GNI (UK) Response to GT17 Draft Determination

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For publication

Executive Summary

GNI (UK) Limited ("**GNI (UK)**") welcomes the opportunity to respond to this important consultation on the Utility Regulator ("**UR**") Draft Determination on the price control for Northern Ireland's Gas Transmission Network (the "**Draft Determination**"). GNI (UK) has supported, and from an early stage invested heavily in, the development of the gas industry in Northern Ireland. GNI (UK) has a strong track record of working closely with UR and all stakeholders to develop the industry in the best interests of customers.

However, GNI (UK) is strongly of the view that the proposals in the Draft Determination in relation to the GNI (UK) allowances are not appropriate, and if implemented, would result in UR failing to comply with its statutory objective and duties. This response sets out why that is the case.

GNI (UK) is concerned that the unprecedented low cost of capital being proposed, the setting of operating expenditure ("**Opex**") allowances at unrealistically low levels and the failure in the Draft Determination to acknowledge drivers of refurbishment and upgrade expenditure combine in their effect to undermine the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland. The Draft Determination has given, among other things, insufficient, or indeed no, regard to the need to ensure a high level of protection of the interests of consumers of gas, both existing and future, or the need to secure that licensees are able to finance their relevant activities.

GNI (UK) is concerned that the proposals in the Draft Determination are misconceived and based on errors, and represent a departure from the incentive-based regulation for shareholder owned network utilities required by the correct application of the function and duties of UR. Instead the proposals point towards a system of regulation characterised by micro-management, which sets allowances below economic levels, resulting in asymmetric incentives with no opportunity for GNI (UK) to earn a fair return.

There are very serious flaws in the approach taken by UR in the price control process which prejudice GNI (UK) and have resulted in a defective Draft Determination:

- **Errors and flaws in the analysis of WACC**: UR appears to have chosen selectively from the available evidence and the approach is not methodologically consistent. UR also proposes not to take into account the circumstances of GNI (UK)'s original investment and seeks to impose a return approaching or equivalent to that of a mutualised entity. Such an approach is not in accordance with GNI (UK)'s licence and is contrary to UR's principal objective of promoting the development and maintenance of an efficient, economic and coordinated gas industry in Northern Ireland. The detrimental effect on investor confidence and regulatory certainty that would be caused by a decision of this nature, and lead to higher rates of return being required by investors in Northern Ireland infrastructure, further suggests that insufficient weight has been given by UR to its duty to protect the interests of customers.

- **Lack of reasoned opinions and evidence**: the proposed level of allowances for Controllable Opex and replacement expenditure ("**Repex**") is unsupported by evidence and comprises elements which appear to have been applied inconsistently to minimise return to GNI (UK) and ultimately to result in an uneconomic level of allowances. On several cost lines, where UR has reduced the proposed allowance, the reduction is justified based on unpublished advice from external consultants or a rejection of GNI (UK)'s justification with no counter argument. As the consultant advice is not made available in the Draft Determination it cannot be assessed or argued. Nor can it be determined that this advice has been duly weighed and considered by UR. This is a clear departure from best practice of Ofgem or indeed the Competition and Markets Authority and the regulatory best practice principles of transparency and accountability, as well as the principles of natural justice and procedural fairness.

- **Predetermined outcome**: UR appears to have approached GT17 with certain elements predetermined. In relation to Opex, UR states that "when assessing the appropriateness of the Opex requests, we take the view that cost should be in line with past allowances / actual costs observed in the price control period". However, in certain cases UR has not given regard to the actual costs observed and has simply "rolled over" the current level of allowances. UR appears

not to have considered any information provided by GNI (UK) in relation to these costs. This amounts to a failure by UR to assess efficient Opex for GT17, resulting in errors in the calculation of allowances.

The defective approach undertaken by UR has resulted in clear deficiencies in each of the key components in the Draft Determination.

- **Controllable Opex**: UR proposes an allowance for controllable operating costs in GT17 of £20.87m. This falls substantially short of the £25.72m necessary for GNI (UK) to operate its regulated business over GT17 and, as such, is inadequate. The Draft Determination provides insufficient allowances to enable GNI (UK) to operate and maintain the transmission network during GT17 to the standard required by its statutory and licence obligations, and to satisfy the reasonable demands of customers in terms of safety security and quality of service. The Opex efficiency incentive is asymmetric in that overspend relative to allowances is almost certain and there is no opportunity to outperform.

- **Repex**: The Draft Determination does not provide either sufficient allowances to undertake necessary works or a credible mechanism to progress the necessary initiatives.

  GNI (UK) has sought allowances for necessary Repex of c £5.9m, but UR proposes allowing a mere £0.4m of these. In most cases UR provides no allowances and appears not to have considered, or to have misinterpreted, the justification and rationale for the investments. It is difficult to reconcile the rejection of required allowances with the imposition, in the Conveyance Licence granted by UR, of a duty on GNI (UK) to act as a Reasonable and Prudent Operator, to maintain the capacity and functionality of the assets and to optimise the efficiency, reliability, availability and operational life of the network. GNI (UK) submits that to impose an obligation on a licensee without providing that licensee with sufficient funds to discharge it is unfair and contrary to principles of administrative law and UR's duty to have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by its licence.

  GNI (UK) has no confidence in the uncertainty mechanism in the licence under which UR states it may be willing to fund additional projects. In GT12, GNI (UK) made a submission to UR for additional allowances for asset replacement and refurbishment expenditure. This request was largely rejected by UR and it will be necessary for GNI (UK) to incur c. £1.3m Repex with an allowance of £86K.

  The failure to grant appropriate allowances is at odds with the principle of incentive based regulation.

- **WACC**: GNI (UK) is deeply concerned at the proposed cost of capital for the forthcoming period.

  Firstly, GNI (UK) disagrees with the approach that UR is purporting to follow in establishing the cost of equity and the gearing ratio. As well as involving a failure by UR to honour the agreement embodied in GNI (UK)'s 2008 licence to fix these components[1], a market rate approach fails to recognise the project-specific risks that GNI (UK) took when it made its investment in Northern Ireland.

[1] See discussion at 2.4 below.

Secondly, even assuming that the market rate approach that UR purports to follow is appropriate (which GNI (UK) does not accept), UR's approach and conclusion that GNI (UK)'s WACC should be set at a rate of 2%[2] is fundamentally flawed for a number of reasons, including:

- UR appears to have selectively chosen from the available evidence to arrive at a proposed WACC that is below all relevant comparators;
- inconsistency between the current proposed approach and the approach used by UR in relation to GD17; and
- the lack of headroom to deal with the potential challenges that may arise.

GNI (UK) believes that the proposed determination will not achieve the aims set by UR and would conflict with UR's principal objective and regulatory duties:

Principal Objective to promote the development and maintenance of an efficient, economic and coordinated gas industry in Northern Ireland: The Draft Determination proposes a WACC of 2% which approximates to a mutualised return and is far below a WACC determined in accordance with the terms of the GNI (UK) licence agreed in 2008. This will undermine regulatory credibility for any future potential investors in the energy sector in Northern Ireland. Such a reduction in investor confidence is likely to increase the required returns for those investors who continue to finance such projects. Further, the Draft Determination does not allow for necessary and efficient investment to be undertaken. GNI (UK) has identified numerous asset refurbishment and upgrade initiatives, at different stages of development to maintain the safe and efficient operation of its network. Most of these initiatives have been rejected by UR. UR also indicates that, where it does accept the necessity of investment, it will not provide allowances to fund the detailed design necessary to develop accurate costs estimates. Rather, UR requires that the cost of such additional design works should be absorbed by GNI (UK). This approach to networks refurbishment can only be to the detriment of long-term planning, eliminates any potential continuity of investment planning and increases the overall risk on the network.

The need to ensure a high level of protection of the interests of consumers of gas*:* UR appears to prioritise short term cost reduction over the longer term efficiency of the sector. This is manifested not only in its unwillingness to allow for (even planning of) necessary and efficient investment, but also in its failure to recognise the threat to investor confidence in failing to recognise the investment risks GNI (UK) took in 2002 and the failure to provide allowances for necessary and efficient investment. This is not in the interests of consumers (who are defined to include existing and future consumers) and disregards their interests in the network safety, security and quality of service.

The need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under Part II of the Gas Order or the Energy Order: UR has failed to provide sufficient allowances to cover costs that GNI (UK) must incur in order to comply with obligations imposed under Part II of the Gas Order, namely its licence conditions.

Objective to promote efficiency and economy in the conveyance of gas*:* The departure from the principles of incentive-based regulation in failing to provide allowances and an inappropriate reliance on uncertainty mechanisms is beyond established regulatory practice and fails to promote efficiency and outperformance.

In conclusion, GNI (UK) considers that the Draft Determination does not balance the competing duties under which UR operates. UR appears to give undue weight to short term cost considerations at the expense of its duties in relation to public safety and securing a sustainable long term energy supply. GNI (UK) urges UR to reassess its Draft Determination and engage further with GNI (UK) to reach a Final Determination that can contribute towards the achievement of UR's primary objective, to promote the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland.

[2] GNI (UK)'s licence uses CPI inflation and not RPI. As a result an adjustment is required to reflect this difference. GNI (UK) notes the adjustment proposed by UR.

1 Introduction

1.1 GNI (UK)

GNI (UK) owns and operates a high pressure transmission system consisting of 295km of pipeline and 18 Above Ground Installations (AGIs) in Northern Ireland. Since 2002, it has invested c. £177m in this transmission network. Over the course of the current price control period, GNI (UK) has operated a safe and reliable network for its customers and stakeholders and puts on record its achievements, including:

- GNI (UK) supported the opening of retail gas markets with five shippers transporting gas over the GNI (UK) network. Four of these shippers are competing in the commercial and domestic gas markets;
- GNI (UK), in conjunction with other Transmission System Operators ("**TSOs**"), regulators, and industry, implemented contractual changes to facilitate the introduction of the EU Network Codes and Entry Exit regime;
- GNI (UK) completed construction of the Maydown AGI to supply the Pipeline to the West; and
- GNI (UK), in conjunction with UR and the other high pressure conveyance licensees in Northern Ireland (the "**Other TSOs**") has commenced work on a contractual joint venture ("**CJV**") framework for a single system operator in Northern Ireland. This is due to go live on 1 October 2017 and will offer long term benefits for the continued development of the Northern Ireland gas market.

In operating and maintaining the network, GNI (UK) is committed to providing a safe, sustainable and reliable service to its customers and end users who rely on its network for gas supply.

1.2 Price control components

The GT17 Price Control operates within the framework set out in the GNI (UK) conveyance licence. The core components of the price control determination as set out in the licence are:

- Controllable Operating Expenditure: These costs relate to the day-to-day costs of running GNI (UK)'s gas transmission network including administration, maintenance and system operations. It also includes the costs of replacing, refurbishing and upgrading assets on the network. There is no cost risk-sharing mechanism in the GNI (UK) licence and GNI (UK) bears all the risk of deviation between allowances and actual expenditure.

  For the purposes of the price control process, UR has disaggregated Controllable Operating Expenditure into "Controllable Opex", which relates to the day to day costs and "Repex" which relates to the replacement, refurbishment and upgrade expenditure. As Repex is treated as an Opex cost and is not added to the Regulated Asset Value there is no incentive on GNI (UK) to favour Repex ahead of maintenance or other operating means of addressing asset related issues.

- Uncontrollable Operating Expenditure: These are costs that are beyond the control of GNI (UK). Adjustments are made to the annual revenue to allow GNI (UK) recover costs incurred.

- Rate of Return: Since the implementation of the Rate of Return Licence Modification in 2016[3], UR sets the Rate of Return for GNI (UK) at each price control review.

The Actual Final Capital Expenditure, which is analogous to the Regulated Asset Value in other regulated models, is set in a process outside the price control review. Capital expenditure to expand the network is likewise outside the scope of the price control review.

3 This recent modification to GNI (UK)'s licence, discussed at section 2.4 below, made certain key components of GNI (UK)'s rate of return, previously agreed to be fixed, capable of being amended.

1.3 Overview

This submission sets out GNI (UK)'s views on the Draft Determination and is structured as follows:

- **Section 2**: **Background** provides background to the expenditure, allowances and GNI (UK)'s Rate of Return;
- **Section 3 Operating Expenditure** sets outs the GNI (UK)'s view on the proposed Operating Costs allowances. It highlights shortcomings in UR's approach and provides arguments for certain Opex allowances to be increased;
- **Section 4 Replacement Expenditure** provides the GNI (UK) response to UR's approach on Repex and provides further details on some of the projects proposed;
- **Section 5 Financial Aspects** outlines the shortcomings in UR's analysis of the GNI (UK) Rate of Return; and
- **Appendix** A and B provide information on the Asset Management System used to manage the GNI (UK) assets and further information on the proposed Repex initiatives.

2 Background

2.1 Structure of regulatory framework

The regulatory framework under which GNI (UK) operates is modelled on a well understood "revenue cap" incentive framework. Under this framework, GNI (UK) is allowed a revenue to carry out its duties under the licence and is exposed to the risk associated with variances between allowances and actual costs. This model is intended to incentivise efficiency and minimise costs. However this pre-supposes that allowances are set at a level that, having regard to what costs are controllable, would be incurred by an efficient operator.

UR summarises the regulatory framework for GNI (UK) as follows:

> "The [Opex] allowance represents a fixed amount the licence holder will recover from consumers. Any variation between this allowance and the actual operating expenditure is absorbed by the licence holder, in this instance the consumer is exposed to no operating costs risk, instead this risk is borne entirely by the shareholders of the licence holder and reflected in the rate of return. This provides the licence holder with a very clear incentive to effectively manage operating expenditure."

The regulatory framework described by UR resembles the RPI-X revenue cap mechanism that has operated in the UK in many regulated sectors. The operation of a revenue cap incentive framework is well understood and is summarised by the CMA in its decision on the NIE price control:

> Under this type of regulation (RAB-based incentive regulation) we make forecasts of [the utility's] (efficient) expenditure requirements over a defined price control period, across both opex and capex, and use these as the basis to set a revenue control for [the utility's] relevant services. The revenue control is calculated to **provide [the utility] with sufficient revenue (but no more) to enable it to cover its operating costs and to earn a fair rate of return on its RAB**. The price control is designed in a way that is **intended to provide [the utility] with financial incentives to operate efficiently and to avoid unnecessary expenditure, while also taking account of the difficulties of forecasting costs**. The price control might include various mechanisms and arrangements to adjust [the] revenue control in light of factors such as additional costs approved by the regulator. (emphasis added)

However, as will be outlined below, GNI (UK) submits that in this Draft Determination, as in GT12, it is being required to absorb efficient costs. In GT12, certain costs, correctly forecast by GNI (UK), were not allowed by UR. As a result, over GT12 GNI (UK)'s shareholder has earned a rate of return below that which was reasonably expected at the time the licence was last modified by agreement between UR and GNI (UK) in 2008.

2.2 GT12 allowances and actual expenditure

In 2012, UR published its determination of the allowances for GNI (UK) over the five year period to September 2017. These allowances were substantially below the level requested by GNI (UK) and, as predicted by GNI (UK) at the time, have not been sufficient to fund GNI (UK)'s duties under its licence. A summary of the actual efficient expenditure and allowances over the GT12 price control period is given in the graph below.

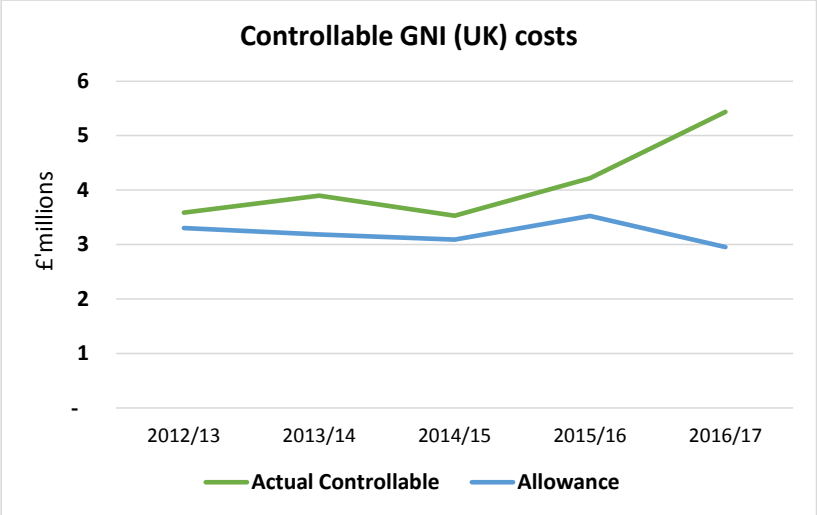

Figure 1: Controllable GNI (UK) operating costs (incl. Repex)

GNI (UK) estimates that the variance of actual controllable expenditure, including Repex to allowances will be c. €4.6m over the 5 years of GT12. This represents an overspend of c.28% relative to allowances. GNI (UK) is exposed to 100% of the overspend on allowances and so is strongly incentivised to manage costs within the allowances, i.e. not to incur additional Opex or Repex. Notwithstanding this, GNI (UK) has decided that, as a Reasonable and Prudent Operator (RPO) and in order to comply with its licence, it is necessary to incur costs in excess of its allowances. GNI (UK) has determined that limiting spending to allowances would lead to a level of degradation of assets on the network which would pose an unacceptable level of safety and security of supply risk to customers and the general public.

The increase in costs in 2016/17 is primarily driven by an investment programme to address degradation in areas of the network. The investment programme includes:

- refurbishment of meters to ensure accurate metering for customers (£126K);
- refurbishment and installation of marker posts in accordance with good industry practice (£480K)
- upgrade of the control systems at Carrickfergus and Coolkeeragh AGIs to ensure the safe operation of the network (£560K); and
- refurbishment of the cathodic protection system to protect the underground steel pipelines from corrosion (£73K).

In total, £1.36m Repex is to be incurred by September 2017.

2.3 Uncertainty mechanism

As set out in the Draft Determination, there are two mechanisms to adjust GNI (UK)'s revenue in light of additional costs approved by UR. The relevant mechanisms are

> **Condition 2.2.4(i)** allows GNI (UK) to request a special operating expenditure review if actual operating expenditure in any gas year differs from the most recently agreed forecast by more than 15%.
>
> **Condition 2.2.4(j)** allows GNI (UK) to seek UR approval to recover unforeseen operating expenditure.

As outlined above, the actual expenditure incurred by GNI (UK) in GT12 is significantly greater than allowances granted by UR. GNI (UK) has sought and been granted additional allowances for UR driven projects (e.g. the Northern Ireland European Development project). However, GNI (UK) has not received any significant additional allowances sought where operating costs were above allowances or for the delivery of necessary asset refurbishment programmes (further details in Section 4 below). In those cases, UR has determined that costs were either not unforeseen, and so did not qualify for reopening, or that insufficient information was submitted, notwithstanding that GNI(UK) considers this information to have

been sufficient. This undermines GNI (UK)'s confidence that the existing licence mechanism can provide protection against allowances which are insufficient to fund necessary and efficient expenditure.

2.4 GNI (UK) licence and rate of return

GNI (UK)'s gas conveyance licence was first issued in 2002. In July 2008, modifications were agreed to the licence which provided certainty to GNI (UK) by fixing certain components in the rate of return, or Weighted Average Cost of Capital (WACC), for the duration of the licence. In particular, Condition 2.2, Annex A, paragraph 5 provided for the calculation of the rate of return using the usual components, including the cost of debt, risk free rate, return on equity and level of gearing. The cost of debt was to be reviewed at each price review, and the other three components were fixed, whereby Condition 2.2:

- hard-coded the 72.5% level of gearing;
- locked in a 15% return on equity for the remainder of the licence; and
- set the gearing effect at 0.38%.

In 2016, UR consulted upon, and decided to implement, a modification of Condition 2.2 (the "**Rate of Return Licence Modification**"), which removed the fixed elements of the WACC and gives UR greater discretion in the setting of the cost of capital for GNI (UK). In its response to UR's consultation on the Rate of Return Licence Modification[4] GNI (UK) strenuously objected to the proposed modification, as providing the means by which UR could effectively undermine the basis on which GNI (UK) had made its original investment decision in Northern Ireland and, at worst, amount to an ex-post expropriation of GNI (UK)'s revenues. GNI (UK) argued that:

- maintaining the fixed components in GNI (UK)'s rate of return for the remainder of the licence provided a true reflection of GNI (UK)'s investment risks in the pipeline projects undertaken since 2002. The fixed components formed part of a formula which was calculated to provide a fair remuneration to GNI (UK) over the lifetime of its licence;
- fixing the components in GNI (UK)'s rate of return provided, and would continue to provide, the necessary regulatory certainty for GNI (UK) to ensure the construction, funding and maintenance of the pipelines within its licensed area; and
- maintaining the fixed components in GNI (UK)'s rate of return would continue to provide broader regulatory stability, fostering investor confidence in Northern Ireland's gas and other utilities projects and demonstrating that an agreement for the lifetime of an asset would be honoured. Investors in future infrastructure would therefore be able to discount the risk of regulatory opportunism when considering future investments in regulated assets.

Notwithstanding the above, as will be set out in section 5 of this document, UR proposes to apply an approach to WACC which ignores the original basis of GNI (UK)'s investment and, being set at an unprecedented low level, also seeks to approximate a mutualised return for GNI (UK). This is entirely unacceptable to GNI (UK), for the reasons set out in that section. As will be seen in sections 3 and 4 of this document, the inappropriateness of the rate of return calculation is compounded by the significant and asymmetric level of risk faced by GNI (UK) in relation to ongoing expenditure and the operation of its business. It is noted that such risks are not borne by mutualised entities.

[4] https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/Rate_of_return_licence_mod_consultation_-_March_2016_-_GNI_UK_response.pdf

3 Operating expenditure

3.1 Approach to Opex

The Opex component of the price control decision is intended to make provision for the efficient day-to-day costs of running GNI (UK)'s gas transmission network, covering key items such as network maintenance, administration, and system operation. UR proposes an allowance for controllable operating costs in GT17 of c. £21m. This falls substantially short of the c. £26m necessary for GNI (UK) to operate its regulated business over GT17 and, as such, is inadequate. As will be explained below, UR's decisions and approach to the Opex component are in conflict with:

- UR's aim to deliver on its objectives in an achievable and sustainable manner;
- UR's statutory duties including (among others):
    - (i) its duty to promote the development *and maintenance* of an efficient, economic and co-ordinated gas industry in Northern Ireland;
    - (ii) its duties to have regard to the needs to ensure a high level of protection of the interests of consumers (both existing and *future*) and to secure that licence holders are able to finance relevant activities;
    - (iii) its duties to promote the efficient use of gas and efficiency and economy in the conveyance of gas; and
- the principles of regulatory best practice, the requirements of natural justice and procedural fairness.

Before setting out GNI (UK)'s specific concerns, it is worth rehearsing the point that neither UR's statutory objective nor any of its other duties require UR to focus on short-term cost reduction at the expense of the network or the promotion of longer-term efficiency under incentive-based regulation and indeed such an approach would be contrary to UR's principal statutory objective and other duties. The importance of investor confidence, regulatory best practice and incentive-based regulation in promoting efficiency, economy and consumers' best interests are well-recognised. In addition, it is wrong to equate consumers' interests only with costs, disregarding their interests in terms of safety, security and quality of service.

3.1.1 GNI (UK) Business Plan

GNI (UK) has sought to ensure that the Business Plan submitted to UR provides an accurate view of the projected efficient costs to operate the GNI (UK) business. To achieve this, GNI (UK) undertook a detailed planning exercise which included:

- estimation of the maintenance work required on the network taking into account all relevant standards and mandatory requirements;
- updating cost estimates based on the most current market testing from an ongoing procurement process and industry experts;
- in co-operation with the Other TSOs, the development of a full business plan for the operation of the CJV; and
- detailed review of the cost allocation methodology to ensure that only appropriate costs are charged to the GNI (UK) business.

The Business Plan, together with responses to subsequent requests, provided a comprehensive rationale for the costs. UR has not demonstrated due regard and assessment of the information provided by GNI (UK). The result of this departure from best practice is that UR's decisions are based on incomplete information and errors of facts and not in accordance with UR's regulatory duties.

3.1.2 Concerns with UR Appoach

The UR proposals on Controllable Opex as set out in the Draft Determination are not well supported by analysis or evidence. In a number of areas, which are outlined below, UR fails to give sufficient detail or reasoning for its proposed reductions and appears not to have duly considered relevant information provided by GNI (UK), meaning that UR's decisions are neither transparent nor accountable in accordance with regulatory best practice.

UR does not appear to have given regard to benchmark analysis on the Ervia pay model and support functions furnished by GNI (UK) which demonstrate efficiency relative to other organisations.

In its GT17 Approach Paper, UR states that "when assessing the appropriateness of the Opex requests, we take the view that cost should be in line with past allowances / actual costs observed in the price control period". In certain cases, outlined below, UR "rolls over" the current level of allowances which were set almost 10 years ago in a previous Price Control review. This "rolling over" is proposed without having regard to the actual costs incurred by GNI (UK), which UR suggested it would have regard to, or any additional information provided by GNI (UK) about likely future costs. Implementing this approach without reference to actual costs or likely future costs suggests that UR has not carried out its function of assessing the efficient and economic costs of maintaining the network.

The Draft Determination also states that UR may expand on the analysis if further data becomes available. However it is not clear what process is being followed here. GNI (UK) has provided all information requested by UR as part of the GT17 process. In the event that other external data will be considered by UR, GNI (UK) requests that it be given an appropriate opportunity to review and comment on any analysis which UR relies upon in a final determination, in accordance with the regulatory best practice principles of transparency and accountability and the requirements of natural justice.

3.2 Evaluation of Opex proposals

3.2.1 Staff costs (excluding CJV)

Cost Category	Business Plan £m	Proposed Allowance £m[5]
Staff Costs (Support & Engineering)	4.7	3.7

Table 1: GNI (UK) staff costs

3.2.1.1 Staff numbers

GNI (UK) welcomes UR's approval of allowances for an additional Full Time Equivalent ("**FTE**") in engineering. However it notes that this additional FTE is negated by the removal of two support staff from GNI (UK) in respect of the single system operator CJV. GNI (UK) has already reflected a reduced allocation of costs following the establishment of the CJV as outlined in detail in its Business Plan. However this reduction equates to one FTE, rather than two FTEs assumed by UR. UR has not provided any detail as to how it established that two FTEs are no longer necessary to support the GNI (UK) business post establishment of the CJV. This is contrary to regulatory best practice principles of transparency and accountability.

3.2.1.2 Staff cost per Full Time Equivalent

The Draft Determination proposes a reduction to allowances for staff costs relative to the GNI (UK) forecast. However, no rationale is provided, other than to disallow cost increases driven by changes in exchange rates (as discussed further below). Again, this breaches the regulatory best practice principles of transparency and accountability and results in UR's determination being based on an error of fact.

GNI (UK) notes that the average staff pay levels within the MEL group (as the obvious comparator company) are above those proposed for GNI (UK). Using 2019/20 by way of example, average staff costs allowed for MEL are £84k per annum compared to an allowance of £60k per annum for GNI (UK) – a 40% gap in pay levels. This clearly is evidence that GNI (UK) levels of staff costs are appropriate and efficient. UR notes the executive pay is spread over a smaller number of employees in MEL and that GNI (UK)'s parent company incurs most of the executive costs. However, GNI (UK) costs include an allocation of executive pay levels from the Ervia Group and GNI executive teams and UR appears to have disregarded this fact.

[5] The proposed allowances throughout this paper are expressed pre-efficiency.

GNI (UK) would refer UR to the EY support services benchmarking report which evidences that the organisation support functions are efficient with performance of most functions in line with or ahead of industry benchmarks.

3.2.1.3 Impact of exchange rates

GNI (UK) staff costs are incurred in euro and average staff pay costs will be impacted by projected adverse movements in the GBP/EUR rate. GNI (UK) has provided market forecasts to UR justifying the GBP/EUR rate assumed in the submission[6]. GNI (UK) also provided follow on evidence that the GBP/EUR outlook has further weakened since the original submission. However, UR has disregarded the evidence on forward exchange rates and concluded that market forecasts would not be used on the basis that its analysis shows that over time the cost/benefit of exchange rate fluctuations is largely negligible. It is not clear however on what basis UR has reached the conclusion that, because the cost/benefit of exchange rate fluctuations has been largely negligible over the last ten years, that will continue to be the case even when market forecasts suggest otherwise and many fundamentals of the economy have changed. UR appears not to have analysed this and has based its determination on an error of fact. GNI (UK) argues that forward looking allowances should be set based on the best available information of forecast costs, and hence include adjustments for market based forecast of exchange rates.

3.2.2 Administration

Cost Category	Business Plan £m	Proposed Allowance £m
Administration	2.9	1.9

Table 2: GNI (UK) administration costs

The Draft Determination disallows £1m over the price control for administration costs. This is notwithstanding that:

1. the Business Plan forecasts for intercompany recharges and other overheads are substantially lower than the costs incurred during GT12 (c.15%);
2. GNI (UK) has provided supporting benchmarking evidence to UR to demonstrate the efficiency of the costs; and
3. the allowances sought are below those allowed to MEL.

In considering GNI (UK)'s submission for overheads, UR appears to give undue weight to the current allowance of £200K p.a., which was rolled over from the previous price control period and in effect has not been assessed in 10 years. In rolling this forward for another 5 year period, there is no detailed consideration of GNI (UK)'s submission or any evidence that UR has given consideration to benchmarking evidence submitted by GNI (UK), including the Pay and Benchmarking reports. These include:

- Pay Benchmarking: GNI (UK) has provided an independent report by Aon Hewitt which concluded that the pay model in the Ervia group, which includes GNI (UK), is typical of that within most private sectors and that actual individual pay levels are lower than typical market rates in most cases.
- Support Services Benchmarking: EY conducted a performance review and concluded that Ervia's support functions are efficient and performance of most functions is in line with or above industry benchmarks.

In relation to the insurance element within Administration Costs, the Business Plan forecasts an increase in insurance premia over GT17 due to changing market conditions in the industry and analysis that the current pricing level is unsustainable. Evidence of this expected change in market conditions has been verified by two independent insurance brokers and provided to UR. However, UR has not given due regard to this information on the basis that no increase in real terms is predicted in the BGTL and PTL pipeline costs. Whilst GNI (UK) recognises that it is appropriate for UR to have regard to BGTL and PTL predictions, it is incumbent on UR to weigh all the evidence presented to it about the insurance element in determining the level of efficient and economic insurance costs. If it did that, it would be impossible to

[6] GNI (UK) has used forward rates ranging from 0.8709 (for 2017) to 0.9131 (for 2022) with an average rate of 0.8916.

come to a conclusion that UR has indicated it has reached. It is not appropriate for UR simply to adopt the evidence that results in the lowest possible allowance without analysis. The cost of insurance is market driven and is outside of the control of GNI (UK). It is clearly not tenable for GNI (UK)'s pipelines to be uninsured or underinsured. Despite this UR has proposed a reduction in the insurance request by c 30%.

Sufficient insurance coverage is critical to ensuring the effective operation of the transmission network. An insufficient allowance for insurance premia adversely impacts the risk profile of the business and the network.

It is worth highlighting in relation to GNI (UK) forecast increases in insurance costs that UR is content to rely on MEL as a comparator where the impact of this is to not allow the forecast increase. However, this does not apply equally, for example in relation to staff costs, where the MEL costs are higher. Such an approach does not meet the consistency principle of regulatory best practice. GNI (UK) also notes that allowances provided to MEL for insurance is more than three times of that provided to GNI (UK) notwithstanding it doesn't forecast a further increase.

3.2.3 Routine maintenance

Cost Category	Business Plan £m	Proposed Allowance £m
Routine Maintenance	6.8	6.2

Table 3: GNI (UK) routine maintenance costs

In its Business Plan GNI (UK) projected costs of £6.8m for necessary routine maintenance, with increased costs due to pipeline affirmation[7] in accordance with I.S. 328 or IGE–TD-1 as applicable, profiling of works of PSSR overhauls and the addition of a new AGI at Maydown. The increase in costs is also driven by an increase in the market rates for the work undertaken. In this regard, GNI (UK)'s existing contract with its Operation and Maintenance provider is due to expire and GNI (UK) has begun a procurement process to appoint a new supplier. GNI (UK) has implemented best practice procurement processes, including seeking to expand the supplier base and optimise the commercial structure of the contract, through activity based costing (as previously requested by UR). Notwithstanding these efforts, the results from the tender process demonstrate an increase in the costs compared to the last contract which was put in place in 2010.

However, the Draft Determination proposes a c. 10% reduction on the basis of unpublished external consultant's advice and without providing any justification or evidence. This is not consistent with good regulatory practice, in particular the requirements of transparency and accountability, and the result is that UR is proposing to set the allowance at an inappropriately low level.

3.2.4 Unplanned maintenance

Cost Category	Business Plan £m	Proposed Allowance £m
Drainage	1.4	1.0
Other Unplanned Costs	1.2	1.0

Table 4: GNI (UK) unplanned maintenance costs

3.2.4.1 Drainage

Drainage costs include all non-routine agricultural remediation works, including landowner liaison. GNI (UK)'s Business Plan noted that the number of remediation claims from landowners in this area increased significantly during 2013/14 and 2014/15 due to weather conditions. GNI (UK) projected costs for Drainage

[7] Pipeline affirmation is a procedure to confirm the maximum operating pressures of the pipeline.

are equal to the average cost over the previous 5 years. UR proposes to set the GT17 allowances based on the lowest cost year within the previous price control and suggests this is a "normal year". GNI (UK) does not accept that the lowest cost year in GT12 represents a "normal year". On the contrary, indications from climate research is that extreme weather events are occurring more frequently than in the past[8], increasing the risk of flooding and related drainage costs. GNI (UK) submits that the UR method (and allowance) is incorrect and not based on evidence and again that UR is seeking simply to adopt an approach that results in the lowest possible allowance without analysis or a consistent approach in line with regulatory best practice.

3.2.4.2 Other unplanned costs

GNI (UK) has projected costs of £1.2m based on historic costs and a detailed bottom up estimation of potential unplanned maintenance. The Draft Determination proposes a 12% reduction based on unpublished external consultant's advice and without providing any justification or evidence. This is not consistent with good regulatory practice, in particular the principles of transparency and accountability.

3.2.5 System operation

Cost Category	Business Plan £m	Proposed Allowance £m
Grid Control	1.8	1.8

Table 5: GNI (UK) grid control costs

Grid Control is a critical activity in terms of monitoring the safe operation of the gas transportation system and security of supply to customers. Grid control is the central control room which is connected to the gas network via the SCADA system. Staff in the grid control room remotely monitor key stations making it possible to intervene 24/7, if necessary, in cases of emergency. GNI (UK) notes that it benefits from synergies and economies of scale within the Ervia group with the provision of grid control services from the Gas Networks Ireland Grid Control function. GNI (UK) is satisfied that it has efficient arrangements in place for grid control services.

GNI (UK) welcomes UR's approval of the amount requested for Grid Control services, which, for the avoidance of doubt, is premised on the continuation of the current regime. It is not clear on what basis UR would seek to require licence holders to conduct a joint tender process to procure grid control services. Undertaking a procurement for such an essential service is a complex and costly exercise. GNI (UK) sees no reason why it should be obliged to undertake such a tender process and has not included any costs to manage a tender process for grid control services.

Any joint tender process for grid control services is likely to create a high risk of procurement challenge arising from the awarding authority having an affiliated company participating in the tender competition. A joint tender process cannot guarantee securing a more favourable outcome for gas customers and will incur incremental implementation costs.

If UR places a requirement on GNI (UK) to procure Grid Control services through an open tender process, any resulting costs should be treated as uncontrollable and hence pass-through.

3.2.6 CJV

3.2.6.1 Staffing

As part of the organisation structure design for the CJV, both PTL and GNI (UK) ("**The TSOs**") identified the functions that the CJV would take responsibility for. In assessing the required staff resourcing to deliver the CJV functions, a joint working group from both TSOs was appointed to evaluate the level of effort required to maintain a 'business as usual' service, within each of the process areas.

[8] For example see the 2014 report issued by the Met Office
http://www.metoffice.gov.uk/media/pdf/n/i/Recent_Storms_Briefing_Final_07023.pdf

On this basis, the TSOs have consistently stated that eight FTEs is the minimum staffing level that the CJV requires in order to perform its functions effectively. The TSOs believe that attempting to run the CJV with six staff as suggested in the Draft Determination would result in a significant reduction of the envisaged scope of operations.

UR anticipate a reduction in the overall FTEs required when these functions are transferred into the CJV however the TSOs consider the following additional activities to largely offset any expected efficiencies:

- The new structure will create a requirement for an additional layer of governance and performance reporting;
- The PSA function is being brought 'in-house';
- There will be greater interaction with TSO "parent companies" due to the nature of the CJV not being a legal entity and the new 5-way structure of CJV and 4 TSOs;
- A focus on the market facing elements of the TSO's business with increased industry engagement;
- The CJV will create central administration for Shipper Issues, with 24/7 support in place for all user issues;
- Input into regulatory, adjacent TSO and departmental activities surrounding Brexit;
- Implementing enduring arrangements with stakeholders post-Brexit;
- Gormanston will become a live IP and the CJV team will manage all PRISMA auction processes at both IPs; and
- Gas to the West go-live and ongoing operation.

The Draft Determination outlines the expected amalgamation of market operation and market development roles however this is an unrealistic expectation given the magnitude of the additional tasks as a result of the new structure and processes outlined above.
The TSOs are transferring the commercial operation of their networks to a small team and with this comes additional risk from a staffing point of view as resilience will be reduced. This brings with it operational and financial risk. In accordance with the CJV Business Plan, it is imperative that at least eight staff are in place to operate the NI market. In addition, with any fewer staff, setting aside the risk for the TSOs, it may be that the scope of the envisaged CJV activities will be reduced due to insufficient resourcing.

3.2.6.2 Contracts & Licences

The TSOs note the Draft Determination proposes that the IT application enhancement allowance is £50k per annum compared to the TSO submission of £200k per annum. The £200k per annum TSO submission was based on estimated costs to deliver:

I. GTMS upgrade work required to ensure the system remains compatible with the PRISMA platform which is upgraded 1-2 times per year by PRISMA; and
II. application enhancements which arise from new market processes, new market requirements or new user requirements.

An allowance of £50k per annum will be largely absorbed by (i) above and this will leave the CJV team with little or no meaningful allowances for general enhancements necessary to meet business requirements or to implement modifications to the Code of Operations. In such a scenario, the CJV team will have to seek supplemental allowances to UR each time a modification to the GTMS application is to be deployed creating an administrative overhead and uncertainty for market participants. Without additional allowances such business or market driven enhancement cannot be implemented.

The PRISMA allowance requested covers the ongoing connection fees and annual licence fees incurred by GNI(UK) and PTL for the Gormanston and Moffat IPs respectively. These costs are set by PRISMA and not controllable by the CJV nor The TSOs. Therefore The TSOs would expect these costs to be included within uncontrollable costs in line with their historic treatment.

3.2.6.3 Network Code Development

Allowances in relation to a 'Time-to-Fail' model have been removed in the Draft Determination. This is a dynamic IT model using complex fluid mechanic and thermodynamic calculations that is used in an emergency/constraint situation which gives an accurate picture of how long the network can provide gas

based on both the current situation unfolding and also in "what-if" scenarios. This is vital information during emergency/constraint management to assist with operational decisions for NINEC/PTL/GNI(UK). Without knowing accurately what level of demand needs to be cutback decisions will be based on high level assumptions as opposed to live dynamic information.

The TSOs note UR's decision that the CJV should not invest in a more sophisticated time to fail model, relying instead upon the extremely basic model used to date. We would point out that in recent years the emergency regime has undergone a number of fundamental changes and the likelihood of a 'flip-flop' event taking place has increased. It is common practice for TSOs to have a dynamic 'Time-to-Fail' model in place for management of the network. Should the allowance not be granted, using a less sophisticated model will mean that cutbacks are imposed unnecessarily, or system integrity is compromised and there is a system failure.

3.2.6.4 European Compliance

The TSOs requested allowances for costs associated with travel and subsistence for representation at ENTSOG Working Groups, ENTSOG General Assembly, GIE General Assembly, GIE Conference, PRISMA Working Groups and PRISMA Shareholder meetings. It is important that NI is represented at these meetings. Attendance at these meetings is key for a number of reasons, notably that decisions are made which have both direct and indirect impacts on TSO costs. This ranges from development of network codes, to the specification of interface files as well as determination of membership and shareholder fees. Without a presence at these meetings, it is very difficult for the NI TSOs to effectively represent NI's interests. As the NI TSOs have such a small voting percentage, to simply rely on submitting a vote is not effective whereas discussing the issues face to face and influencing other TSOs has proven a more effective strategy. Without the allowance to attend the meetings, the TSOs would have concerns over their ability to influence the outcomes of various issues.

It is also essential that the TSOs attend physically on a regular basis to ensure they are as fully informed as possible to fulfil functions of the CJV, notably development of the Single Code and associated Code Modification Forum. The Draft Determination, states that the amount requested by the TSOs to travel to Europe was considered "excessive". To set some context, the TSOs requested an allowance for attendance at 55 meetings organised by ENTSOG, PRISMA, GIE and other organisations throughout the year. In 2016, the aforementioned organisations held over 600 meetings with TSOs. ENTSOG alone has over 30 active working and kernal groups. Whilst some of those meetings were held via web conferencing, the number of physical meetings greatly exceeded what the TSOs requested an allowance for. For this reason and the others outlined above, the TSOs do not agree that the amount of travel is excessive and request that the travel costs are allowed.

The Draft Determination states that REMIT reporting is currently "carried out by in house staff". This statement is incorrect. A third party Registered Reporting Mechanism ("RRM") is used to send the data to ACER on a daily basis for which a monthly fee is charged. If this function was to be moved in house it would require a significant investment in the CJV IT system to deliver the necessary functionally plus ongoing fees for support and further development should ACER's requirements change in the future. When determining which method to use for REMIT report, the use of a third party was the most economically efficient by a wide margin. To continue utilising the third party RRM, the TSOs therefore request that the allowance for the REMIT reporting is granted.

3.2.6.5 Transfer Mechanism

The TSOs welcome the ability to transfer allowances where the resource for activity shifts between them. A commitment from UR on a timeframe for their response to any such transfer requests would be welcomed as a timely response would ensure operations are not adversely impacted. The TSOs would suggest a 14-day response period.

3.3 Deficiencies in the Draft Determination

UR's Draft Determination with respect to Opex is flawed because, in respect of each element, UR appears to have taken the approach of picking the evidence that supports the lowest possible allowance, in many cases failing to provide the evidence purportedly relied on. It has accordingly failed to take a consistent, transparent or accountable approach in line with the requirements of regulatory best practice.

Moreover, UR has failed to have proper regard to or give appropriate weight to its principal objective to promote the development and maintenance of an efficient, economic and coordinated gas industry Northern Ireland. In particular, it has disregarded the importance of providing proper allowances to allow the GNI (UK) gas network to be maintained efficiently and economically in the short term, and to underpin long term investor confidence. It further appears to be disregarding the importance of incentive-based regulation in driving efficiencies by allowing the opportunity for outperformance. The increasing reliance on uncertainty mechanisms, we submit, will not drive efficiencies or inspire investor confidence.

UR has also failed to have proper regard or give appropriate weight to its statutory duties in its Draft Determination with respect to Opex. Under Article 14(2) of the Energy Order, in carrying out its gas functions in a manner which UR considers is best calculated to further the principal objective, UR must have regard to, among other things:

(a) the need to ensure a high level of protection of the interests of consumers of gas; and
(b) the need to secure that licence holders are able to finance relevant activities.

UR appears to have disregarded the fact that consumers include <u>future</u> consumers and that their interests are not served simply by trying to reduce costs in the short term, without regard for the consequences to the network, efficiency and investor confidence.

Finally Article 14(5) of the Energy Order, subject to Article 14(2), provides that UR must carry out its gas functions in the manner it considers is best calculated to, among other things, promote the efficient use of gas and efficiency and economy in the conveyance of gas. GNI (UK) submits that failing to provide appropriate allowances for Opex and increasing reliance on uncertainty mechanisms undermines incentive based regulation and will ultimately disincentivise efficiency.

4 Replacement expenditure

4.1 Approach to Repex

GNI (UK) welcomes the proposed Repex allowances for Cathodic Protection and Cyber Security Upgrades. The allowances will allow GNI (UK) to implement these necessary initiatives to protect the steel pipelines from corrosion and protect the control systems from external hacking.

Notwithstanding the allowances granted, the Draft Determination provides neither sufficient allowances to undertake other necessary works nor a credible mechanism to progress these initiatives. As outlined in Section 1, GNI (UK) has no confidence that the mechanisms in the licence can, in practice, provide meaningful additional allowances for necessary works. This being the case, it appears that UR has simply applied zero allowances to necessary works without due consideration of its duties.

4.1.1 Engagement and information

GNI (UK) rejects the assertion that little specific evidence has been presented to support the proposed projects.

The GT17 Repex submission outlined the driver, the rationale and the benefits of the proposed investments. GNI (UK) engaged with UR and its consultants RUNE associates following the submission. Supporting documentation including external engineering reports, age and failure analysis and relevant extracts from the Asset Management System were also provided to UR. A summary of the proposed Repex initiatives and GNI (UK) concerns regarding the UR analysis is given below. A more detailed overview of the proposed initiatives, based on information previously submitted to UR, together with some additional background information, is included in Appendix B.

4.1.2 Duty to act as reasonable and prudent operator

GNI (UK)'s Conveyance Licence requires that it "shall perform its functions, acting as a Reasonable and Prudent Operator, (RPO) with respect to the Economic Network in such manner as it considers is best designed to secure the objectives of:-

(a) maintaining the capacity and functionality of the Economic Network; and
(b) optimising the efficiency, reliability, availability and operational life of the Economic Network."

The licence defines an RPO as "a person acting in good faith with the intention of performing its obligations under the Licence and who in so doing and in the general conduct of its undertaking, exercises that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be exercised by a skilled and experienced operator complying with applicable law and engaged in the same type of undertaking and under the same or similar circumstances and conditions".

This duty, which is common across regulated utilities, sets a standard for performance and is generally well understood by regulated utilities and their regulators. It is generally accepted that an RPO would fulfil this duty by adhering to industry practice, regulatory requirements and recommendations from competent public authorities (e.g. PSNI and the Centre for Protection of National Infrastruture ("**CPNI**")). However, the UR position on Repex fails to provide necessary allowances to permit GNI (UK) to do so, placing GNI (UK) in an untenable position for a regulated entity of having to choose between operating within allowances, and complying with its duties as an RPO.

This failure by UR to support GNI (UK) fulfilling its duty as an RPO is directly in conflict with UR's primary objective to promote the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland. It also indicates that UR has failed to have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under Part II of the Gas Order or the Energy Order (which includes obligations under a licence granted under Part II of the Gas Order) and the need to protect the public from dangers arising from the conveyance, storage, supply or use of gas.

4.1.3 Design work

The Draft Determination states that where UR accepts the necessity of investment but considers that further design work is required to develop accurate costs estimates, it will not provide allowances to fund the detailed design necessary. Rather, UR requires that the cost of such additional design works should be absorbed by GNI (UK) and "that general allowances for asset management and compliance and other overheads are sufficient to fund such design activity." However these activities and hence allowances do not include scope for design activity. Design activity is essential for long-term planning, continuity of investment planning and decreases the overall risk on the network. It is therefore difficult to reconcile this refusal with UR's primary objective to promote the development and maintenance of an efficient, economic and co-ordinated gas industry.

4.1.4 Asset management system

The planned maintenance programmes and proposed Repex initiatives are the product of the application of procedures and processes which are part of an ISO55000 certified Asset Management System. The certification audit of the GNI Asset Management System included its application to the full extent of Gas Networks Ireland's (and its subsidiary company GNI (UK)'s) asset base in Republic of Ireland, Northern Ireland and Scotland.

The AMS specifies how assets are designed, built, operated, maintained and, when relevant, replaced or decommissioned. The policies and specifications are aligned with relevant national and international standards. Further details on the AMS are given in the Appendix A.

The initiatives proposed in the Business Plan present GNI (UK)'s best estimate of the required investment of the 5 years of GT17. Development of further information (e. g. functional design and detailed cost estimates) represents the next stage in the project life cycle and requires incurring additional design and project management costs. GNI (UK) has not been given an allowance for project design. GNI (UK) rejects the UR view that such necessary costs should be absorbed. The UR positon that an increase in the scope of works should be undertaken without a corresponding increase in allowances erodes the potential for GNI (UK) to earn a "fair return" on its regulated business.

4.1.5 Rationale for initiatives

GNI (UK) disagrees with the UR view that the justification for projects tends to be based on manufacturer's guidance on average design life and that analysis of asset health and fault data has been limited. This view indicates a misunderstanding by UR of the nature and rationale for many of the initiatives proposed. Many of the initiatives are justified based on changing and continuously improving standards and industry practices, changing technologies, and continuous improvement rather than age or asset health. The rationale for the proposed initiatives is summarised in the table below.

Initiative	Summary Rationale
Boiler Refurbishment Programme	Refurbishment – End of Life/obsolescence/failure/unreliable operation
Control System Refurbishment	Refurbishment – End of Life/obsolescence/failure/unreliable operation
Instrumentation Refurbishment	Refurbishment – End of Life/obsolescence/failure/unreliable operation
AGI Metering Recalibration & Refurbishment	Refurbishment to ensure with compliance GNI (UK) Code of Operations
Gormanston Metering	Option (a): Upgrade to ensure metering meets the same standard as other entry points, or Option (b): Refurbishment to comply to GNI (UK) Code of Operations
AGI security	
Emergency Escapes	 .
Remote Line Valve Actuation Analysis	Enhancement – Security Best Practice

Table 6: Summary rationale of Repex initiatives

As can been seen from the table, only three initiatives, with an estimated costs of £2.4m are age related replacement. Although Manufacturer's Guidance is an indicator of when this expenditure is likely to be required, asset health and fault data is the primary driver and has been supplied where available and relevant e.g. Boiler Refurbishment.

Further details of all initiatives are given in the following section and in Appendix B.

4.2 Repex initiatives

4.2.1 Boiler refurbishment programme

Initiative	Business Plan £m	Proposed Allowance £m
Boiler Refurbishment	2.0	0.0

Table 7: GNI (UK) Repex boiler refurbishment

Operating an AGI without heating would be contrary to the design and operating standards (IGEM TD13) for gas installations in the UK. Preheating gas is standard practice at installations operated by TSOs in the three jurisdictions of NI, Ireland and GB. GNI (UK) considers that its proposed approach to boiler replacement is an appropriate means to reduce the risk of an ageing boiler fleet to an acceptable level. Conversely the absence of any required investment in the boiler fleet during the GT17 period would hinder GNI (UK)'s capacity to adequately discharge its duty to act as a RPO.

The Draft Determination proposes not to allow any allowance for the refurbishment of boilers. Failure of a boiler system would increase the risk to the downstream network and non-compliance with the Pipeline Safety Regulations (NI) 1997. This is unacceptable and suggests UR has not given due regard to its duty to protect the public from dangers arising from the conveyance, storage, supply or use of gas or to secure a diverse, viable and environmentally sustainable long-term energy supply or indeed to its principal objective.

GNI (UK) notes UR approved monies (totalling £0.9m) for the replacement of certain boilers on the adjacent MEL network, which are the same age the GNI (UK) boilers will be in the final years of the GT17 period. This apparent inconsistency of approach would appear to be contrary to regulatory best practice.

4.2.2 Control system refurbishment

Initiative	Business Plan £m	Proposed Allowance £m
Control System Upgrade	0.1	0.0

Table 8: GNI (UK) Repex control system upgrade

The control system controls all aspects of a station's operation including the fire and gas detection systems. GNI (UK) previously sought, and was refused, allowances for upgrading of the control systems at Carrickfergus and Coolkeeragh AGIs. GNI (UK) has experienced failures due to obsolescence on control systems at the Coolkeeragh AGI. Notwithstanding the lack of allowances, GNI (UK) has determined that it is necessary to upgrade these control systems in the current price control. GNI (UK) plans to refurbish the control systems at Gormanston during the GT17 period. Failure to invest in this refurbishment will lead to unplanned outages, and potentially lead to incremental Opex to manually operate the AGI.

The justification in terms of age and obsolescence based refurbishment was given in the GNI (UK) Business Plan submission. The estimated cost of the control system refurbishment is £114,000. This cost estimate is based upon similar control system upgrades implemented across the network.

The Draft Determination proposes not to allow any allowance for the refurbishment of control systems, which would encourage GNI (UK) to adopt a "run to failure" model rather than the proposed prudent replacement and refurbishment of the control systems. Again, this suggests UR has not given due regard to protecting the public from dangers arising from the conveyance, storage, supply or use of gas or to secure a diverse, viable and environmentally sustainable long-term energy supply or indeed to its principal objective.

4.2.3 Instrumentation refurbishment

Initiative	Business Plan £m	Proposed Allowance £m
Instrumentation Refurbishment	0.3	0.0

Table 9: GNI (UK) Repex instrumentation refurbishment

The AGI instrumentation includes all electrical, electronic and communication equipment as well as all supporting and ancillary equipment e.g. batteries and wiring. GNI (UK) previously sought, and was refused, allowances for replacement of uninterruptible power supply (UPS) components. Notwithstanding the lack of allowances, GNI (UK) has determined that it was necessary to replace four UPS units in the current price control and plans to replace two entire UPS systems and eight Battery Charger units that have exceeded their defined lifecycles during the GT17 period. The instrumentation utilised by GNI (UK) is similar to that utilised by other transmission system operators and the refurbishment proposed by GNI (UK) is in line with good industry practice.

The justification in terms of age and obsolesce based refurbishment was given in the GNI (UK) Business Plan submission. The estimated cost of the refurbishment is £304,000. This estimated cost is based upon similar upgrades/ replacements implemented across the network. Failure to invest in the instrumentation refurbishment will lead to unplanned outages, potentially for prolonged periods of time.

The Draft Determination proposes not to allow any allowance for the refurbishment of instrumentation. This would encourage GNI (UK) to adopt a "run to failure" model rather than the proposed prudent replacement and refurbishment of the instrumentation equipment. Again, this suggests UR has not given due regard to its duties and principal objective.

4.2.4 AGI metering recalibration and refurbishment

Initiative	Business Plan £m	Proposed Allowance £m
Metering Recalibration	0.5	0.0

Table 10: GNI (UK) Repex metering recalibration

The AGI metering assets measure the gas leaving the network and provide the necessary information for customer billing. GNI (UK) previously sought, and was refused, allowances for refurbishment of ultrasonic metering at Coolkeeragh and Carrickfergus. Notwithstanding the lack of allowances, GNI (UK) determined that it was necessary to refurbish four meters, which were considered most at risk of inaccurate reading, within the current price control. GNI (UK) plan to refurbish the metering systems across seven other sites during the upcoming price control period.

None of the metering systems within the scope of this initiative has been calibrated since the metering assets were commissioned over ten years ago. Consequently GNI (UK) cannot be confident that they operate within the Permitted Range as set out in the GNI (UK) Code of Operations.

The cost of the metering recalibration is £518K. This cost is based upon similar metering recalibrations implemented to date.

The risk of operating a metering system which has not been correctly calibrated is an over or under register of the gas passing through the station. In either case the cost is borne by the customer in that an over registering of gas results in the downstream supply company facing a higher bill and under registering results in a higher level of 'unaccounted for gas' in the transmission system. A 1% error rate in metering on the network would result in c. £740k p.a. being charged to incorrectly to certain customer segments.[9]

The Draft Determination proposes not to allow any allowance for the recalibration of meters. This suggests UR has not given due regard to the need to ensure a high level of protection of the interests of consumers of gas.

4.2.5 Gormanston metering

Initiative	Business Plan £m	Proposed Allowance £m
Gormanston P2 Metering	0.9	0.0

Table 11: GNI (UK) Repex Gormanston P2 metering

The metering assets at Gormanston measure the gas entering the network and provide the necessary information for customer billing.

There are known deficiencies in the accuracy of metering at Gormanston. GNI (UK) previously engaged a metering consultancy firm to perform a technical audit on the metering. On the basis of the findings of this audit GNI (UK) must conclude that the accuracy of the metering equipment at Gormanston is outside the "Permitted Range" as set out in the GNI (UK) Code of Operations.

The Draft Determination proposes not to allow any allowance for the recalibration of meters at Gormanston. As with AGI metering, this suggests UR has not given due regard to the need to ensure a high level of protection of the interests of consumers of gas. GNI (UK) has proposed two options to address the metering accuracy at Gormanston, and these are outlined below.

[9] The estimate is based on 2015/16 throughput and the GB System Average Price for the period.

4.2.5.1 Upgrade of meters at custody transfer point

The existing flow metering system at Gormanston is not the same standard as at the other entry point on the network. In order to implement an equivalent level of metering at Gormanston relative to the metering at Twynholm, an upgrade of the meters at Gormanston is required. The upgrading of these metering assets would ensure accurate metering for six years at this custody transfer site and the costs are estimated at c. £851K.

4.2.5.2 Gormanston meter refurbishment

If UR does not wish to provide allowances to upgrade the metering equipment**,** the existing equipment requires refurbishment and recalibration to comply with existing requirements. The estimated cost of the metering refurbishment is estimated at c. £350K. This estimated cost is based upon similar metering refurbishment implemented to date.

4.2.6 AGI security upgrades

Initiative	Business Plan £m	Proposed Allowance £m
AGI Security	1.1	0.0

Table 12: GNI (UK) Repex AGI security

4.2.7 Emergency escapes

Initiative	Business Plan £m	Proposed Allowance £m
Emergency Escapes	0.6	0.0

Table 13: GNI (UK) Repex emergency escapes

4.3 Summary impact of underinvestment

GNI (UK) has developed a Repex programme to refurbish / replace assets where appropriate at the end of their life but prior to them failing. This programme is consistent with GNI (UK)'s licence obligation to act as an RPO and to maintain compliance with relevant legislation, regulatory requirements and standards. The risks associated with underinvestment are summarised in the table below.

Refurbishment	Risk of underinvestment
Boiler Refurbishment program	Boiler failure will result in outlet gas temperature dropping dramatically and increasing the risk of failure in the downstream polyethylene. Any significant failure of a pipeline poses a health and safety risk and will result in a loss of gas to the downstream network.
Control System Refurbishment	Failure of key DCS components would result in loss of station control and safety monitoring systems (fire and gas detection), compromising the safe operation of the station.
Instrumentation Refurbishment	Without backup power systems the site will have no functioning safety alarm systems and no capability for external monitoring in the event of a loss of power.
Metering Recalibration	Inaccurate metering imposes costs on gas consumers.
Gormanston Phase 2 Metering	Inaccurate metering imposes costs on gas consumers.
AGI security	
Emergency Escapes	 .
Remote Line Valve Actuation Analysis	The ability to remotely operate block valve stations and isolate pipeline segments can greatly mitigate the impact of a major gas incident

Table 14: Summary of risks

The asset replacement proposed for this price control is the minimum level of intervention required to maintain the risk at an acceptable level considering the age and condition of the network. Failure of these assets would result in an increasing risk to personnel or property or an interruption of supply to gas customers. Therefore, it is essential that this investment is undertaken.

4.4 Deficiencies in the Draft Determination

UR has failed to provide any Repex allowances in many areas, although it has indicated that it may reconsider this during the course of this consultation (which GNI (UK) will continue to engage with UR in relation to) and may use the uncertainty mechanism to fund projects during the course of the price control.

Here again, UR appears to be pursuing the objective of short term cost reduction and disregarding the importance of incentive-based regulation in driving efficiencies by allowing the opportunity for outperformance in favour of increasing reliance on uncertainty mechanisms. This has the unfortunate result of failing to drive efficiencies, failing to inspire investor confidence and failing to ensure funding for projects that are important in promoting the long term development of an efficient, economic and coordinated gas industry in Northern Ireland and securing a viable long-term energy supply.

As such, UR's approach appears to conflict with its principal objective to promote the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland, its duty to ensure a high level of protection of the interests of consumers of gas and its duty to facilitate competition between persons whose activities consist of participating in the conveyance of gas.

5 Financial aspects

5.1 Introduction

GNI (UK) is deeply concerned at the proposed cost of capital for the forthcoming period. As will be set out in this section, GNI (UK) considers that the proposals contained in the Draft Determination suggest that UR has failed to take adequate account of, or account at all for, certain relevant considerations in determining its proposed cost of capital. Moreover its determination of WACC, even where based on prevailing market rates is, we submit, incorrect and internally inconsistent.

5.2 Relevant Considerations

With respect to relevant considerations, GNI (UK) believes that UR is obliged to take into account the risks that GNI (UK) took when it made its investment in the Northern Ireland gas industry and that UR's focus on current market rates of return only is opportunistic and inadequate.

GNI (UK) faced project-specific risks when it made its investment in 2002 which included the greenfield nature of the investment and the political climate in Northern Ireland at the time. These project risks were recognised when the principle of a 15% equity return over a period of 25 years was set out in GNI (UK)'s original licence and then confirmed in the licence in 2008. This was justified because of the circumstances of the investment. The Competition Commission (now CMA) recognised this approach to attracting investment to the Northern Irish gas sector in its 2012 decision regarding PNGL. PNGL faced similar risks when it made its investment in 1996 and had a fixed element in its rate of return.

In this context, GNI (UK) refers UR to the Competition Commission's ("CC") 2012 price determination for PNGL:

> The conclusion that we [the CC] have reached is that we cannot say that a fixed, real, rate of return of 7.5 per cent is against the public interest. It remains appropriate that a project risk premium should be allowed to supplement the WACC in 2012/13 the consequences of not maintaining the current rate would be to reduce the willingness of investors to invest in future development of the gas network (and possibly other regulated sectors in Northern Ireland) and could increase the cost of capital applying to them if they have as a result less certainty over the return they could expect to achieve.

In its decision the CC found that it remained appropriate that a project risk premium should be allowed to supplement the WACC because of the risk that the consequences of not maintaining the rate would negatively impact customers.

GNI (UK)'s key objective in responding to this element of the Draft Determination is to ensure that UR does not compound the damage already done to investor confidence as a result of last year's Rate of Return Licence Modification by failing to recognise the basis on which GNI (UK) made its investment. The licence requires UR to take into account relevant considerations in addition to prevailing market rates when setting GNI (UK)'s rate of equity return. A failure by UR to recognise that the circumstances of GNI (UK)'s original investment is a relevant consideration would not be in accordance with the licence. It would also be a breach of UR's principal objective and its statutory duty to have regard to the need to ensure a high level of protection of the interests of consumers, whose interests would be damaged as a result of the effect on investor confidence.

5.3 Evaluation of UR analysis

GNI (UK) commissioned Frontier Economics to review the approach taken by UR to establishing WACC, assuming for this purpose that the approach purported to be taken by UR (i.e. excluding consideration of the circumstances of the original GNI (UK) investment) was appropriate (which GNI (UK) does not accept). The full Frontier Economics report is included with this submission.

The proposed WACC is far outside the range of WACC determined by UR and other regulators in recent years. This immediately raises concerns about the approach adopted by UR and these concerns are confirmed when the UR approach is analysed in detail. UR appears to have chosen selectively from the available evidence and applied a methodology that is internally inconsistent. There is also considerable

inconsistency between the current proposed approach and the approach adopted by UR in relation to the GD17 decision. These concerns are particularly relevant for its estimation of the cost of debt and the asset beta. The overall approach is not accordance with the licence and would be in breach of UR's statutory duties.

5.3.1 Regulatory Precedent

The proposed WACC of 2%[10] is unreasonably low compared to previous price control decisions for GNI (UK) and compared to comparator companies. GNI (UK) should be compared to comparable utilities in NI (i.e. NIE, PNGL, FE), or in GB. These utilities all:

- have similar price control arrangements to GNI (UK);
- have opex and capex risk treated in the same manner in their price controls; and
- have similar capital structures.

When the Draft Determination is compared to Final Determinations for such companies since 2014, it is clear that UR's approach to GNI (UK) is entirely out of line with regulatory precedent. This is shown in the table below.

WACC Parameter	CMA NIE RP5 (2014)	Ofgem RIIO-ED1 (2014)	Ofwat PR14 (2014)	CMA Bristol Water (2015)	UR PNGL GD17 (2016)	UR FE GD17 (2016)	UR GNI (UK) GT17 DD (2016)
Cost of debt	3.10%	2.55%	2.59%	2.61%	2.36%	2.45%	**0.6%**
Post-tax cost of equity	5.0%	6.0%	5.65%	5.73%	5.3%	5.3%	**4.8%**
Vanilla WACC	4.10%	3.80%	3.74% (3.60%)*	4.35% (3.67%)*	3.67%	3.72%	**2.0%**

Table 15: Regulatory Precedent

Source: Frontier Economics

Note: * Ofwat allows the retail arms of the water companies to charge retail margins of 2.5% and figures in brackets are WACC net of retail business

UR has placed undue weight on the comparison with the transmission element of Gas to the West ("**GttW**"). This is inappropriate, as the price control arrangements under a mutualised model are entirely different to those facing GNI (UK). In particular, GttW, which has an explicit pass-through mechanism and receives its actual finance costs, is exposed to considerably less risk than GNI (UK).

5.3.2 Cost of Debt

Frontier Economics find that that the methodology UR has deployed is flawed. UR has made a number of significant errors in the approach it has adopted, that have led it to materially under-estimate the cost of debt facing a standalone GNI (UK):

- UR has placed undue weight on evidence relating to the cost of debt of GNI (UK)'s parent, which is not relevant to the cost of debt that could be achieved by a standalone GNI (UK), the benchmark UR has stated it is using;
- UR has adopted a methodologically flawed approach which fails to treat GNI (UK) as a stand-alone entity, and unnecessarily exposes GNI (UK) to market volatility;
- By focussing on short-term market rates, UR has diverged without explanation from the methodology it used at GNI (UK)'s previous price control, and has implemented an approach that it has previously suggested is inappropriate[11]. Frontier Economics estimate that the nominal cost of debt calculated on the basis of the previous methodology would be between 5.28% and 5.37%;
- UR has also diverged from the methodology it used to determine the cost of debt for GD17. In that case, UR recognised and took account of the significant volatility in current spot rates, and in addition to adjusting for the forward curve, provided for uplifts to account for illiquidity and transaction costs. The estimated GD17 cost of debt was between 5.6% and 6.2%. UR also

[10] GNI (UK)'s licence uses CPI inflation and not RPI. As a result an adjustment is required to reflect this difference. GNI (UK) notes the adjustment proposed by UR.

[11] At the last price control, UR rejected using short-term data to set the cost of debt allowance, noting that "it would seem inappropriate to follow a methodology which could lead to violent swings in the level of allowance from one price control to the next"

provided a mechanism to protect FE and PNGL from adverse movements in debt costs over the price control period; and
- UR has ignored relevant precedents such as the approach adopted by Ofgem and Ofwat. Both regulators have used methodologies based on long-term data, and which, if implemented for GNI (UK) would give rise to a nominal cost of debt allowance of between 4.81% and 5.13%.

All of the evidence above points to a cost of debt allowance significantly above the nominal 3.9% proposed by UR. GNI (UK)'s previous submission provided for a methodology to estimate the cost of debt that is internally consistent, consistent with the approach UR used at the previous price control and consistent with the GB regulators' use of long-term data to inform the cost of debt allowance.

5.3.3 Beta

Frontier Economics finds that an asset beta of 0.30 combined with a debt beta of 0.10, as proposed by UR for GT17 is wholly inappropriate for the purpose of setting the allowed return for GT17. It further notes that First Economics' analysis, conducted on behalf of UR, of market data identifies that the asset beta should be at least 0.34.

To move away from the market analysis, UR purports to rely on regulatory precedent and arrives at an estimate of 0.30. However, the precedents relied upon by UR use the same comparators as the First Economics analysis but are based on older data to the end of 2013. The First Economics analysis (which finds a higher asset beta) is based on five year data to July 2016. GNI (UK)'s advisors can see no justification in overlooking analysis based on up-to-date data in favour of data which is now over three years old.

It is mathematically wrong to compare (as UR does) the asset betas by face value without taking into account the assumptions on the debt beta. Both the Ofwat and CC precedents relied upon by UR explicitly state that they use debt betas of 0 and 0.05 respectively[12]. Once this error is corrected, the precedent presented by UR no longer supports an asset beta of 0.30.

There is no basis to support an asset beta of 0.30 in combination with a debt beta of 0.10 as proposed by UR.

5.3.4 Conclusion

The approach adopted by UR is not based on a methodologically consistent approach. UR appears to have chosen selectively from the available evidence to arrive at a proposed WACC that is significantly below all relevant regulatory comparators. In particular, there is considerable inconsistency between the current proposed approach and the approach adopted by UR in relation to the GD17 decision.

Finally, GNI (UK) notes that the proposed WACC provides no head-room to deal with the potential financial challenges that may arise over the course of the forthcoming price control period. This is particularly important in light of the significant market uncertainty due to the (as yet unknown) consequences of Brexit.

5.4 Effect of WACC proposals

UR appears to have chosen a methodology that allows it to selectively choose the lowest number it can for each parameter of the cost of capital. As outlined above and detailed in the Frontier report, GNI (UK) finds that UR's proposed methodology is flawed, internally inconsistent and inconsistent with the approach that UR has used for other regulated entities in NI. The rationale for this disjointed approach outlined above becomes clear when considered together with UR's consultation and subsequent decision in 2016 in relation to the Rate of Return Licence Modification. UR appears intent on realising, to all intents and purposes, the "mutualisation" of GNI (UK) assets without the consent of GNI (UK) or its shareholder. In this regard UR notes[13] that the Rate of Return Licence Modification brought the WACC in line with GNI (UK)'s original 2002 licence, which "envisaged the possibility that UR might set the rate of return for the

[12] The associated Ofwat document clearly states "this [asset beta of 0.30] is equivalent to a figure of 0.36 using a debt beta of 0.1".
[13] Paragraph 8.3 of the Draft Determination

licence holder based on a funding model with 100% debt." GNI (UK) refutes entirely that this was the basis on which its original investment decision was made.

Moreover GNI (UK) considers that, in setting a rate of return approaching or equivalent to that of a mutualised entity, UR is purporting to expropriate the value of the GNI (UK) assets, and to fundamentally alter the risk profile understood by GNI (UK) when it made its original investment in these assets. This is grossly unfair and unreasonable and places UR far beyond the confines of appropriate regulatory practice with respect to GNI (UK). Moreover it fundamentally undermines any principle of regulatory certainty and increases risk for the entire Northern Ireland gas market.

The UR proposals cannot be compatible with UR's principal objective in carrying out its gas functions to promote the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland or the interests of consumers, properly understood. It is extremely short-sighted of UR to believe that it can dispense with the need to provide a stable regulatory framework that encourages private investment at a reasonable cost of capital in the belief that a mutualised rate of return can be imposed on a shareholder owned utility without detrimental consequences to efficiency.

5.5 Deficiencies in the Draft Determination

The UR Draft Determination with respect to WACC is flawed.

The market returns approach UR purports to take to determine WACC is wrong because it fails to recognise the basis on which GNI (UK) made its investment and the project-specific risks. This approach breaches UR's principal objective to promote the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland and its duty to ensure a high level of protection for the interests of consumers of gas because of the effect on investor confidence.

In any event, UR fails to follow a market returns approach to establishing WACC. Instead, UR adopts the procedurally improper approach of selectively drawing on available evidence to support the lowest possible level of WACC, breaching the principles of regulatory best practice including consistency. This failure to assess and treat the evidence properly has resulted in many errors and methodological flaws. This approach affects investor confidence and regulatory certainty and therefore conflicts with UR's principal objective to promote the development and maintenance of an efficient, economic and coordinated gas industry and its duty to have regard to the need to ensure a high level of protection of the interests of consumers of gas.

The UR approach to determining GNI (UK)'s WACC is fundamentally wrong and if implemented in the Final Determination would be tantamount to an expropriation of assets without justification.

6 Appendix A: Asset management and governance

In determining and managing the capital interventions to implement its objectives, GNI (UK) uses best practice processes and systems to ensure that appropriate governance is in place. This ensures that only necessary and efficient expenditure is incurred and that all expenditure is aligned to the appropriate allowance. The key processes and systems are:

- ISO 55001 certified asset management system (including risk management); and
- investment governance;

6.1 Asset management system

Gas Networks Ireland has developed an ISO55001 accredited Asset Management System (AMS) that is utilised to manage the GNI (UK) assets. The AMS contains documented asset policies and Functional Specifications and Requirements (FSRs) for all asset groupings. The system specifies how the assets are designed, built, operated, maintained and, when relevant, replaced or decommissioned. The policies and specifications are aligned with relevant national and international standards.

6.1.1 AMS components

The AMS contains documented asset policies and FSRs for all asset groupings. The policies and specifications are aligned with relevant national and international standards. Full implementation of the FSRs assist the development of maintenance and replacement/refurbishment plans which ensures that risks on the network are maintained at levels which are “As Low As Reasonably Practicable” (ALARP).

The core elements of the AMS are as follows:

- **Asset Management Strategy and Objectives:** This is a live document which defines what is to be achieved from Asset Management activities. It also sets the objectives necessary to deliver these plans. This document and the principles captured within are derived from, and consistent with, the overall Asset Management Policy, which in turn is consistent with the overall Organisational Vision, Organisational Strategic Plan and Objectives.
- **Asset Group Strategies:** This document outlines future demand trends and usage patterns, plans for new asset creation, refurbishment, enhancement and decommissioning, along with the effects on routine Opex activities. It also includes any non-standard approaches that have been prescribed for specific assets and details about the application of all relevant FSRs to the asset population. This is a live document which sets out a summary of the total asset population and locations.
- **Functional Specifications and Requirements:** These are written at the asset class level. They are the generic rule-set for the asset class which has been derived from the whole-life decision-making approaches defined in the overall Asset Management Policy and Strategy. This document includes details such as a description of asset types within each asset class, how the risk framework is applied to asset classes, historical issues and problems recorded, deterioration characteristics and failure modes, how condition is graded, how performance is measured and a generic rule-set for the whole-life interventions for asset class (maintenance, inspection and renewal tasks).
- **Maintenance Specifications:** These documents define the maintenance activities undertaken against the asset groups. They ensure that the correct maintenance is assigned to all assets. It sets out the scope of the assets to be maintained, frequency and priority of the work to be carried out and data requirements from relevant stakeholders.
- **Asset Information Strategy:** This defines the strategic objectives and approach to the management of asset information in a manner which:
    - ensures information is treated as a valuable asset within the organisation;
    - enables the utilisation of asset data and information to achieve Asset Management strategic and operational objectives;
    - applies consistency of approach with respect to the definition of information and data requirements;
    - enables continuous improvement; and

- assists in the delivery of the AMS.

The evolution of the AMS has positioned GNI (UK) to develop new capabilities in the management of work programmes, ensuring that continuous improvement is a product of learnings from both asset performance and fault analysis. As the AMS matures, GNI (UK) prioritisation and optimisation of asset interventions and work programmes will ensure the minimisation of the whole life cost of the asset base.

6.1.2 Risk based prioritisation

As part of the AMS, all replacement and refurbishment based projects initiated have a risk evaluation analysis completed at a conceptual design stage. The risk evaluation process determines the health and criticality of the project specific assets before (inherent risk) and after (residual risk) the proposed project is completed. The health of the asset is determined by the probability of the asset failing if the project does not progress and again if it does. The criticality of the asset is determined by the impact of the asset failing in terms of the following criteria:

- Health & Safety - measured in terms of severity of injuries to individuals;
- Operations and asset infrastructure management – impact on the reliability of the gas supply;
- Customer and reputation impact – impact of customer satisfaction and the public opinion towards the gas industry;
- Compliance with relevant codes and standards – determined by the level of regulatory involvement; and
- Environmental impact – measured by the volume of unburned gas released into the environment.

Asset criticality and health are determined (scored on scales of one to five) for both the inherent and residual risk across each relevant criterion and are plotted on a risk evaluation matrix. The system gives specific guidance on the scoring, allowing the project owner to make an accurate and consistent assessment of the project risks. Where possible the risk evaluation is determined by a quantitative system based on asset data collected from site. Where this data is not available in sufficient volumes, the determination is made through engineering judgement based on available information, experience of the assets in their environment and experience of similar assets across the wider network.

6.2 Investment governance

Over GT12, GNI (UK) has significantly strengthened its governance procedures around capital expenditure. GNI (UK)'s rigorous governance procedures ensure that, at each stage of the project lifecycle, the expenditure is required, appropriate, efficient and properly recorded.

The core investment governance process ensures:

- effective governance is operated in the identification, development, and selection of appropriate capital investments;
- a rigorous design process is undertaken to identify the most efficient solutions;
- projects / programmes are delivered to time and budget or, where relevant, with appropriate governance of programme variations; and
- learnings are captured and applied in subsequent projects to secure continuous improvement.

The investment governance process is overseen by tan Investment Approval Committee (IAC), the Ervia Group Investment Approval Committee (GIAC), GNI (UK) Board and Ervia Board, depending on the level of expenditure.

The governance framework requires the justification and demonstration of the benefits from a capital project or programme of work. As a result, only projects that deliver clearly demonstrated benefits are progressed from concept through to implementation, allowing GNI (UK) to avoid capital works where the expenditure is not justified. This practice, in combination with GNI (UK)'s Asset Management focus, has embedded a culture of scrutiny of investments to ensure that they are clearly linked to the mitigation of risk, reduction of operational costs or demand led return on investment.

The IAC and GIAC have adopted a stage review process which includes five review / approval points in the project life cycle which are referred to as "Gates". These "Gates" act as critical review stages, involving

go/no-go decision points, to ensure that continued expenditure is warranted. No project is allowed proceed through the gate process until it has completed all prerequisites and key sign off points of the earlier phase.

In order to get approval at a Gate, the project/programme must be supported by documentation which justifies the expenditure and demonstrates that good governance has been applied in conceptual design, detailed design, planning, procurement and delivery. A description of each Gate and the documentation required for approval is as follows:

- **Gate 1:** Approval for funding required to undertake conceptual design or scope development. A business case is required based on the initial views on costs, benefits and risks. Alignment with Networks Management objectives is required.
- **Gate 2:** Approval for funding required for detailed design and costing as well as the purchase of long lead time materials. It is supported by an updated business case, a conceptual design, project / programme plan and networks investment proposal.
- **Gate 3:** Approval of funding for the delivery/construction of the project / programme. This is supported by a networks investment proposal, the final business case, and a programme plan (including evidence that good governance has been applied to the project through use of checklists, completed procurement process for delivery / construction contract, definition of project / programme responsibilities).
- **Gate 4:** Approval to close the construction / delivery phase and confirm the final costs and deliverables. It is supported by a Project Closure Report including details of cost and scope variances and evidence of good governance of construction management.
- **Gate 5:** Approval for post investment review and benefits realisation assessment. This is performed at a suitable time following completion and commissioning of the project/programme.

These procedures ensure that appropriate governance is in place, only necessary and efficient expenditure is incurred and that all expenditure is aligned to the appropriate allowance.

7 Appendix B: Repex initiaitives

7.1 GT17 – Boiler refurbishment program

7.1.1 Overview of the boiler refurbishment Initiative included in the GT17 submission:

GNI (UK)'s GT17 submission includes a proposal to replace circa 50% of the boilers located at Above Ground Installations (AGIs) on the GNI (UK) network. Boiler age is the primary driver in the need to replace some of the boiler units on the network, i.e. the majority of boilers will have exceeded their expected life during the GT17 period, and therefore, a number of them are expected to fail and require replacement.

There are 11 AGIs located along the North West and South North Pipelines, which process the gas for distribution to the towns and cities in NI.

The heating systems located at each of the AGIs contain a boiler package which comprise of a number of boilers – duty and standby. There are a total of 58 boilers on the network. The five oldest boilers, commissioned in 2004, have been in operation for 12 years and will have been in operation for 18 years by the end of the GT17 Price Control period. The boiler age spread is relatively narrow, compared to other transmission networks, due to the nature of the construction of the GNI (UK) network in Northern Ireland – 93% of the current fleet will range in age from 16 years to 18 years by the end of the GT17 Price Control period.

Based on Gas Network Ireland's experience with the operation of its Ireland and Scottish networks, the risk of boiler failure increases as a boiler reaches its end of expected life. Gas Networks Ireland has observed boilers in operation between 10 to 15 years failing. Such failures have resulted in boiler replacement at twelve AGIs in Ireland and Scotland in recent years. It has been necessary to replace all AGI boilers in Scotland.

For the avoidance of doubt, GNI (UK) does not intend to replace boilers or associated infrastructure based purely on manufacturer's guidance. GNI (UK) intends to replace equipment that has failed or is in the process of failing (i.e. performing poorly and requiring regular maintenance intervention). It is GNI (UK)'s experience, coupled with manufacturer's guidance, that such issues typically occur following 10 years of operation. GNI (UK) anticipates that all such boiler plant could fail during the GT17 period, but is seeking to provide to replace circa 50% of such plant and to harvest spares parts to manage poor performance at the remaining installations.

The total cost estimate for the boiler refurbishment project is £1,982k. That estimate is based on the replacement of 27 boilers, at an estimated cost of £73.4k per boiler; the cost estimate has been informed by Gas Networks Ireland's experience of carrying out boiler replacements at installations on its Irish and Scottish networks.

7.1.2 Boiler upgrades and the need for a functioning heating system at an AGI

As a TSO, GNI (UK) is required to manage the flow of gas through the transmission network and into the distribution networks in compliance with the Pipelines Safety Regulations (Northern Ireland) 1997. Part II, Regulation 11 of these Regulations states:

"The operator shall ensure that—

a) *a fluid is not conveyed in a pipeline unless the safe operating limits of the pipeline have been established; and*
b) *a pipeline is not operated beyond its safe operating limits, save for the purpose of testing it."*

The HSE UK publication 'A Guide to the Pipelines Safety Regulations 1996', provides the following guidance in relation to Regulation 11:

"52 In order to operate the pipeline in a safe manner, the operator will need to draw up safe operating limits, which reflect the pipeline design, its operating history and its current and future condition, and ensure that it is operated and controlled within these limits.

53 For pipelines, safe operating limits may be specified in terms of maximum operating pressure and maximum and minimum temperature. In some cases safe operating limits will also take into account such matters as fluid velocities and any limits set on the composition of the fluid."

As per the UK industry standard for gas installations, IGEM TD13, the heating systems on the GNI (UK) network are designed and operated to ensure that gas exiting the pressure reduction system is at an acceptable temperature. Gas flows at unacceptably low temperatures could adversely impact operations at the AGI and/or on the downstream distribution network.

GNI (UK) transmission infrastructure is designed within the temperature range of -20°C to +50°C. This design range is based on the likely extremes under fault conditions and cannot be presumed to represent a normal operating range. The GNI ISO55000 certified Asset Management System, which delivers maintenance and replacement expenditure plans for the GNI (UK) network, specifies that pressure reduction equipment and associated heating equipment should be operated to maintain gas temperatures within the range of -5°C to +15°C. In order to operate the transmission system (and flow gas into the distribution networks) and ensure that it is operated and controlled within these limits, GNI (UK) must maintain operational boiler plant within the AGIs on the network.

Gas enters the AGI at a high pressure, typically circa 50 barg (but up to 85 bar), is processed through the AGI (i.e. filtered, metered, heated and pressure reduced), and then enters the downstream distribution network at a lower pressure, typically in the region of 4 barg.

The gas is preheated in order to compensate for the heat energy loss associated with the reduction in pressure, The Joules Thompson Effect. The heating system at the AGI provides the required heat energy. The heating system consists of gas fired boilers (which generate the heat), a water system and heat exchangers (to deliver the heat to the gas stream).

The typical pressure cut, of circa 46 barg, results in the loss of heat energy in the gas. Without preheating, the gas temperature exiting the AGI would be circa -23°C. The GNI (UK) Northern Ireland transmission system is designed for a maximum pressure of 85 barg. In the event of operating at this temperature and without adequate preheating, the gas temperature exiting the AGIs would be circa minus 40°C. In either situation, such an outcome would result in non-compliance by GNI (UK) with the Pipeline Safety Regulations (Northern Ireland) 1997.

GNI (UK) anticipates it will be able to manage that risk in the early years of the GT17 period, through a program of maintenance, both planned and unplanned. It should be noted that the consequence of managing assets at the end of the expected operational life is an increasing maintenance requirement (particularly unplanned maintenance), and consequential increases in whole life costs of the asset.
In the latter years of GT17, maintenance will not be adequate as a sole measure to resolve boiler issues which arise. Based on GNI's experience with the operation of its Irish and Scottish networks, the following is anticipated -

- Significant boiler failure, e.g. failure of the heat exchanger (HEX), particularly for boilers that have exceeded their design life and have experienced heavy duty usage. Such failures would be deemed beyond economic repair, with replacement of the boiler being the recommended solution.
- Obsolescence – certain boiler components, particularly electronic components, will become obsolete. Failure of these components, and the absence of replacements, would result in the complete loss of boiler(s).

GNI (UK) considers that the combination of maintenance and refurbishment is the appropriate means to mitigate the risk of boiler failure to an acceptable level. The residual risk associated in operating end of life boilers with maintenance as the sole mitigation measure, is neither ALARP nor acceptable.

7.1.2.1 Failing to invest in the boilers

GNI (UK)'s operating licence stipulates that it:
"shall perform its functions, acting as a Reasonable and Prudent Operator, with respect to the Economic Network in such manner as it considers is best designed to secure the objectives of:-

a) maintaining the capacity and functionality of the Economic Network; and
b) optimising the efficiency, reliability, availability and operational life of the Economic Network."

It is the view of GNI (UK) that the absence of the required investment in the boiler fleet during the GT17 period would hinder its capacity to adequately discharge its RPO licence obligation. It would be extremely challenging to optimise the efficiency, reliability, availability and operational life of the network with the level of risk associated with the aged boiler fleet – particularly when maintenance is no longer adequate as a sole mitigation measure.

Further to this, inadequate investment in the boiler fleet may result in the requirement to operate AGI's without heating. This would be contrary to the design and operating standards (IGEM TD13) for gas installations in the UK and the equivalent Ireland standard, IS328. No heating at an AGI would result in a violation of design temperature limits (i.e. less than -20°c), and consequently, non-compliance with the Pipeline Safety Regulations (NI) 1997.

GNI (UK)'s primary concern with a failure to adequately invest in the boiler fleet is the increased risk profile associated with the network, particularly the security of supply risk and health and safety risk. Sustained gas flows at sub-zero temperatures (in the region of -20°c), would adversely impact operations at an AGI and/or on the section of the downstream distribution network, which is adjacent to the AGI. The effects of gas flows at such low temperatures are condensate drop-out from the gas stream, frozen regulators/pilots or material damage to the downstream pipework, particularly the polyethylene distribution pipeline adjacent to the AGI (owned by the DSO companies).

All of those issues increase the risk of the loss of supply to downstream customers. There is also the possibility, albeit low, that a failure in the distribution gas pipeline would result in a gas leak which poses a risk to human life and property in the surrounding area.

7.1.2.2 Deferring an investment decision until boiler failure

All of GNI (UK)'s NI sites were designed with standby/backup boilers. The basis for such a design is to address 'short-term' planned and unplanned boiler outages; it is not a measure to mitigate the risks associated with significantly longer outages resulting from a failed boiler that requires replacement. In addition to that, the boiler sets at each NI AGI are of the same age; this increases the risk of coincidental boiler failure (or multiple unit failures within a short time frame).

Gas Networks Ireland have experienced multiple boiler failures at a single location, within a relatively short time frame, due to a combination of mechanical failure (beyond economic repair) and electronic component failure (that was obsolete at the time of failure). That boiler set was 13 years old at the time of failure.

Replacing such a boiler set can take some time (12 to 18 months) due to the lead-times associated with the various stages in a replacement project – design, procurement, installation and commissioning. There is a risk that the time associated with seeking the relevant approvals and completing the boiler replacement could exceed the time between the first and last boiler failing, resulting in an AGI operating without heating for a period of time.

7.1.3 The Draft Determination

UR has not approved any monies for the Boiler Refurbishment Program in the Draft Determination. UR suggests that– "Little specific evidence has been presented to date in support of these projects. The justification for expenditure tends to be based on manufacturers' guidance on average design life; any analysis of actual asset health and fault data has been limited."

In addition to the main GT17 submission document, which details the boiler refurbishment proposal, GNI (UK) engaged with UR and its consultants, RUNE Associates, subsequent to the GT17 submission. GNI (UK) participated in a detailed discussion and provided further detailed information in response to queries/requests issued by RUNE. This included GNI's Functional Specification and Requirements for Heating Systems (a key document in the ISO55000 accredited Asset Management System relevant to boilers), details on the boiler life expectancy and the age profile of network boilers, historic maintenance activity relating to boiler issues in NI, an example of boiler failures in Scotland and the Boiler Upgrade Risk Assessment (the methodology employed in determining the need and extent of the upgrade).

All of the information provided is representative of specific evidence to support the boiler refurbishment proposal. The life expectancy of the boilers is based on Gas Networks Ireland's extensive experience in operating its other gas networks, not just on manufacturer's guidance.

It should be noted that UR and RUNE did not seek any further engagement with GNI (UK), or request any additional information or clarification on the information provided, subsequent to GNI (UK) providing the above outlined.

7.2 GT17 - Control system refurbishment

7.2.1 Overview of the control system refurbishment Initiative included in the GT17 submission

GNI (UK)'s GT17 submission includes a proposal to upgrade the control system at Gormanston Phase II driven by age based refurbishment and obsolescence based replacement**.** The control system controls all aspects of the station's automatic operation including emergency shutdown and safety systems.

Gormanston Phase II AGI is a gas supply source for the Northern Ireland network via the South-North Pipeline. This is a security of supply support to the primary supply point at Carrickfergus. It regulates the pressure and flow of gas from the Interconnector 2 (148 barg) system to the South-North Pipeline (85 barg) system.

All aspects of the stations operation are controlled and monitored by an ICS Triplex Distribution Control System (DCS). This system is essential for the safe and secure operation of the supply for the downstream Northern Ireland customers.

The estimated cost of the control system refurbishment is £114,000. This cost estimate is based upon similar control system upgrades implemented across Gas Network Ireland's network.

7.2.2 The need for control system refurbishment

The current DCS was installed and commissioned in 2006. Based on historical experience of similar DCS on the Gas Networks Ireland network, components within the DCS will require replacement and upgrading during the GT17 price control period. The failures experienced on this type of control system include age based failure of input/output (I/O) cards and power supplies (including failures on this site). These electronic components have a typical life span of 10-15 years.

Failure of key DCS components on this remote operated installation will result in loss of station control and safety monitoring systems (gas detection), compromising the safe operation of the station, the personnel working within it and security of gas supply to customers. This type of installation is fully automated and depends on the full availability of the station control system for continued operation and availability of remote monitoring and emergency shutdown systems. Compromising the readiness of this control system is an unacceptable risk to the network.

Failure to invest in this refurbishment initiative will lead to unplanned outages of the station, potentially leading to increased Opex for long periods of time. This would result from call outs, the manpower required to manually operate the station and a reduced gas delivery due to intermittent system shutdowns.

Should a failure of the DCS occur, requiring the design and installation of a DCS retrospectively, the manpower requirement to operate the site for the circa 6 months would cost in the order of £240K.

7.2.3 The Draft Determination

UR has not approved any monies for the Control System upgrade in its GT17 Draft Determination. UR suggests that– "Little specific evidence has been presented to date in support of these projects. The justification for expenditure tends to be based on manufacturers' guidance on average design life; any analysis of actual asset health and fault data has been limited."[14]

[14] Price Control for Northern Ireland's Gas Transmission Networks GT17 Draft Determination (16 December 2016) – 5.21 (Page 51)

In addition to the main GT17 submission document, which details the Control System Upgrade proposal, GNI (UK) engaged with UR and its consultants, RUNE & Associates, subsequent to the GT17 submission, participating in a detailed discussion.

As detailed above, Gas Networks Ireland and GNI (UK) have extensive experience in the operation and failure of this type of equipment, including the very recent failure of such components at Carrickfergus and Coolkeeragh AGIs, the latter resulting in outages to Coolkeeragh Power Station. Works are ongoing at Carrickfergus and Coolkeeragh as part of GT12. All of this information has been previously shared with UR and RUNE.

It should be noted that UR and RUNE did not seek any further engagement with GNI (UK), or request any additional information or clarification on the information provided, subsequent to GNI (UK) providing the above.

7.3 GT17 Instrumentation refurbishment

7.3.1 Overview of the instrumentation refurbishment initiative included in the GT17 submission:

GNI (UK)'s GT17 submission includes a proposal to upgrade the AGI C&I (Communications and Instrumentation) which monitors the conditions of the gas within the AGI. IGEM / TD 13 stipulates that ''*for a remotely monitored or controlled installation, consideration shall be given to providing remote readings, alarms, and controls.*'' This initiative is based on age and obsolescence based refurbishment and replacement.

The C&I equipment within an AGI includes all electrical, electronic and communications equipment as well as all supporting and ancillary equipment, e.g. batteries and wiring.

Over the GT17 period it will be necessary to replace ageing components of the C&I systems as detailed below.

7.3.1.1 Remote terminal units (RTUs)

The RTU is a critical component in enabling remote monitoring and operation of the AGI with communication back to the central SCADA system. The normal lifespan of an RTU is 15 years. Replacement of a number of units on the network must be accelerated, however, as a result of a lack of spare parts and technical support available from the manufacturer Datac, following its acquisition by General Electric in 2012. General Electric began the process of phasing out the Datac RTU installed on the NI network, in favour of its own product. RTU units are not 'plug and play', therefore additional modification and commissioning works are required when replacing them. Failure of the RTU unit will result in loss of communication between GNI (UK) Grid Control and the AGI site.

Four RTUs on the network will need to be replaced during the 2017-2022 period, with the remaining eleven to be replaced in the subsequent five year period (2022 – 2027).

The estimated cost of the refurbishment is £186K. This estimated cost is based upon similar RTU upgrades/ replacements implemented across the network.

7.3.1.2 Uninterrupted power supply system (UPS)

The UPS system and emergency power generation system is a key component of the AGI back up electrical power system.

The majority of instrumentation components at AGIs are power consuming and as such they fail 'dark', (i.e. they simply stop functioning). UPS systems are power generating and can fail catastrophically, generating sparks and fires. Gas Networks Ireland have experienced catastrophic failures of UPS systems at AGIs in Ireland.

The estimated cost of the refurbishment work is £117K. This estimated cost is based upon similar UPS upgrades/ replacements implemented across the network.

7.3.2 The need for instrumentation refurbishment

The Datac RTU equipment installed on the NI network is no longer supported by the manufacturer. Failure to invest in the required C&I equipment refurbishment initiative will lead to failure and uncertainty of remote monitoring systems in relation to AGI process alarms and gas detection.

GNI (UK) plans to replace two entire UPS systems and eight battery charger units that have exceeded their defined lifecycles during the 2017-2022 period. Without the backup power systems the site will have no functioning safety alarm systems and no capability for external monitoring in the event of a loss of power. Additionally, a sudden loss of power is detrimental to the health of older electronic assets and will often lead to their failure upon powering up.

Failure to implement this initiative will result in additional Opex due to increased call outs resulting from spurious power outages resulting from UPS unreliability across multiple locations.

The C&I infrastructure utilised by GNI (UK) is similar to that utilised by other transmission system operators. The maintenance and replacement performed by GNI (UK) is in line with common industry practice. Failure to invest in this refurbishment initiative will lead to unplanned outages of the station, potentially for long periods of time. This will lead to increased Opex due to call outs, the manpower required to manually operate the station and reduced gas delivery due to intermittent system shutdowns.

7.3.3 The Draft Determination

UR has not approved any monies for the Instrumentation refurbishment initiative in its GT17 Draft Determination. UR suggests that– "Little specific evidence has been presented to date in support of these projects. The justification for expenditure tends to be based on manufacturers' guidance on average design life; any analysis of actual asset health and fault data has been limited."[15]

In addition to the main GT17 submission document, which details the Instrumentation refurbishment proposal, GNI (UK) engaged with UR and its consultants, RUNE & Associates, subsequent to the GT17 submission, participating in a detailed discussion.

It should be noted that UR and RUNE did not seek any further engagement with GNI (UK), or request any additional information or clarification on the information provided, subsequent to GNI (UK) providing the above.

7.4 GT17- AGI metering recalibration

7.4.1 Overview of the AGI metering recalibration initiative included in the GT17 submission:

GNI (UK)'s GT17 submission includes a proposal to upgrade the metering assets that measure the gas leaving the network and provide the necessary information for customer billing. This is an initiative focused on age based refurbishment and recalibration of the meters to ensure accuracy.

Flow metering systems are used to measure gas flow at entry and exit points on the network. Inaccurate metering leads to inaccurate billing, adversely impacting all of the gas market participants (Operators, Shippers and Customers).

At this point in the lifecycle of the metering systems on the GNI (UK) network, factory based refurbishment/ recalibration is now essential to ensure accurate metering and accurate billing.

Periodically, metering systems require an offline high pressure calibration and refurbishment performed by a certificated meter calibration and validation authority, e.g. SGS in the UK. The refurbishment of metering assets will ensure accurate metering within tolerances of 1% for a specified period (six-ten years) depending on the meter type.

The cost of the metering recalibration is £518K. This cost is based upon similar metering recalibrations implemented across Gas Network Ireland's Irish network.

[15] Price Control for Northern Ireland's Gas Transmission Networks GT17 Draft Determination (16 December 2016) – 5.21 (Page 51)

7.4.2 The need for AGI metering recalibration

To date (since the metering assets were commissioned over ten years ago), none of the metering systems in the scope of this initiative have been calibrated and consequently are due this essential maintenance.

In addition to the direct impact on customers, failure to complete this programme would be a non-compliance event with respect to relevant codes[16].

GNI (UK) plans to refurbish the metering systems across seven sites during the GT17 price control period, consisting of the following assets:

- ten turbine meters;
- four ultrasonic meters;
- twelve flow computers; and
- two Gas Chromatographs.

These key assets are utilised at metering points between the transmission and distribution networks, at offtakes to large consumers and at the custody transfer point between different TSOs.

Failure to invest in this refurbishment initiative will increase the risk profile around metering leading to increased Opex around unscheduled meter failure / investigations. Ultimately the risk of maintaining an in-network metering system which has not been correctly calibrated is an over or under register of the gas passing through the station. Over registering gas results in the downstream supply company facing a higher bill. Under registering results in a higher level of 'unaccounted for gas' (UAG) in the transmission system.

7.4.3 The Draft Determination

UR has not approved any monies for the AGI Metering Recalibration initiative in its GT17 Draft Determination. UR suggests that– *"Little specific evidence has been presented to date in support of these projects. The justification for expenditure tends to be based on manufacturers' guidance on average design life; any analysis of actual asset health and fault data has been limited."*

In addition to the main GT17 submission document, which details the AGI Metering Recalibration proposal, GNI (UK) engaged with UR and its consultants, RUNE & Associates, subsequent to the GT17 submission, participating in a detailed discussion.

It should be noted that UR and RUNE did not seek any further engagement with GNI (UK), or request any additional information or clarification on the information provided, subsequent to GNI (UK) providing the above.

7.5 GT17 - Gormanston Metering Refurbishment

7.5.1 Overview of the Gormanston metering refurbishment initiative included in the GT17 submission

GNI (UK)'s GT17 submission includes a proposal to upgrade the Gormanston metering assets. The metering assets measure the gas entering the network and provide the necessary information for customer billing. This initiative is focused on the upgrade of the meters at a custody transfer point to ensure accuracy.

GNI (UK) has identified two options for upgrading the Gormanston metering assets, its proposed solution (Option A) and an alternative (albeit non-optimal) proposal (Option B):

Option A: The existing custody transfer point flow metering system and site support assets at Gormanston are not of the same standard as the primary custody transfer point to the Northern Ireland Network at Twynholm in Scotland.

[16] GNI (UK) (2015), GNI (UK) Transportation Network Code, Version 1.08

In order to implement an equivalent level of metering at Gormanston, GNI (UK) proposes to upgrade the two metering systems and the supporting assets during the 2017-2022 period, consisting of the following:

- Ultrasonic meters;
- Two flow computers;
- Secondary instrumentation;
- Flow straighteners & insulation; and
- Install a new gas chromatograph with housing.

The upgrading of these metering assets will ensure accurate metering for six years at this custody transfer site.

The estimated cost of the Option 'A' refurbishment is £851,000. This cost estimate is based upon a similar upgrade completed at the Twynholm entry point to the Northern Ireland network.

Option B: If Option 'A' is not approved by UR, GNI (UK) would propose to conduct at the very minimum is refurbishment/ recalibration of the existing metering system and supporting assets.

The estimated cost of the Option 'B' metering refurbishment is £350,000. This estimated cost is based upon similar metering upgrades implemented across Gas Network Ireland's Irish network.

7.5.2 The need for Gormanston metering refurbishment

Failure to invest in either option will result in the existing metering system being out of code. The selection of option 'A' or 'B' will determine the level of accuracy of the upgraded metering system. While both options would be within code, the differential in metering accuracy between both options is substantial (Option 'A' system accuracies are typically 0.08% and option 'B' accuracies of 1%). With the exception of Twynholm AGI, which was upgraded at MEL request to the standard of Option 'A' under this allowance heading during GT12, all other installations on the combined GNI and GNI (UK) network operate to the Option 'B' standard. GNI (UK) therefore have no view on which option should be progressed but are very firmly of the view that one of the options must be progressed to ensure that accurate flow metering can be ensured when this infrastructure is utilised.

7.5.2.1 Background and audit results:

In 2012, GNI (UK) requested the internationally recognised Metering Consultants Kelton Engineering Ltd to perform a technical audit on the entire metering system at Gormanston Phase II. The audit, specific to this site, was carried out from the 2nd to the 4th October 2012.

The findings of the audit were categorised by Kelton by the following statements to assist in their interpretation:

Category 1a: An error, fault or non-conformance which indicates that the system is not complying with the appropriate standard and which has led, or is likely to lead to, a measurement error of greater than 1%, which will require correction.

Category 1b: An error, fault or non-conformance which indicates that the system is not complying with the appropriate standard and which has led, or is likely to lead to, a measurement error of less than or equal 1%, which will require correction.

Below are the key audit findings.

Item No.	Audit Finding Details	Audit Finding Categorisation
1	Meters and transducers appear in reasonable condition, but transducer bodies have an annulus where water ingress can occur. Some deterioration of cable gland weatherproofing evident, and some electrical connection boxes are showing signs of corrosion around sealing areas.	1b
2	Meter bodies are not lagged.	1b
3	The meters have not been calibrated since December 2005.	1a
4	The chromatograph and associated sample probe is located very distant from the metering system, at the plant outlet point - with many items of process equipment (dryers, separators, control valves etc.) in between. There is approximately a 30 bar pressure drop between the meter runs and the gas chromatograph off-take. [17]	1a

Table 16: Audit finding details

7.5.3 The Draft Determination

UR has not approved any monies for the Gormanston Metering refurbishment initiative in its GT17 Draft Determination. UR suggests that– *"Little specific evidence has been presented to date in support of these projects. The justification for expenditure tends to be based on manufacturers' guidance on average design life; any analysis of actual asset health and fault data has been limited."*

In addition to the main GT17 submission document, which details the Gormanston Metering refurbishment proposal, GNI (UK) engaged with UR and its consultants, RUNE & Associates, subsequent to the GT17 submission, participating in a detailed discussion. Following a request by UR for further information GNI (UK) furnished an audit report referenced '*'NK313A-001 Gormanston Interconnector Phase II Metering System Audit ''* in October 2016.

It should be noted that UR and RUNE did not seek any further engagement with GNI (UK), or request any additional information or clarification on the information provided, subsequent to GNI (UK) providing the above.

7.6 GT17 - AGI security upgrades

7.7 GT17 – Emergency escapes

[17] It is possible that Gormanston AGI may not be flowing at the time when the South-North is supplying gas to Northern Ireland. In this case the Chromatograph will be giving an inaccurate reading of the gas quality and components.

frontier economics

REVIEW OF GT17 DRAFT DETERMINATION COST OF CAPITAL PROPOSALS

16 February 2017

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EXECUTIVE SUMMARY

In the GT17 Draft Determination (GT17 DD), the Northern Ireland Authority for Utility Regulation (UR) proposed that Gas Networks Ireland (GNI) (UK)'s WACC should be set at a rate of 2.0%.[1] GNI (UK) asked Frontier to undertake a review of UR's proposals. Frontier has identified a number of material concerns with the proposed WACC of 2.0% for the GT17 period.

In UR's proposed approach document for GT17, UR stated that it would use all available similar regulatory settlements to benchmark appropriate rates.[2] However, it is clear that UR has instead focused primarily on a comparison with the transmission element of Gas to the West (GttW). This is inappropriate, as the price control arrangements facing GttW are different to those facing GNI (UK). In particular, GttW is exposed to considerably less risk than GNI (UK). For example, compared to GNI (UK), GttW faces no opex risk as it has a pass through mechanism and no financing risk as it receives its actual finance costs.

We consider that GNI (UK) should be compared to more directly comparable utilities in NI (i.e. NIE, PNGL, FE), or similar utilities in GB. These utilities all:

- have similar price control arrangements to GNI (UK);
- have opex and capex risk treated similarly in their price controls; and
- have similar capital structures.

When GNI (UK) is compared to these entities, it is clear that UR's proposals for GNI (UK) are out of line with regulatory precedent, as outlined in Table 1 below.

Table 1: Regulatory precedent on WACC in NI and GB

WACC Parameter	CMA NIE RP5 (2014)	Ofgem RIIO-ED1 (2014)	Ofwat PR14 (2014)	CMA Bristol Water (2015)	UR PNGL GD17 (2016)	UR FE GD17 (2016)	UR GNI (UK) GT17 DD (2016)
Cost of debt	3.10%	2.55%	2.59%	2.61%	2.36%	2.45%	0.6%
Post-tax cost of equity	5.0%	6.0%	5.65%	5.73%	5.3%	5.3%	4.8%
Vanilla WACC	4.10%	3.80%	3.74% (3.60%)*	4.35% (3.67%)*	3.67%	3.72%	2.0%

Source: Regulatory determinations

*Note: * Ofwat allows the retail arms of the water companies to charge retail margins of 2.5% and figures in brackets are WACC net of retail business*

We have concerns that UR's proposals draw selectively on the available evidence. Consequently, the outcome is a proposal based on a methodology that differs from UR's approach for GNI (UK) at the last price control (GT12), and is inconsistent with the approach UR has used for other regulated entities in NI.

[1] UR, "Price Control for Northern Ireland's Gas Transmission Networks GT17 - Draft Determination", 16 December 2016. We note that UR is also proposing to make an adjustment to take account of the fact that GNI (UK)'s license uses CPI inflation and not RPI inflation.

[2] UR, "Price Control for Northern Ireland's Gas Transmission Networks GT17 - Proposed Overall Approach", 29 June 2016

These concerns are particularly relevant for UR's estimation of the cost of debt and the asset beta.

Cost of Debt

UR has proposed a nominal cost of debt allowance of 3.9% (0.6% real)[3] for GT17. We find that the methodology UR has deployed is flawed. We believe that UR has made a number of significant errors in the approach it has adopted that have led it to materially under-estimate the cost of debt which a standalone GNI (UK) would face:

- UR has placed undue weight on evidence relating to the cost of debt of GNI (UK)'s parent, which is not relevant to the cost of debt that could be achieved by a standalone GNI (UK), which is the benchmark UR has stated it is using;
- UR has adopted a methodologically flawed approach which fails to treat GNI (UK) as a stand-alone entity, and unnecessarily exposes GNI (UK) to market volatility;
- UR has ignored the methodology it used to determine the cost of debt for GD17. In that case, UR recognised and took account of the significant volatility in current spot rates, and in addition to adjusting for the forward curve, provided for uplifts to account for illiquidity and transaction costs. The estimated GD17 cost of debt was between 5.6% and 6.2%, moreover, UR provided a mechanism to protect FE and PNGL from adverse movements in debt costs over the price control period;
- UR has diverged without explanation from the methodology it used for GNI (UK) at GT12, and has implemented an approach that it has previously suggested is inappropriate. We estimate that the nominal cost of debt calculated on the basis of the GT12 methodology would be between 5.28% and 5.37%;
- UR has ignored relevant precedents such as Ofgem and Ofwat. Both regulators have used methodologies based on long-term data, and which would give rise to a nominal cost of debt allowance of between 4.81% and 5.13%.

All of the evidence above points to a cost of debt allowance significantly above the nominal 3.9% proposed by UR. GNI (UK)'s previous submission for GT17 provided for a methodology to estimate the cost of debt that is methodologically consistent, consistent with the approach the UR used at GT12 and consistent with the GB regulators' use of long-term data to inform the cost of debt allowance. We suggest UR should re-consider its proposals in light of the evidence provided above, and provide for a cost of debt allowance that better reflects the cost of debt that a stand-alone GNI (UK) would face.

Asset Beta

We have also identified a number of substantial concerns over the asset beta methodology used by UR. UR has proposed an asset beta of 0.30. However,

[3] See footnote 4 in the First Economics paper for how the nominal cost of debt of 3.9% translates to the real cost of debt of 0.6% referenced in UR GT17 DD.

we note that First Economics' analysis of the current market data identifies an average asset beta of 0.34 over the last five years up to July 2016. UR is therefore relying on regulatory precedent, rather than current market analysis, to arrive at an estimate of 0.30. However, with respect to the regulatory precedent relied upon by the UR, we find the following:

- The precedents relied upon by UR use the same comparators and time period as the First Economics analysis. The difference is that the precedents are based on data to the end of 2013, while the First Economics analysis (which finds a higher asset beta) is based on data to July 2016. We can see no logic in overlooking the analysis based on up-to-date data in favour of that which is now three years old.
- It is incorrect to compare (as UR does) the asset betas at face value without taking into account the assumptions on the debt beta. Both the Ofwat and CC precedents relied upon by UR explicitly state that they use debt betas of 0.0 and 0.05 respectively, whereas the UR has used a debt beta assumption of 0.10. Once this is corrected for, the precedent presented by UR no longer supports an asset beta of 0.30.

We therefore find that there is no basis to support an asset beta of 0.30 in combination with a debt beta of 0.10.

Conclusion

Overall, we find that the approach adopted by UR is not based on a methodologically consistent approach. Rather, we find that UR appears to have chosen selectively from the available evidence to arrive at a proposed WACC that is significantly below all relevant regulatory comparators. In particular, we note the considerable inconsistency between the current proposed approach and the approach adopted by UR in relation to the GD17 decision.

Finally, we note that the proposed WACC provides no head-room to deal with the potential financial challenges that may arise over the course of the forthcoming price control period. This is particularly important in light of the significant market uncertainty due to the (as yet, unknown) consequences of Brexit, uncertainty regarding US economic and trade policy, and the uncertainty arising from forthcoming elections in a number of Eurozone countries.

1 INTRODUCTION

In the GT17 DD, UR proposed that GNI (UK)'s WACC should be set at a rate of 2.0%.[4] We understand that this WACC proposal is based on a report prepared by UR's advisors, First Economics.[5] GNI (UK) asked Frontier to undertake a review of UR's proposals. Frontier has identified a number of material concerns with the proposed WACC of 2.0% for the GT17 period.

In UR's proposed approach for GT17, UR stated it would use all available similar regulatory settlements to benchmark appropriate rates.[6] However, in GT17 DD, it is clear UR has instead focused primarily on a comparison with the transmission element of Gas to the West (GttW), an entity with a different capital structure and price control arrangement that is not directly comparable with GNI (UK).

When GNI (UK) is compared to the NI utilities with similar price control arrangements and capital structures (i.e. NIE, PNGL, FE), or indeed similar utilities in GB, we see that UR's approach is out of line with regulatory precedent.

Table 2: Regulatory precedent on WACC in NI and GB

WACC Parameter	CMA NIE RP5 (2014)	Ofgem RIIO-ED1 (2014)	Ofwat PR14 (2014)	CMA Bristol Water (2015)	UR PNGL GD17 (2016)	UR FE GD17 (2016)	UR GNI (UK) GT17 DD (2016)[7]
Gearing	45%	65%	62.5%	62.5%	55%	55%	65%
Cost of debt	3.10%	2.55%	2.59%	2.61%	2.36%	2.45%	0.6%
Risk-free rate	1.50%		1.25%	1.25%	1.25%	1.25%	1.25%
Asset beta	0.40		0.3	0.32	0.40	0.40	0.30
Debt beta	0.05		-	0	0.10	0.10	0.10[8]
Equity beta	0.7		0.8	0.85	0.77	0.77	0.67
Post-tax cost of equity	5.0%	6.0%	5.65%	5.73%	5.3%	5.3%	4.8%
Vanilla WACC	4.10%	3.80%	3.74% (3.60%)*	4.35% (3.67%)*	3.67%	3.72%	2.0%[9]

Source: *Regulatory determinations*

Note: ** Ofwat allows the retail arms of the water companies to charge retail margins of 2.5% and figures in brackets are WACC net of retail business*

[4] UR, "Price Control for Northern Ireland's Gas Transmission Networks GT17 - Draft Determination", 16 December 2016. We note that UR is also proposing to make an adjustment to take account of the fact that GNI (UK)'s license uses CPI inflation and not RPI inflation.

[5] First Economics, "An Estimate of the GT17 Cost of Capital for GNI (UK)"

[6] UR, "Price Control for Northern Ireland's Gas Transmission Networks GT17 - Proposed Overall Approach", 29 June 2016

[7] We note that UR has included an RPI adjustment in the GT17 DD to account for inflation and we presume that this adjustment will be followed through to the GT17 FD.

[8] Inferred from First Economics paper - "An Estimate of the GT17 Cost of Capital for GNI (UK)"

[9] We note that the WACC parameters included in UR GT17 DD result in a final WACC estimate of 2.06%, UR appear to have rounded the WACC down to 2.0% rather than following the common practice of rounding up to 2.1%.

As we set out in this report, we have concerns that UR may have chosen selectively from the available evidence. Consequently, the outcome is a proposal based on a methodology that differs from UR's approach for GNI (UK) at the last price control (GT12), and is inconsistent with the approach UR has used for other regulated entities in NI. These concerns are particularly relevant for UR's estimation of the cost of debt and the asset beta.

We note that UR does not explicitly set out all of the WACC parameters in the GT17 DD. For example, Table 29 in the GT17 DD simply sets out the gearing ratio, cost of equity and cost of debt parameters. Consequently, when assessing UR's proposals, we have reviewed both the GT17 DD and the accompanying paper by First Economics.

The remainder of our report is as follows:

- Section 2 summarises GNI (UK)'s submission WACC methodology and proposals;
- Section 3 reviews the comparators UR has relied upon;
- Section 4 discusses the flaws and inconsistencies with UR's cost of debt calculations;
- Section 5 discusses the flaws and inconsistencies with UR's asset beta calculation; and
- Section 6 concludes.

2 SUMMARY OF GNI (UK)'S PROPOSED WACC

GNI (UK) commissioned Frontier Economics to carry out an independent study to estimate the WACC of GNI (UK) for GT17. Frontier Economics' WACC report was submitted to UR alongside GNI (UK)'s GT17 submission documents.[10] The approach to estimating the WACC for GNI (UK) was consistent with the approach outlined in UR's proposed approach document for GT17[11]. In this document UR stated that in setting the rate of return they would:

- "Use a standard CAPM (Capital Asset Pricing Model) methodology for assessing a suitable rate of return for the Gas Transmission Networks; and
- Use all available similar regulatory settlements to benchmark appropriate rates."

Consistent with this guidance from UR, Frontier used a standard CAPM methodology to assess a suitable rate of return for GNI (UK)'s WACC and used all available similar regulatory settlements to benchmark appropriate rates. The approach used to estimate GNI (UK)'s WACC was based on a principle of using long-term historic rates to calculate the key elements of the WACC. This is consistent with the approach UR applied to GNI (UK) in GT12.

In the GT12 FD UR stated that if short-term premiums over the last 12 months are considered, *"such an approach…would be inconsistent with that taken for setting the risk free rate and that followed for the 2007 price control where premiums over longer periods of up to five years were considered"* and that *"it would seem inappropriate to follow a methodology which could lead to violent swings in the level of allowance from one price control to the next."*

We suggest that there are a number of advantages, particularly given the current market volatility, to using a long-term methodological approach. In particular:

- it promotes stability and predictability in regulatory decisions and over time reduces the cost of capital of the entire sector, to the benefit of customers;
- it reduces volatility in setting the allowed cost of debt, avoiding the use of short run data that could generate windfall gains or losses and will result in reasonable approximation of the underlying cost to raise debt finance for a utility over time, such that the company and customer are treated equitably;
- it allows for consistency between the way the cost of debt and cost of equity are calculated since the same risk-free rate assumption is being used.

We note that in GB, Ofgem uses long-term data to set the key elements of the WACC, including in particular the cost of debt.

[10] Frontier Economics, "Estimating the WACC of GNI (UK) for GT17", 5 September 2016

[11] We note that in June 2016 UR issued a decision modifying paragraph 5 of Annex A of Condition 2.2 of GNI (UK)'s gas conveyance license granted to GNI (UK).

Compared to this, a short-term approach, which seeks to reflect spot market yields suffers from the following:

- the estimates will reflect spot market conditions at the time the price control is finally determined, where markets presently exhibit high volatility. This is highly likely to generate windfall gains or losses that will increase the volatility of cashflow and may increase the cost of capital over time to the detriment of customers.
- it creates an inconsistency between the approach to the estimation of debt and equity.

We suggest that the worst of all possible worlds, in terms of increasing uncertainty and driving up the industry-wide cost of capital in the long run, is for the regulator to opportunistically switch between methodologies, adopting a long-term approach which depresses returns when spot yields are high, and a short-term approach when spot rates are low.

We are of the view that taking a consistent long-term methodological approach is more appropriate for estimating the WACC and that this approach should be maintained for GT17.[12] Consistent with this methodological approach we estimated a WACC range of 3.62% to 4.17% for GNI (UK). We note that all of the regulatory precedents identified in Table 2 fall within this range.

[12] We note that GNI (UK)'s license refers to prevailing rates. However, UR has previously found that an approach based on taking long-term data into account is consistent with GNI (UK)'s license. See, for example, UR, BGE (NI) Ltd Price Control 2012-2017 Determination.

3 APPROPRIATE BENCHMARKS FOR GNI (UK)

In the GT17 DD, UR argued that GNI (UK) is directly comparable to the transmission element of GttW. UR does not appear to consider how the proposed settlement for GNI (UK) compares to that for any of the other NI utilities. Frontier believes that UR's reliance on this comparison for setting the WACC of GNI (UK) is incorrect for the following reasons:

- the transmission element of GttW is not directly comparable to GNI (UK) as it has a different capital structure and price control arrangement;
- moreover, UR appears to have ignored other regulatory precedents and considered solely a comparison with GttW. This is not consistent with their GT17 proposed approach document which stated that when estimating the WACC they would "*use all available similar regulatory settlements to benchmark appropriate rates*".

3.1 Comparison with GttW is incorrect

UR state that the "*output of the competitive process to award the GttW high pressure conveyance licence*" is a "*useful comparator when considering an appropriate rate of return for GNI (UK)*".

We believe that reliance on such a comparison is flawed, as the price control arrangements facing GttW differ significantly from those facing GNI (UK):

- GttW faces no opex risk – there is an explicit pass through mechanism for opex; and
- GttW faces no financing risk – GttW receives its actual finance costs for the bond.

We do not believe it is reasonable to suggest, as UR does, that a 0.22% uplift would adequately compensate investors for facing the risks described above. We note that UR has not suggested this as a comparator for any other regulated entity in NI.

3.2 Appropriate set of comparators

We find that UR has failed to follow its own methodology by ignoring a number of highly relevant regulatory settlements. GNI (UK) should be compared to more directly comparable utilities in NI (i.e. NIE, PNGL, FE), or similar utilities in GB. These utilities all:

- have similar price control arrangements to GNI (UK);
- have opex and capex risk treated in the same manner in their price controls; and
- have similar capital structures.

Had UR considered these relevant benchmarks, it would have identified that its approach to GNI (UK) is out of line with regulatory precedent. This can be seen from Table 3 below.

Table 3: Regulatory precedent on cost of debt allowance in NI and GB

WACC Parameter	CMA NIE RP5 (2014)	Ofgem RIIO-ED1 (2014)	Ofwat PR14 (2014)	CMA Bristol Water (2015)	UR PNGL GD17 (2016)	UR FE GD17 (2016)	UR GNI (UK) GT17 DD (2016)
Gearing	45%	65%	62.5%	62.5%	55%	55%	65%
Cost of debt	3.10%	2.55%	2.59%	2.61%	2.36%	2.45%	0.6%
Risk-free rate	1.50%		1.25%	1.25%	1.25%	1.25%	1.25%
Asset beta	0.40		0.3	0.32	0.40	0.40	0.30
Debt beta	0.05		-	0	0.10	0.10	0.10[13]
Equity beta	0.7		0.8	0.85	0.77	0.77	0.67
Post-tax cost of equity	5.0%	6.0%	5.65%	5.73%	5.3%	5.3%	4.8%
Vanilla WACC	4.10%	3.80%	3.74%	4.35%	3.67%	3.72%	2.0%[14]

Source: Regulatory determinations

[13] Inferred from the First Economics paper - "An Estimate of the GT17 Cost of Capital for GNI (UK)"

[14] We note that the WACC parameters included in UR GT17 DD result in a final WACC estimate of 2.06%, UR appear to have rounded the WACC down to 2.0% rather than following the common practice of rounding up to 2.1%.

4 CONCERNS WITH UR'S COST OF DEBT CALCULATIONS

UR proposed a cost of debt of 0.6% real (3.9% nominal) for GNI (UK) in the GT17 DD. We find that the methodology UR has deployed is flawed. UR's approach to setting the cost of debt for GNI (UK) has essentially been to use a snapshot of current market yields and to make a small adjustment to account for forward curves.

We consider that this approach is wholly inappropriate for the following reasons:

- it is methodologically flawed;
- it is inconsistent with UR's approach to both GD17, and GT12; and
- it is inconsistent with the approach adopted by the GB regulators, Ofgem and Ofwat.

We expand on each of these points below.

4.1 Methodological flaws

UR's proposed approach is methodologically flawed in two important ways:

- It fails to estimate the cost of debt for GNI (UK) on the basis of a stand-alone utility; and
- It exposes GNI (UK) to unnecessary market risk.

4.1.1 UR fails to treat GNI (UK) as a stand-alone utility

UR has stated that it set the WACC for GNI (UK) "*as if it was an independent company having to raise its own finance through a combination of debt and equity*".[15] However, UR has provided an allowance based on the average of A and BBB rated debt. In our view, it is not realistic to assume that a standalone GNI (UK) could achieve an A rating. Moreover, we note the following inconsistencies in UR's approach:

- UR assumed a BBB rating for PNGL and FE. We can see no basis for assuming GNI (UK) can achieve a rating higher than a BBB; and
- We do not consider that UR's proposed gearing of 65% is consistent with GNI (UK) securing an A rating on a stand-alone basis;
- at GT12, UR assumed that the correct approach was either to consider an A rated bond plus a gearing effect (0.38) or a BBB rated bond. Given that UR's proposed gearing rate of 65% is close to the 72.5% assumed at GT12 we suggest that it is more appropriate to consider a BBB rating for GNI (UK).

In this regard, we also note that the GNI debt issue in December 2016 is not relevant. That debt was issued by a large utility earning the bulk of its revenues under a different regulatory regime. As such, it tells us little about what a

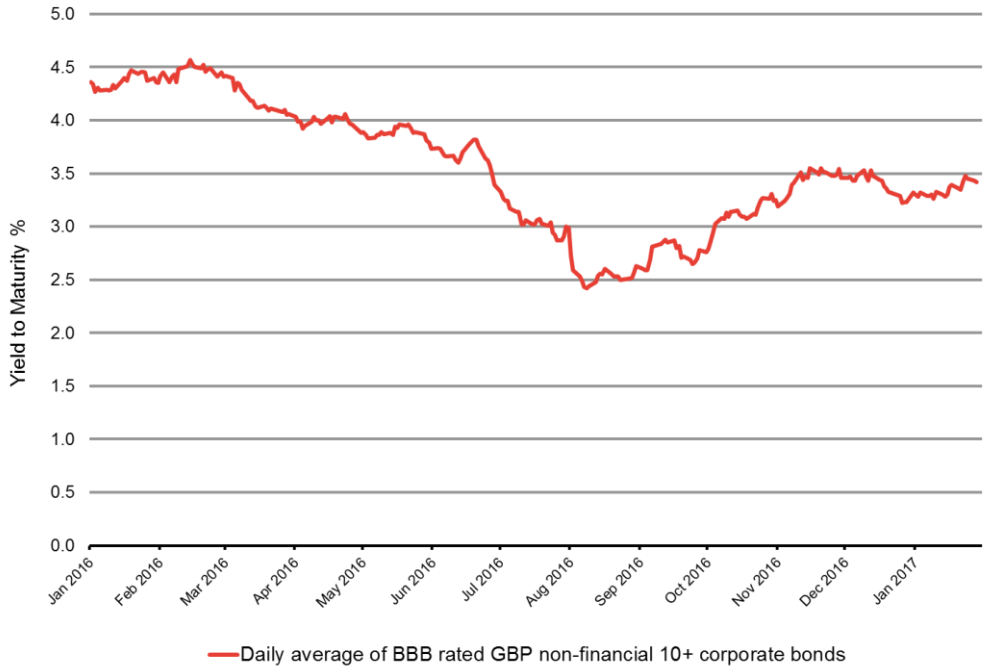
[15] UR, Price Control for Northern Ireland's Gas Transmission Networks GT17, Draft Determination 16 December 2016

standalone GNI (UK) entity could raise debt at. We also note that when setting the cost of debt of PNGL and FE in the recent GD17 determination, UR did not seek to make a similar link between PNGL and FE's parent companies. Therefore we consider that it is unreasonable for UR to consider this information when setting the WACC of GNI (UK).

4.1.2 UR's proposed approach unnecessarily exposes GNI (UK) to market volatility

We consider that, particularly given the instability of the past year, it is incorrect for UR to take a simple snapshot of current market yields at the point in time when the price control for the GT17 period is set. To demonstrate the volatility such an approach can give rise to, the daily average yields of BBB rated GBP non-financial 10+ corporate bonds over the past year is outlined in Figure 1.

Figure 1 Market movements in cost of debt parameters



Source: Markit.com, Frontier Economics analysis

We note that:

- the yield on BBB rated 10+ year non-financial corporate bonds was c.4.4% at the start of 2016;
- the yield on BBB rated 10+ year non-financial corporate bonds was c.2.5% by September 2016; and
- the yield on BBB rated 10+ year non-financial corporate bonds was c.3.4% by January 2017.

In our view, it is not reasonable for a regulator to adopt a methodology for the cost of debt for a five year price control that can result in variance of as much as 200bps, simply because the timing of a price control moves by a few months.

Moreover, as we set out below UR has previously recognised this concern and chosen alternative methodologies.

4.2 UR has previously recognised the flaws with its proposed approach

At both GD17 and GT12 UR considered, and explicitly rejected, the approach it has proposed for GNI (UK).

4.2.1 UR's approach to GD17

The GD17 FD was published on the 15th of September 2016. UR estimated at that time that the nominal cost of new debt was between 5.6% and 6.2%. The GT17 DD was published on the 16th of December 2016, in which UR has estimated that the nominal cost of new debt is 3.9%. As can be seen from Figure 1 above, spot yields during this period actually increased.

The two key drivers of the difference between GD17 and GT 17 are as follows.

First, at GD17, UR considered using the latest market data, and explicitly rejected the approach noting the danger of relying on short-term data from periods of considerable uncertainty and turbulence:

"*Market interest rates have, in particular, been significantly affected by the Brexit vote at the end of June 2016 and by policymakers' responses to the uncertainty that this has caused. We could simply factor the latest market data into our 'baseline' calculation, as the best available benchmark for the interest rates that companies will face over the next few years. However, our assessment is that this will result in us placing undue weight on data drawn from a period of considerable turbulence. Reflecting on previous occasions when there have been sharp movements in interest rates (e.g. 2008), there is a danger of concluding prematurely that interest rates have moved to a new equilibrium, only to then be surprised by ongoing developments in the market. In the circumstances, we prefer not to be too swayed by short-term data and have chosen instead to retain the baselines that we set out in our draft determination. These calculations, which made use of data up to January 2016*".[16]

We find it difficult to imagine that UR judged market volatility to have declined substantially between the GD17 FD and the GT 17 DD. Consequently, we can find no reason to support UR's change of methodology.

Second, in estimating GNI (UK)'s cost of debt UR failed to take account of key elements of the cost of new debt that it allowed for in GD17. In GD17, UR set out the elements that need to be considered when estimating the cost of debt based on current market yields as being:

- current market rates;
- forward rate adjustment;
- illiquidity premium; and

[16] UR, Price Control for Northern Ireland's Gas Distribution Networks GD17, Final Determination 15 September 2016

- transaction costs.

However, when setting GNI (UK)'s cost of debt UR failed to make any allowance for either an illiquidity premium or transaction costs.

UR allowed an illiquidity premium of 0.4% for both PNGL and FE. UR provided the following explanation of the illiquidity premium it provided for:

"we next allowed for the possibility that PNGL and FE may have to pay a small premium in comparison to other borrowers, reflecting possible illiquidity of their bonds as compared to more actively traded GB utility debt. We provided for an illiquidity premium of 0.4% to mirror the premium that we have observed in the pricing of PNGL's debt since the resolution of the 2012 Competition Commission inquiry." [17]

We can see no reason why a bond issued by a standalone GNI (UK) would not require a similar premium.

UR also allowed financing related transaction costs of 0.4% for PNGL and 0.6% for FE. UR provided the following reasoning:

"We allowed for refinancing-related transaction costs in line with the costs incurred in the companies' last debt-raising exercises."

Again, we would expect that a standalone GNI (UK) would at least incur similar transaction costs.

Finally, we note that UR decided to provide PNGL and FE with a rate of return adjustment mechanism. This effectively means that when the companies re-finance over the course of the price control, they will have limited exposure to any movements in debt costs. UR made its decision to include an adjustment mechanism on the basis of the following reasoning:

"It is important to highlight (i) that this final determination is being issued during a period of considerable volatility in market interest rates and (ii) that both companies are to refinance the whole of their borrowings in the first half of the 2017-22 period. The risk and consequences of setting a fixed cost of debt allowance too high or too low in this review are therefore unusually pronounced and the Utility Regulator does not consider that it is appropriate to inject a sizeable, largely uncontrollable element into PNGL's and FE's future profits when there exist regulatory options which will serve to protect both customers and investors from such risk." [18]

So, in the case of PNGL and FE, UR chose to provide an adjustment mechanism to shelter the companies from undue risk arising from further market volatility.

In the case of GNI (UK), UR has ignored this consideration. GNI (UK)'s rate has been set entirely on the basis of short-term data, with no mechanism to protect GNI (UK) from adverse movements in yields over the price control period.

[17] UR, Price Control for Northern Ireland's Gas Distribution Networks GD17, Final Determination 15 September 2016

[18] UR, Price Control for Northern Ireland's Gas Distribution Networks GD17, Final Determination 15 September 2016

4.2.2 UR's approach to GT12

UR's approach to GT17 also departs from the methodological approach used to estimate GNI (UK)'s cost of debt in GT12. In that decision UR calculated the cost of debt as being a combination of a risk free rate and a debt premium. UR used a risk free rate of 2% to represent "*the fairest reflection of medium term risk free investments*".[19] UR then calculated the debt premium as the yield on the long term (10 year average) iBoxx over the Risk Free Rate.

Effectively, therefore, UR used the yield on the 10 year iBoxx (decomposed into RFR and risk premium) to set the cost of debt allowance. UR considered both the yield on the BBB rated bonds, and the yield on the A rated bonds plus an adjustment for the gearing effect. If UR were to apply this methodology to GT17, it would result in a nominal cost of debt allowance of 5.28%-5.37%[20], compared to the 3.9% allowed by UR.

In adopting this approach for GT12, UR explicitly considered whether it should base premiums on a one-year average of market rates, or take into account longer-term 10 year averages. In this regard, UR opted to set the premium based on longer-term averages, noting:

"*it would seem inappropriate to follow a methodology which could lead to violent swings in the level of allowance from one price control to the next.*"[21]

UR has provided no rationale for the move away from such an approach for GT17. This is particularly surprising given the volatility that UR has identified as being a feature of the current market.

4.3 UR's approach is inconsistent with the methodology used by Ofgem and Ofwat

Both Ofgem and Ofwat have developed mechanisms to reflect changes in market yields in the allowed cost of debt. However, they have done so in a way that protects companies from the effects of short-run market volatility:

- **Ofgem: For RIIO-ED1,** Ofgem calculated the cost of debt allowance using a trailing average of bond market indicators[22]. The trailing average extends by one year each year from a 10-year to a 20-year trailing average. If UR were to apply this methodology, it would result in an initial nominal cost of debt allowance of 5.13%[23], compared to the 3.9% allowed by UR; and
- **Ofwat:** Ofwat identifies two elements to the cost of debt: embedded and new. They use an industry-wide 75:25 split between the two. Embedded debt is set on the basis of a 10-year average of A and BBB rated iBoxx corporate

[19] UR, BGE (NI) Ltd Price Control 2012-2017 Determination, 5 October 2012

[20] Calculated on a 10 year average to 31st January 2017, and providing for the same 'gearing effect' uplift of 0.38%

[21] UR, BGE (NI) Ltd Price Control 2012-2017 Determination, 5 October 2012

[22] For GD1 and GT1 Ofgem used a simple 10-year rolling average

[23] Calculated on a 10 year average to 31st January 2017

bond yields. New debt is based on iBoxx spot yields.[24] If UR were to apply this methodology, it would result in an initial nominal cost of debt allowance of 4.81%[25], compared to the 3.9% allowed by UR.

We note that UR could have adopted either of the above methodologies for GNI (UK). Both would have addressed the concerns identified by UR in relation to volatility. However, UR does not provide any indication that it may have considered these approaches.

4.4 Conclusions on cost of debt

We have identified significant concerns with the methodology UR has deployed to arrive at its cost of debt estimate, including a number of material errors in the approach it has adopted. The result of this is a substantial under-estimate of the cost of debt facing a standalone GNI (UK).

In particular, we find that:

- UR has placed undue weight on evidence relating to the cost of debt of GNI (UK)'s parent, which is not relevant to the cost of debt that could be achieved by a standalone GNI (UK), which is the benchmark UR has stated it is using;
- UR has adopted a methodologically flawed approach which fails to treat GNI (UK) as a stand-alone entity, and unnecessarily exposes GNI (UK) to market volatility;
- UR has ignored the methodology it used to determine the cost of debt for GD17. In that case, UR recognised and took account of the significant volatility in current spot rates, and in addition to adjusting for the forward curve, provided for uplifts to account for illiquidity and transaction costs. The estimated GD17 cost of debt was between 5.6% and 6.2%, moreover, UR provided a mechanism to protect FE and PNGL from adverse movements in debt costs over the price control period;
- UR has diverged without explanation from the methodology it used for GNI (UK) at GT12, and has implemented an approach that it has previously suggested is inappropriate. We estimate that the nominal cost of debt calculated on the basis of the GT12 methodology would be between 5.28% and 5.37%;
- UR has ignored relevant precedents such as Ofgem and Ofwat. Both regulators have used methodologies based on long-term data, and which would give rise to a nominal cost of debt allowance of between 4.81% and 5.13%.

GNI (UK)'s previous submission for GT17 provided for a methodology to estimate the cost of debt that is methodologically consistent, consistent with the approach UR used for GNI (UK) at GT12 and consistent with the GB regulators' use of long-term data to inform the cost of debt allowance. We suggest that if UR were

[24] Ofwat make three additional adjustments: 1) an adjustment to new debt to take account of the forward yield 2) an adjustment to take account of transaction costs and 3) an adjustment to take account of the extent to which water sector bonds may have 'outperformed' the iBoxx.

[25] Calculated using the 10 year average to 31st January 2017 for existing debt, using yields on the 31st January 2017 for new debt, and using the same 0.55% forward yield adjustment as suggested by First Economics.

to adopt such a methodology it would provide for a cost of debt allowance that is in line with all of the relevant evidence set out above.

5 ASSET BETA

We consider that an asset beta of 0.30 combined with a debt beta of 0.10, as proposed by UR for GT17[26] is inadequate for the purpose of setting the allowed return for GT17, because it:

- conflicts with the market evidence; and
- does not accurately reflect regulatory precedent in NI and GB.

We expand on these two points in more detail below.

5.1 UR's proposed asset beta is inconsistent with market evidence

The asset betas that First Economics calculated are presented in Table 4 below. First Economics calculated asset betas for National Grid, Pennon Group, Severn Trent and United Utilities. They then averaged these asset betas over five years up to July 2016. First Economics analysis results in an average asset beta of 0.34, assuming a debt beta of 0.10.

Table 4: First Economics analysis of asset beta

Comparator	Average asset beta (5 year average)
National Grid	0.35
Pennon Group	0.36
Severn Trent	0.34
United Utilities	0.32
Average	**0.34**

Source: First Economics, "An Estimate of the GT17 Cost of Capital for GNI (UK)", Nov 2016

We note that First Economics excluded SSE from its analysis. SSE was included in the CMA's comparator set for NIE at RP5. First Economics provided no justification for excluding SSE from their analysis. If First Economics had included SSE in their analysis the average asset beta would have increased to 0.36. We note that the five year average beta may be biased downwards due to a period of volatility. Therefore, in our view, it could be considered more appropriate to take a two year average beta. The asset beta averaged over two years up to July 2016 is 0.44.

It is clear, therefore, that an asset beta of 0.30 with a debt beta of 0.10 is not supported by current market evidence.

[26] While the GT17 DD makes reference to evidence from market observations and precedent, it only provides evidence in relation to precedent. However, we note that the First Economics paper provides estimates of asset beta. The debt beta of 0.10 is inferred from the First Economics paper.

5.2 UR's proposal does not accurately reflect regulatory precedent

The GT17 DD also relies upon regulatory precedent to support its proposed 0.30 asset beta.

Of the six precedents quoted by UR, two would appear to support an asset beta as low as 0.30. In particular, UR quotes the following:

- Ofwat, water and sewerage networks 2014, which UR reports as estimating an asset beta of 0.30; and
- CC, GB regulated networks which UR reports as estimating an asset beta of 0.30 to 0.40.

We consider that in both cases UR has not accurately reflected the regulatory precedent. We discuss both in turn below.

5.2.1 Ofwat, water and sewerage networks 2014

The asset beta estimate of 0.30 relied upon by UR is presented without regard to the debt beta. Comparing asset betas across regulatory decisions without controlling for different assumptions on debt beta is wrong and misleading.

UR has used a debt beta of 0.1. Ofwat has used a debt beta of 0.0. This is clearly illustrated on Page 17 of the Ofwat document referenced by UR, which presents two figures setting out Ofwat's asset beta analysis. In both cases, they clearly indicate that the debt beta is zero. Moreover, footnote 18 of Ofwat's document clearly states that:

"This [the asset beta] is equivalent to a figure of 0.36 using a debt beta of 0.1" [text added]

As UR will be aware, the asset beta is a hypothetical concept reflecting what the equity beta of a company would be had it been entirely equity financed. This enables the comparison of riskiness between companies with different levels of leverage, as the element of leverage (gearing) is taken out of the equation. All UK regulatory precedent on the asset beta, as referred to by UR, is constructed from the observed equity betas of comparator companies using the so-called Miller formula. When using the Miller formula to construct the asset betas, regulators make two assumptions:

- a gearing level of zero; and
- a specific assumption on the debt beta.

It is mathematically incorrect to compare the asset betas at face value without taking into account the assumptions on the debt beta.

Consequently, it is clear that this precedent does not support an asset beta of 0.3 when used in conjunction with UR's debt beta of 0.1.

Moreover, the Ofwat analysis uses the same comparators and time period as the First Economics analysis. The only difference is that the Ofwat analysis is based on data to the end of 2013, while the First Economics analysis (which finds a

higher asset beta) is based on data to July 2016. It is inappropriate to overlook the data based on up-to-date data in favour of that which is now three years old.

5.2.2 CC, GB regulated networks 2014

UR reports that this precedent suggests a range of 0.31 to 0.4. First, we note that this range appears to be taken from the NIE decision, in which the CC found that the asset beta for NIE is 0.4.

Second, this precedent is subject to the same two criticisms that apply to the Ofwat precedent:

- the range quoted is based on an analysis using a debt beta of 0.05, not 0.10[27]; and
- the CC analysis is based on data to the end of 2013. Again, to rely on this precedent in favour of the more recent market data would effectively mean ignoring the most recent three years of data entirely.

5.3 Conclusion on the asset beta

As shown clearly above, the asset beta proposed by UR's GT17 DD, when combined with its debt beta assumption of 0.10, is:

- inconsistent with market evidence (both from First Economics' own analysis and Frontier Economics' analysis); and
- does not accurately reflect the regulatory precedent on which it depends.

[27] See paragraph 13.175(c) "In this case we have assumed a debt beta of 0.05".

6 SUMMARY

We have reviewed UR's proposed WACC for GT17 and identified a number of material concerns with the proposed WACC of 2.0%. We have found UR's proposed methodology is flawed, inconsistent with its previous regulatory approach for GT12 and inconsistent with UR's approach for other regulated entities in NI. This has resulted in a proposed WACC of 2.0% that is significantly lower than relevant regulatory precedent.

We consider that UR has placed undue weight on comparisons with the transmission element of Gas to the West (GttW). This is inappropriate, as the price control arrangements facing GttW are different to those facing GNI (UK). In particular, GttW is exposed to considerably less risk than GNI (UK).

We consider that GNI (UK) should be compared to more directly comparable utilities in NI (i.e. NIE, PNGL, FE), or similar utilities in GB. These utilities all:

- have similar price control arrangements to GNI (UK);
- have opex and capex risk treated similarly in their price controls; and
- have similar capital structures.

When GNI (UK) is compared to these entities, it is clear that UR's proposals for GNI (UK) are out of line with regulatory precedent

We also find that in relation to the cost of debt and the asset beta, UR's proposals draw selectively on the available evidence and regulatory precedent.

UR has proposed a nominal cost of debt allowance of 3.9% (0.6% real)[28] for GT17. We find that the methodology UR has deployed is flawed. We believe that UR has made a number of significant errors in the approach it has adopted that have led it to materially under-estimating the cost of debt which a standalone GNI (UK) would face:

- UR has placed undue weight on evidence relating to the cost of debt of GNI (UK)'s parent, which is not relevant to the cost of debt that could be achieved by a standalone GNI (UK), which is the benchmark UR has stated it is using;
- UR has adopted a methodologically flawed approach which fails to treat GNI (UK) as a stand-alone entity, and unnecessarily exposes GNI (UK) to market volatility;
- UR has ignored the methodology it used to determine the cost of debt for GD17. In that case, UR recognised and took account of the significant volatility in current spot rates, and in addition to adjusting for the forward curve, provided for uplifts to account for illiquidity and transaction costs. The estimated GD17 cost of debt was between 5.6% and 6.2%, moreover, UR provided a mechanism to protect FE and PNGL from adverse movements in debt costs over the price control period;
- UR has diverged without explanation from the methodology it used for GNI (UK) at GT12, and has implemented an approach that it has previously

[28] See footnote 4 in the First Economics paper for how the nominal cost of debt of 3.9% translates to the real cost of debt of 0.6% referenced in UR GT17 DD.

suggested is inappropriate. We estimate that the nominal cost of debt calculated on the basis of the GT12 methodology would be between 5.28% and 5.37%;

- UR has ignored relevant precedents such as Ofgem and Ofwat. Both regulators have used methodologies based on long-term data, and which would give rise to a nominal cost of debt allowance of between 4.81% and 5.13%.

All of the evidence above points to a cost of debt allowance significantly above the nominal 3.9% proposed by UR. GNI (UK)'s previous submission for GT17 provided for a methodology to estimate the cost of debt that is methodologically consistent, consistent with the approach the UR used at GT12 and consistent with the GB regulators' use of long-term data to inform the cost of debt allowance. We suggest UR should re-consider its proposals in light of the evidence provided above, and provide for a cost of debt allowance that better reflects the cost of debt that a stand-alone GNI (UK) would face.

We have also identified a number of substantial concerns over the asset beta methodology used by UR. UR has proposed an asset beta of 0.30. However, we note that First Economics' analysis of the current market data identifies an average asset beta of 0.34 over the last five years up to July 2016. UR is therefore relying on regulatory precedent, rather than current market analysis, to arrive at an estimate of 0.30. However, with respect to the regulatory precedent relied upon by the UR, we find the following:

- The precedents relied upon by UR use the same comparators and time period as the First Economics analysis. The difference is that the precedents are based on data to the end of 2013, while the First Economics analysis (which finds a higher asset beta) is based on data to July 2016. We can see no logic in overlooking the analysis based on up-to-date data in favour of that which is now three years old.
- It is incorrect to compare (as UR does) the asset betas at face value without taking into account the assumptions on the debt beta. Both the Ofwat and CC precedents relied upon by UR explicitly state that they use debt betas of 0.0 and 0.05 respectively, whereas the UR has used a debt beta assumption of 0.10. Once this is corrected for, the precedent presented by UR no longer supports an asset beta of 0.30.

We therefore find that there is no basis to support an asset beta of 0.30 in combination with a debt beta of 0.10.

Overall, we find that the approach adopted by UR is not based on a methodologically consistent approach. Rather, we find that UR appears to have chosen selectively from the available evidence to arrive at a proposed WACC that is significantly below all relevant regulatory comparators. In particular, we note the considerable inconsistency between the current proposed approach and the approach adopted by UR in relation to the GD17 decision.

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