managing an ageing asset base

GNI currently forecasts that maintenance costs will increase for PC4 by c.33% compared to PC3, as it administers ongoing maintenance programmes on a growing asset base, as well as delivering maintenance programmes for new asset classes and an aging asset base.

In preparation for PC4, GNI has done some initial work to understand the long-term asset renewal and investment profile of the network, which it set out in its BPQ submission. GNI’s analysis to date would suggest that the level of replacement expenditure is likely to increase in PC4 and PC5 prior to levelling off towards the end of the 2020s, although there may be options to defer investment whilst reducing risk.
Underlying its forecasts is an ageing asset base, of which GNI estimates more than 40% is over 20 years old. The primary components of the network, such as the buried high pressure steel pipework for transmission and polyethylene pipelines in distribution, have long design lives. However, the ancillary components and subcomponents of the pipelines (e.g. Above Ground Installations (AGIs), District Regulator Installations (DRIs) and at meter points) have considerably shorter design lives. Assets which are beyond their design life will require refurbishment or replacement to ensure the continued operation of the network in a safe and secure manner. GNI therefore expect a step-up in work load activity in PC4 and PC5 which has impacted on its Opex and Capex forecasts, including the company’s resourcing strategy as further detailed in section 2.5 below.

In addition, GNI argue that a number of asset replacements are required prior to the end of their design lives, particularly on the compressor fleet, due to accelerated degradation caused by harsh environmental conditions and usage profiles (driven by the variability of wind generation) to meet changing demand requirements. Early replacement may be the best option to ensure the continued reliable operation of the network.

1.5 Resourcing for higher volumes of smaller projects

In 2013, GNI developed a resource strategy which was to ensure that the company was appropriately resourced to deliver the PC3 work programme to 2017.

GNI identified gaps in core competencies, particularly for technical and engineering resources, which it claimed were manifesting in a failure of the business to ramp to the required activity levels for PC3 delivery. GNI’s assessment of the underlying cause was differences in work type and volume between PC3 and preceding price control periods. In particular, the challenge was to become a low value high volume delivery company, while retaining the ability to deliver large projects such as new town developments. GNI’s response was a combination of recruiting additional staff and upskilling, which resulted in significantly increased resourcing costs over the latter years of PC3.

GNI argues that the PC4 work programme is potentially larger and more challenging than the programme delivered in PC3. In addition to a growing asset base and forecast maintenance
programme, GNI is planning for a refurbishment programme which currently includes a number of high volume activities, for example:

- relocating c.9,000 domestic meters which have been identified to be located in unsafe (and/or non-compliant) positions in customer properties;
- installation of c.9,000 excess flow valves on 4 bar domestic services to limit the propagation of gas leaks from third party damage or asset failure;
- replacing c. 4,400 industrial and commercial meters, an increase of 42% on PC3; and
- replacing c. 124,000 domestic meters, an increase of 10% on PC3.

In light of the experience of ramping up resources in PC3, GNI has prepared an updated resource strategy which it believes will facilitate the delivery of the PC4 work programme. The same shortages in technical and engineering roles have been identified, as was the case for PC3. GNI believes that a net increase in headcount of c.70 people over 2016, 2017 and 2018 is required to deliver the programme of work, including 35 technical roles in Asset Operations, Asset Management and HSQE, 25 roles in its apprenticeship and graduate trainee programmes, and the remaining 10 roles in support services.

Figure 1.2 below illustrates GNI’s forecast total headcount movement over the PC4 price control.\(^{53}\)

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\(^{53}\) Note that this excludes growth in headcount at the Ervia Group level where BUs such as the Shared Service Centre support GNI’s activities.
Figure 1.2: Forecast movement in GNI headcount