An Coimisiún um Rialáil Fóntas

Commission for Regulation of Utilities

Gas Networks Ireland Transmission Tariffs and Tariff Information 2018/19

Information Paper

Information Paper

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The Exchange, Belgard Square North, Tallaght, Dublin 24, Ireland
T +353 1 4000 800 | F +353 1 4000 850 | www.cru.ie

Executive Summary

The Tariff Network Code[1] (TAR NC) outlines two sets of tariff related information for publication. The first set of information, which included transmission tariffs for the upcoming gas year, was published in an information note on 01 June 2018 (CRU/18/102), thirty days ahead of the annual yearly capacity auctions in accordance with Article 29 of the TAR NC.[2] That information note highlighted that:

- Transmission network tariffs (transportation cost of UK Gas) for the gas year 2018/19 in nominal terms are down c.6% versus 2017/18.
- The combined effect of the Transmission and Distribution Network Tariffs for 2018/19 on an average residential gas customer's annual bill is a decrease of c. €13.67, which is a 1.8% decrease.

The CRU is now publishing the second set of additional tariff information, ahead of the upcoming tariff period, which begins on 01 October 2018, in accordance with Article 30 of TAR NC. With this information paper the CRU has created, in so far as possible, a single resource for all tariff related information, which includes:

- An introduction to how the CRU sets GNI's Allowed Revenue;
- The process by which the CRU updates the Allowed Revenue on an annual basis;
- An introduction to the methodology used to calculate the tariffs;
- Information required under Article 30 of TAR NC, containing:
  - detail on elements of the CRU's Allowed Revenue methodology;
  - detail on the parameters within GNI's tariff model; and,
  - other additional information used either directly or indirectly to calculate GNI's allowed revenue and the transmission tariffs.
- The variables that cause changes in the tariffs from one year to the next; and,
- The transmission tariffs set out in (CRU/18/102).

To date the CRU has published much of the information in this information paper across a number of publications. By making all tariff related information available to customers, in a single location, it has made it easier for customers to understand how tariffs are set and what causes them to change from one year to the next. An important tool now available to the public is the simplified tariff model available on Gas Networks Ireland's website at the following link. This simplified model

[1] Establishing a network code on harmonised transmission tariff structures for gas (Commission Regulation (EU) 2017/460).

[2] Although not required under the TAR NC the CRU also published an information note (CRU/18/101) containing distribution tariffs as both sets of tariffs are calculated in tandem.

will enable customers to, further identify how transmission network tariffs are effected by demand and revenue variations, and to estimate the possible evolution of tariffs.

Public/ Customer Impact Statement

Gas Networks Ireland (GNI) owns and operates the gas network, which supplies all gas customers in Ireland. The CRU is legally responsible for regulating network charges in the natural gas market. The CRU may set the basis for charges for using the gas transmission and distribution networks. The CRU does so in the best interests of the consumer. Our goal is to ensure that the gas is safely and securely supplied and that the charges are fair and reasonable.

With this information paper the CRU has aimed to create a single resource for all gas network tariff related information, ranging from; how it sets tariffs on an annual basis, the variables that cause changes in the tariffs from one year to the next, and the tariffs for the upcoming gas year.

To date the CRU has published much of the information in this information paper across a number of publications. By making all tariff related information available to customers, in a single location, it has made it easier for customers to understand how tariffs are set and what causes them to change from one year to the next. An important tool now available to the public is the simplified tariff model available on Gas Networks Ireland's website at the following link. This simplified model will enable customers to, further identify how transmission network tariffs are effected by demand and revenue variations, and to estimate the possible evolution of tariffs.

The transmission network tariffs, were published on 01 June 2018, thirty days ahead of the annual yearly capacity auctions. Further detail regarding the transmission network tariffs for 2018/19 is included in this information paper. The key customer impacts of that publication are that:

- Transmission network tariffs (transportation cost of UK Gas) for the gas year 2018/19 in nominal terms are down c.6% versus 2017/18. Network tariffs are charged to gas suppliers who may choose to pass them on to their customers. The network tariff changes equate to a c. 0.55% decrease on an average residential gas customer's bill.
- The combined effect of the Transmission and Distribution Network Tariffs for 2018/19 on an average residential gas customer's annual bill is a decrease of c. €13.67, which is a 1.8% decrease.

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Glossary of Terms and Abbreviations

Abbreviation or Term	Definition or Meaning
Allowed Revenues	The sum of revenues that the TSO is entitled to obtain in a given period, as approved by the CRU.
Capex	Capital expenditure
CER	Commission for Energy Regulation
CNG	Compressed Natural Gas
CRU	Commission for Regulation of Utilities (formerly CER)
Correction Factor (K-Factor)	An adjustment of revenue applied to rectify over or under recoveries.
DM	Daily Metered
Extra-over items	Work items not included in the Price Control
EWIC	East West Interconnector
GNI	Gas Networks Ireland
I/C	Industrial & Commercial
LDM	Large Daily Metered
NDM	Non-Daily Metered
Opex	Operating expenditure
Pass-through items	Work items that were included in the Price Control but the costs of which were not certain at the time of the Price Control.
Price Control	A 5 - yearly review of GNI’s allowed revenues.
TAR NC	The Network Code on rules regarding harmonised transmission tariff structures for gas.
TSO	Transmission System Operator
VRF	Virtual Reverse Flow

1 Introduction

1.1 The Commission for Regulation of Utilities

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

Under the Gas (Interim) (Regulation) Act, 2002, the CRU is responsible for regulating charges in the natural gas market. Under Section 14 of the Act, the CRU may set the basis for charges for transporting gas through the transmission system.

Following the CRU's publication[3] of Gas Network Ireland's (GNI) allowed revenues and transmission tariffs that will apply from 01 October 2018 to 30 September 2019, the CRU is now publishing additional information related to calculation of allowed revenues and transmission tariffs, in accordance with Article 30 of the Network Code on rules regarding harmonised transmission tariff structures for gas (TAR NC)[1].

1.2 Background Information

TAR NC outlines two sets of tariff related information for publication. Firstly, Article 29 sets the information required before the annual yearly capacity auctions. Secondly, Article 30 sets the information required before the upcoming tariff period (i.e. gas year 01 October 2018 – 30 September 2019). The first set of information, which included transmission tariffs, was published thirty days ahead of the annual yearly capacity auctions, in accordance with Article 29 of the TAR NC.[3] The annual yearly capacity auctions were held on 02 July 2018 for the 2018/19 gas year. As a result, this was the first time that the transmission reserve prices for the coming gas year were known to Shippers in advance of the annual yearly capacity auctions. Although not required under TAR NC the CRU also published an information note containing distribution tariffs as both sets of tariffs are calculated in tandem.[4]

The CRU is now publishing the second set of tariff information in accordance with Article 30 of TAR NC. With this information paper the CRU has aimed to create a single resource for all tariff related information; ranging from how it sets tariffs on an annual basis, the variables that cause changes in the tariffs from one year to the next, and the tariffs themselves (which were already set out in

[3] Gas Networks Ireland Transmission Tariffs and Allowed Revenue 2018/19 – Information note (CRU/18/102).
[4] Gas Networks Ireland Distribution Tariffs and Allowed Revenue 2018/19 – Information note (CRU/18/101).

(CRU/18/102)). The CRU has carried out this exercise in order to provide customers with tariff related information in the most transparent and easily accessible manner.

1.3 Related Documents

Some documents related to this publication are provided below:

- CRU transmission revenue model 18/19 (CRU/18/103).
- GNI's simplified transmission tariff matrix model (https://www.gasnetworks.ie/corporate/gas-regulation/tariffs/transmission-tariffs/simplified-tariff-model).
- CRU Corrib Linkline model (CRU/17/138).
- Decision on October 2017 to September 2022 transmission revenue for Gas Networks Ireland (CER/17/260).
- Gas Networks Ireland Transmission Tariffs and Allowed Revenue 2018/19 – Information note (CRU/18/102).
- Gas Networks Ireland Distribution Tariffs and Allowed Revenue 2018/19 – Information note (CRU/18/101).
- Establishing a network code on harmonised transmission tariff structures for gas (Commission Regulation (EU) 2017/460).

Information on the CRU's role and relevant legislation can be found on the CRU's website at **www.cru.ie**.

2 Setting the tariffs for 2018/19

2.1 Introduction

The CRU's role is to protect gas customers by ensuring that GNI spends customers' money appropriately and efficiently to deliver necessary services. The CRU does this through what is called a Price Control, which is carried out every 5-years. The current 5-year period started on 01 October 2017 (PC4). A Price Control is an important process because the CRU must carefully consider the level of money, known as the Allowed Revenue, GNI needs to safely operate, maintain and invest in the gas network for the next 5 years.

In August 2017, the CRU published its decision paper (CER/17/260) on the Allowed Revenue that GNI's transmission business may recover over the Price Control period from 01 October 2017 to 30 September 2022. This decision allowed €924m to be recovered for transmission over the 5 year period on an annual basis.

The CRU sets the tariffs for the use of the gas network on an annual basis. These tariffs allow GNI as the network operator to recover the allowed revenue set by the CRU. The CRU's goal is to ensure that gas is safely and securely supplied to customers and that the charges are fair and reasonable.

As part of the annual process of setting tariffs for the upcoming gas year, the CRU collects annual cost information from GNI. The cost data is thoroughly reviewed and the allowed revenues are updated as appropriate on a yearly basis. This approach enables CRU to:

- ensure the most up to date information is captured;
- update the costs as appropriate to smooth out the impact on tariffs of any major under or over recoveries as part of the next five year review;
- build an understanding of how network costs are driven, and affected on an annual basis;
- provide regularly updated information on costs for the public and industry.

Further detail on the annual tariff setting process is provided in Section 2.3.

2.2 Allowed revenue and tariff setting methodology

The CRU sets a separate Allowed Revenue for the transmission and distribution businesses, which is recovered through transmission tariffs and distribution tariffs, respectively. The transmission business' Allowed Revenue is made up of three parts:

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

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

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

Following the annual tariff update, detailed further in Section 2.3, the CRU calculates the updated Allowed Revenue for the upcoming gas year. The Allowed Revenue is calculated using the CRU's revenue model (CRU/18/103).

This Allowed Revenue is then entered into GNI's Transmission Tariff Model to calculate the transmission tariffs, which are the means by which GNI's Allowed Revenue is recovered. In July 2015, the CRU published its decision paper on the Gas Entry/Exit Tariff Methodology, which provides the basis for GNI's Transmission Tariff Model.[5] That decision paper details the CRU's decisions regarding the methodology for the calculation of Entry and Exit tariffs. One of the key components of that paper was the CRU's decision to calculate transmission tariffs using a forward looking matrix methodology, hence why GNI's model is sometimes referred to as the matrix model. The decisions outlined in the decision paper were the culmination of 5 years of tariff reform by the CRU, and were developed following extensive consultation with stakeholders. This matrix methodology was employed to set the tariffs for the 2018/19 gas year.

Further information on the current matrix methodology is available in Appendix B, with detailed information available in CER/15/140 and the related documents. In accordance with Article 30 a simplified version of the Transmission Tariff Model is available alongside this information paper, at the following link. Some of the key inputs to this methodology are highlighted in Table 2.4.

Note: Part of the tariff at the Bellanaboy Entry Point is calculated using the CRU's Corrib Linkline Element model (CRU/17/138). The Bellanaboy Entry Point tariff is composed of two elements: one to remunerate the Allowed Revenue of GNI, which is calculated in GNI's Matrix model; and one that remunerates those that underwrite the Corrib Linkline (the Corrib Partners), which is calculated using the CRU's Corrib Linkline Element model (CRU/17/138).

Note: In accordance with the TAR NC, the CRU is currently undertaking a review of the tariff methodology, and will do so at least every five years from 31 May 2019, to ensure compliance with TAR NC. The CRU expects to publish its consultation in Q4 2018, and having taken into account the responses to its consultation, the CRU expects to publish a decision in Q2 2019. The resulting methodology will be used to set the transmission tariffs for the 2019/20 gas year. For

[5] Gas Entry/Exit Tariff Methodology (CER/15/140)

the avoidance of doubt, any changes to the methodology will not affect the tariffs that have been set for the 2018/19 gas year.

2.3 Annual tariff setting updates 2018/19

2.3.1 Introduction

The CRU collects annual cost information from GNI in order to update the revenues allowed through the Price Control process. This involves a submission from GNI, requesting items that are either considered "pass-through" or "extra-over". Pass-through items are those for which at the time of the Price Control, the exact expenditure was not finalised. Extra-over items are requests from GNI for items that were not anticipated in the Price Control.

During the annual tariff setting process the CRU also carries out an adjustment to the allowed revenue for the upcoming year, based on the difference between actual inflation, actual revenues collected and actual pass-through costs incurred by GNI; versus the ex-ante projections for inflation, revenues and pass-through costs. This adjustment is known as a Correction Factor or K-Factor. Generally, a K-Factor is calculated for the year Kt-1 and used to adjust the revenue in the year Kt+1, i.e. when setting the tariffs for 2018/19 the 2016/17 K-Factor is calculated and the adjustment is applied to the allowed revenue for the gas year 2018/19.

In addition to information relating to expenditure, demand projections are also estimated through the Price Control process for each of the five years of the control period. As part of the annual tariff setting process these demand figures are adjusted to consider the latest forecasts.

2.3.2 Pass-through costs

GNI did not seek any adjustments to the pass-through costs already submitted for 2018/19 through the Price Control process.

2.3.3 Extra-over items

GNI submitted a request for extra-over items totalling €2.28m. The CRU decided to allow GNI a total of c. €1.39m for extra-over items. This is made up of an additional capital expenditure (capex) allowance of €0.636m for Network Code Implementation and an additional operational expenditure (opex) allowance of €0.75m for legal costs.

2.3.4 2016/17 Correction factor

During the PC4 process, which took place in 2016/17, GNI highlighted to the CRU that it was forecasting a significant over-recovery in the year 2016/17, due to demands being greater than expected. In order to provide as much tariff stability as possible, a decision was made to include a portion (€7.9m) of the forecasted over-recovery, in the calculation of GNI's allowed revenue for PC4 in order to aid tariff stability over the PC4 period.

As part of the 2018/19 tariff setting process GNI finalised the Correction factor for 2016/17 based on the difference between actual inflation, actual revenues collected and actual pass-through costs incurred by GNI; versus the ex-ante projections for inflation, revenues and pass-through costs. This resulted in an additional €8.4m that needed to be returned to customers, and a total Correction Factor of €16.3m for the year 2016/17.

The CRU may choose to apply two additional mechanisms to Correction Factors. The first relates to the calculation of Correction Factors and the second relates to the application of the Correction Factor.

Firstly, as per CER/03/170, any over or under recovery of revenue attracts an interest rate. This mechanism is included to incentivise GNI to make accurate forecasts of demand and new customer connections.

Secondly, on the occasion that a Correction Factor exceeds more than 5% of allowed revenues in the year in which the under or over recovery occurred then the Correction Factor is spread over two years, with the excess over the 5% carried over to the following year rather than being recovered entirely in the one year. This mechanism is aimed at enhancing tariff stability.

With respect to the second of these two mechanisms, the CRU decided to also spread out remainder of the 2016/17 Correction Factor over the remainder of PC4. This was due to the fact that there was already significant downward pressure on tariffs due to increased demand forecasts, and as a result the CRU wanted to minimise tariff volatility.

The effect of the decision to return a portion of the forecasted 2016/17 Correction Factor as part of the PC4 revenue calculation has been to reduce GNI's annual allowed revenue by €1.7, rising to €1.9m by the final year of PC4. The effect of the decision to return the remainder of the 2016/17 Correction Factor over the remaining four years of PC4 has been to reduce GNI's annual allowed revenue by an additional €2.3, rising to €2.5m by the final year of PC4. The combined effect on the allowed revenue in the year 2018/19 has been a €4m reduction.

2.3.5 The 2018/19 demand updates

GNI submits updated forecasts for capacity demand and commodity demand in the upcoming year to the CRU during the annual tariff setting process.

2.3.5.1 Assumptions

The forecast demands for 2018/19 are based on the assumptions outlined below. These assumptions influence the demands forecasted at the Entry Points to the transmission system and at the Exit from the transmission system.

Table 2.1: Demand assumptions

Assumption	Description
Annualisation of Capacity Bookings	It is anticipated that shippers will continue to optimise their capacity bookings via a mixture of annual and short term capacity products. This applies to the Large Daily Metered (LDM) and Daily Metered (DM) sectors. Where short-term capacity is forecast then the value of these capacity products is converted into an annual value, which is dependent on the month when the booking is expected to arise. In this way the forecast bookings are "annualised".[6]
Power generation	Due to the requirement under Article 29 of TAR NC tariffs were published at the end of May rather than the typical end of August publication date. As a result GNI's demand assumptions are based on Eirgrid's 2017-2026 Generation Capacity Statement (GCS) rather than the 2018-2027 GCS as it was not available at the time. Power demand is based on Eirgrid's Median Electricity Demand scenario. The Power sector is expected to increase capacity bookings relative to the 2017/18 tariff demands due to forecast Moneypoint outages and EWIC[7] exports. In addition, overall demand electricity demand can be expected to be higher in 2018/19 due to forecasted increased economic activity.
Daily Metered (DM) Industrial & Commercial (I/C)	The LDM & DM sector is expected to increase capacity bookings relative to the 2017/18 tariff demands in part due to forecasted increased economic activity.
Non-Daily Metered (NDM)	The NDM sector capacity booking is derived by the Annual Quantity (AQ) and Supply Point Capacity (SPC) setting process in GNI, and there is a requirement on this sector to book a peak day (1 in 50) requirement at the Exit. The 1 in 50 has increased in 2018/19 relative to the 2017/18 tariff demands due to the fact that the peak day (1 in 50) was reached in March 2018 for the NDM sector.
Entry Points	Updated production profiles provided by the producers at Inch and Corrib have been utilised. Inch Production is forecast to decrease as the blowdown of cushion gas continues. Storage at Inch has ceased. Corrib Production has now come off peak and as a result capacity bookings have decreased at Bellanaboy, resulting in increased capacity bookings at Moffat, which provides the marginal source of gas.

[6] An example of how capacity forecasts were annualised is shown in the 2014/15 Transmission Tariffs decision paper (CER/14/140).
[7] East West Interconnector (EWIC)

2.3.5.2 Demand forecasts

The tables below present GNI's updated forecast capacity and commodity bookings for the upcoming gas year 2018/19, and highlights the trend in comparison to the forecast capacity bookings for the gas year 2017/18 and to the original PC4 forecast.

Table 2.2: Forecast capacity bookings for 2018/19 (MWh)

Entry/Exit	**PC4 forecast 17/18**	**PC4 forecast 18/19**	**Updated forecast 18/19**	**18/19 update vs PC4**	**18/19 vs 17/18**
Exit	*265,692*	*265,753*	*279,892*	*5.3%*	*5.3%*
Inch Production	11,199	7,472	5,908	-20.9%	-47.2%
Inch Storage	1,485	-	-		
Bellanaboy	98,405	88,103	82,362	-6.5%	-16.3%
Moffat	94,979	111,416	128,235[1]	15.1%	35.0%
Total Entry	*206,068*	*206,992*	*216,505*	*4.6%*	*5.1%*

[1] Includes forecasted biogas entry.

Table 2.3: Forecast commodity bookings for 2018/19 (MWh)

Entry/Exit	**PC4 forecast 17/18**	**PC4 forecast 18/19**	**Updated forecast 18/19**	**18/19 update vs PC4**	**18/19 vs 17/18**
Exit	*49,887,907*	*49,441,145*	*51,548,781*	*4.3%*	*3.3%*
Entry	*51,122,441*	*50,678,812*	*52,823,867*	*4.2%*	*3.3%*

Note: The Exit Commodity total is lower than the Entry Commodity total primarily due to the Isle of Man offtake, which is not included in the Exit total.

Exit forecasts

GNI's 2018/19 capacity forecasts at Exit have increased at a total level by **c.5%** when compared to 2017/18 tariff demand forecasts. The forecasted 2018/19 Exit commodity demand is **c.3%** higher than the 2017/18 tariff demand forecasts. These increases are mainly due to forecasted increased electricity demand, additional forecast Moneypoint outages and EWIC exports. Large Daily Metered (LDM) and Daily Metered (DM) forecast bookings are expected to be higher than the 2017/18 tariff levels as a result of forecasted economic growth. Non-Daily Metered forecasts are greater than the 2017/18 tariff demands due to a higher 1 in 50[8].

Entry forecasts

In order to meet forecasted Exit capacity demand, Entry capacity demands for the 2018/19 tariff year are also forecast to be **c.5%** higher than 2017/18 tariff demands. Forecasted capacity

[8] The 1 in 50 has increased in 2018/19 by 7% compared with the 2017/18 tariff demands. This increase is a result of the increased demand on the system, and can be verified by the fact that the peak day (1 in 50) was reached in March 2018 for the NDM sector.

bookings at Inch are expected to continue to decrease as blowdown of cushion gas continues, while use of the storage facility has ceased. Corrib production, which enters the transmission system at Bellanaboy, has now come off peak and as a result forecasted capacity bookings have decreased. The updated profile for Corrib shows production decreasing at a higher rate than was expected at PC4. The forecasted decrease in capacity bookings at Inch and Bellanaboy will result in increased capacity bookings at Moffat, as it provides the marginal source of gas.

The forecasted Entry commodity demands for the 2018/19 tariff year are also **c.3%** higher than 2017/18 tariff demands, driven by higher Exit commodity demands.

2.4 TAR NC Article 30 information

The CRU updates the Allowed Revenue calculated using the methodology presented in Section 2.2 with the annual update information detailed in Section 2.3 to calculate the allowed revenue for the upcoming gas year. This allowed revenue is then entered into GNI's Transmission Matrix Model along with the updated demand forecasts to calculate the tariffs for the upcoming gas year, which are presented in Section 3.

Table 2.4 below provides the information required under Article 30 of TAR NC. This includes detail on elements of the CRU's allowed revenue methodology, GNI's Matrix Model, and other additional information all of which is used either directly or indirectly to calculate GNI's allowed revenue and the transmission tariffs for the 2018/19 gas year.

Table 2.4: Information on TSO Revenue - Revenue level (15/16 monies)

<table>
<tr><th>TAR NC</th><th>Description</th><th>Period</th><th colspan="2">Detail</th></tr>
<tr><td>Art. 30 (1)(a)</td><td>Information on parameters used in the reference price methodology that are related to the technical characteristics of the transmission systems</td><td>2018/19</td><td colspan="2">See Appendix B for further detail.

A simplified version of the transmission tariff model is available on GNI's website at the following link. A full version of the tariff model is available from GNI following the signing of a license, contact tom.oconnor@gasnetworks.ie for further detail.</td></tr>
<tr><td>Art. 30 (1)(b)(i)</td><td>Allowed revenue</td><td>2018/19</td><td colspan="2">€177.1m</td></tr>
<tr><td>Art. 30 (1)(b)(ii)</td><td>Changes in allowed revenue</td><td>2017/18 – 2018/19</td><td colspan="2">Increase in allowed revenue of 1.5% from gas year 2017/18 to 2018/19. This increase is due to the fact that at the outset of PC4 the CRU decided to profile the transmission revenue requirement over the five-year period of PC4 relative to the increasing demand forecast at the Moffat entry point. These increasing demands at Moffat will lead to an increase in revenue recovery by the TSO, therefore by profiling the allowed revenue with the Moffat demand the revenue requirement can be met while the tariffs remain stable.</td></tr>
<tr><td rowspan="6">Art. 30 (1)(b)(iii)(1)</td><td rowspan="6">Asset types and their aggregated value</td><td rowspan="6">At start of current regulatory period – 01.10.2017</td><td>Asset type</td><td>Net book value</td></tr>
<tr><td>Pipelines/AGIs (incl. GTTW)</td><td>€1246.4</td></tr>
<tr><td>Land</td><td>€1.9m</td></tr>
<tr><td>Equipment</td><td>€19.2m</td></tr>
<tr><td>Compressors</td><td>€62.9m</td></tr>
<tr><td>Buildings</td><td>€17.6m</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(2)</td><td>Cost of capital and calculation methodology</td><td>2017/18-2021/22</td><td colspan="2">4.63% WACC – cost of debt is calculated using the estimated yield on government bonds) plus a debt premium, while the cost of equity is calculated using the CAPM model.</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(3)(a)</td><td>Initial asset valuation</td><td>n/a</td><td colspan="2">Acquisition cost</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(3)(b)</td><td>Asset revaluation</td><td>n/a</td><td colspan="2">Acquisition cost, indexed with inflation (HICP), as a proxy for current replacement cost</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(3)(c)</td><td>Evolution of the value of the assets</td><td>n/a</td><td colspan="2">Assets are added to the Regulated Asset Base (RAB) at their</td></tr>
</table>

<table>
<tr><th><u>TAR NC</u></th><th><u>Description</u></th><th><u>Period</u></th><th colspan="3"><u>Detail</u></th></tr>
<tr><td></td><td></td><td></td><td colspan="3">acquisition cost (historic cost). The assets are indexed with inflation (HICP) in order to calculate the value of an asset at the required point in time. The assets are then depreciated, using straight line depreciation, the rate of depreciation is set by the asset life. Assets are removed from the RAB when they are fully depreciated or disposed of.</td></tr>
<tr><td rowspan="6">Art. 30 (1)(b)(iii)(3)(d)</td><td rowspan="6">Depreciation periods and amount per asset type</td><td rowspan="6">2016/17</td><td>Asset type</td><td>Depreciation Period (Asset life)</td><td>Annual depreciation amount</td></tr>
<tr><td>Pipelines/AGIs/GTTW</td><td>50 years</td><td>€40.6m</td></tr>
<tr><td>Land</td><td>40 years</td><td>€0.1m</td></tr>
<tr><td>Equipment</td><td>5 years</td><td>€5.7m</td></tr>
<tr><td>Compressors</td><td>25 years</td><td>€5.1m</td></tr>
<tr><td>Buildings</td><td>40 years</td><td>€0.8m</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(4)</td><td>Operational expenditures</td><td>2018/19</td><td colspan="3">€80.5m (pre- correction factor adjustment)</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(5)</td><td>Incentive mechanisms and efficiency targets</td><td>2017/18-2021/22</td><td colspan="3">Capex and opex incentives[9], with an ongoing controllable opex efficiency challenge of 1%.</td></tr>
<tr><td>Art. 30 (1)(b)(iii)(6)</td><td>Inflation indices</td><td>2017/18-2021/22</td><td colspan="3">Harmonised Index of Consumer Prices[10]</td></tr>
<tr><td>Art. 30 (1)(b)(iv)</td><td>Transmission services revenue</td><td>2018/19</td><td colspan="3">€177.1m.</td></tr>
<tr><td>Art. 30 (1)(b)(v)(1)</td><td>Capacity-commodity split</td><td>2018/19</td><td colspan="3">90:10</td></tr>
<tr><td>Art. 30 (1)(b)(v)(2)</td><td>Entry-exit split</td><td>2018/19</td><td colspan="3">33:67</td></tr>
<tr><td>Art. 30 (1)(b)(v)(3)</td><td>Intra-system/cross-system split</td><td>2018/19</td><td colspan="3">100% intra-system as there are currently no cross-system flows.</td></tr>
<tr><td>Art. 30 (1)(b)(vi)(1)</td><td>Actual revenue recovered in kt-2 (i.e. 16/17)</td><td>2016/17</td><td colspan="3">Actual revenue recovered was €199.96m in nominal monies.</td></tr>
<tr><td>Art. 30 (1)(b)(vi)(2)</td><td>(i) Correction factor for the year Kt-</td><td>2016/17</td><td colspan="3">(i) €16.3m, (ii) Reduced allowed revenue by €4m[11], (iii) Rates:</td></tr>
</table>

[9] See Section 7 of CER/17/260 for further detail regarding the incentives applied to the TSO.
[10] See 'Inflation' and 'Indexation' tab of CRU/18/103 Transmission revenue model 18/19 for further detail.
[11] Effect on 18/19 revenues only, approximately €4m to be returned each year over remaining three years of PC4. Approximately €1.7m already returned in 17/18.

<table>
<tr><th><u>TAR NC</u></th><th><u>Description</u></th><th><u>Period</u></th><th colspan="5"><u>Detail</u></th></tr>
<tr><td></td><td>2, (ii) its effect on revenues in year Kt (18/19) and (iii) incentives.</td><td></td><td colspan="5">50% of the difference between approved and actual levels passed through to consumers, with the remainder being borne (or received) by the TSO.</td></tr>
<tr><td>Art. 30 (1)(b)(vii)</td><td>Intended use of auction premium</td><td>2018/19</td><td colspan="5">No auction premium</td></tr>
<tr><td>Art. 30 (1)(c)(i)</td><td>Commodity-based tariffs</td><td>2018/19</td><td colspan="5">See Table 3.1</td></tr>
<tr><td>Art. 30 (1)(c)(ii)</td><td>Non-transmission tariffs</td><td>2018/19</td><td colspan="5">The Corrib Linkline Element of the Bellanaboy tariff is considered a non-transmission tariff under TAR NC, see footnote 13.</td></tr>
<tr><td>Art. 30 (1)(c)(iii)</td><td>Reference prices for other points than interconnection points</td><td>2018/19</td><td colspan="5">See Table 3.1</td></tr>
<tr><td>Art. 30 (2)(a)(i)</td><td>Information about tariff changes and trends</td><td>2017/18 - 2018/19</td><td colspan="5">See Appendix A for the difference in tariffs and Section 3 for an explanation of this difference.</td></tr>
<tr><td>Art. 30 (2)(a)(ii)</td><td>Information about tariff changes and trends</td><td>2017/18 - 2021/22</td><td colspan="5">A simplified model is available on GNI's website at the following link. This allows the calculation of the possible evolution of tariffs.</td></tr>
<tr><td>Art. 30 (2)(b)</td><td>A simplified tariff model</td><td>2018/19</td><td colspan="5">A simplified model is available on GNI's website at the following link.</td></tr>
<tr><td rowspan="5">Art. 30 (3)</td><td rowspan="5">Information on the amount of forecasted contracted capacity and the forecasted quantity of the gas flow on non-relevant points</td><td rowspan="5">2018/19</td><td>Market segment</td><td>Unit</td><td>Forecasted contracted capacity</td><td>Unit</td><td>Forecasted gas flow</td></tr>
<tr><td>Power gen</td><td>MWh/d</td><td>133,234</td><td>GWh/y</td><td>27,467</td></tr>
<tr><td>DM</td><td>MWh/d</td><td>43,076</td><td>GWh/y</td><td>12,014</td></tr>
<tr><td>NDM</td><td>MWh/d</td><td>98,212</td><td>GWh/y</td><td>12,058</td></tr>
<tr><td>CNG</td><td>MWh/d</td><td>36</td><td>GWh/y</td><td>10</td></tr>
</table>

3 The 2018/19 tariffs

The previous section outlines the elements affecting the Transmission tariffs, which will apply from 01 October 2018 to 30 September 2019. Gas Networks Ireland will implement the following tariffs from 01 October 2018 to 30 September 2019, based on an allowed revenue of €181m (2018/19 monies), as per CRU/18/102.

The transportation cost of UK gas has decreased in nominal terms by **6%** as a result of stronger demands at Exit and the movement of gas flows from Corrib to Moffat. Transportation costs from Bellanaboy have fallen by **4%.** This downward pressure on the Transmission tariffs is due mainly to GNI's forecast of increasing demands.

Table 3.1: Transmission Tariffs 2018/19 (€)

Firm[12]		**Bellanaboy**	**Inch Production**	**Moffat**	**Exit**
	Capacity per peak day MWh	630.428[13]	123.452	325.979	389.884[14]
	Commodity Per MWh[15]	0.113			0.235

In addition, as per CER/15/140 the Postalised Exit tariff (as indicated above) does not apply to Interconnection Points from the GNI system, such the Gormanston Exit Point.

The GNI Matrix model produces the Exit tariff (see table below) for the Gormanston interconnection point. For clarity the Exit Commodity charge will apply where flows arise at the Interconnection Point.

Table 3.2: Transmission Tariffs 2018/19 at Gormanston (€)

Firm[12]	Capacity per peak day MWh	374.212
	Commodity per MWh	0.235

3.1 Details of Multipliers

Table 3.3 below outlines the current short-term multipliers/seasonal factors, which were published in CER/12/143 and CER/16/013. The tariffs in Table 3.1 above set the reference price for annual firm capacity for the 2018/19 gas year. For annual firm capacity the reference price is

[12] "Firm" means gas transmission capacity contractually guaranteed as uninterruptible by the transmission system operator.
[13] This is composed of two elements; one to remunerate the Allowed Revenue of GNI (€136.19) plus a Corrib Linkline Element (€494.24), which will remunerate the revenues relating to the Corrib Linkline (Corrib Partners).
[14] Following a policy direction given to CRU by Government in 2001 it continues to postalise the domestic Exit tariffs via the application of the Equalisation secondary adjustment. This does not include Interconnection Points from the GNI system such as the Gormanston Exit Point.
[15] In line with the Gas Entry/Exit Tariff Methodology (CER/15/140) a single commodity tariff is calculated across all Entry Points and a single commodity tariff is calculated across all Exit Points.

the same as the reserve price. Multipliers are applied to the annual firm capacity reference price to set the reserve prices for short-term products (i.e. quarterly, monthly, and daily). Short-term multipliers are applied in order to, amongst other things, incentivise efficient use of the network. The multipliers vary throughout the year with reference to the probability of severe weather. The CRU is undertaking a review of these multipliers and seasonal factors in line with the requirements of Article 28 of the TAR NC and will publish a consultation in Q4 2018.

Table 3.3: Short term gas multipliers

Month	Quarterly Multiplier	Monthly Multiplier	Daily Multiplier
October	44.117647%	13.235294%	0.661765%
November		13.235294%	0.661765%
December		17.647059%	1.176471%
January	92.647059%	30.882353%	2.058824%
February		35.294118%	2.352941%
March		26.470588%	1.764706%
April	15.235294%	13.235294%	0.661765%
May		1.0 %	0.05%
June		1.0%	0.05%
July	3.0%	1.0%	0.05%
August		1.0%	0.05%
September		1.0%	0.05%
Total	*155.0%*	*155.0%*	*288.752994%*

3.2 Virtual Reverse Flow Charges

A registration fee for Virtual Reverse Flow (VRF)[16] is in place for 2018/19. The CRU is undertaking a review of the charging arrangements for VRF as part of its TAR NC consultation, which will be published in Q4 2018.

The charges associated with both VRF products at Moffat and at Gormanston are indicated below. The methodology currently used is an interim arrangement based on a registration fee an enduring methodology for the calculation of a tariff for VRF will be in place by May 2019.

Table 3.4: Virtual Reverse Flow Charges (€)

VRF Charges	VRF at Moffat	Shipper Annual Registration Fee	15,514
		Commodity charge exit (per MWh)	0
	VRF at Gormanston	Shipper Annual Registration Fee	40,625
		Commodity charge exit (per MWh)	0

[16] VRF is a 'reverse flow' service offered on a virtual basis, at the Interconnection Points, to enable shippers to virtually flow gas from ROI to Moffat and Gormanston.

4 Conclusion

In this paper the CRU has created a single resource for all tariff related information, ranging from; how it sets tariffs on an annual basis, the variables that cause changes in the tariffs from one year to the next, and the 2018/19 transmission tariffs. To date the CRU has published much of the information in this information paper across a number of publications. By making all tariff related information available to customers, in a single location, it has made it easier for customers to understand how tariffs are set and what causes them to change from one year to the next. An important tool now available to the public is the simplified tariff model available on Gas Networks Ireland's website at the following link. This simplified model will enable customers to, further identify how transmission network tariffs are effected by demand and revenue variations, and to estimate the possible evolution of tariffs.

4.1 Next steps

In accordance with the TAR NC, the CRU is currently undertaking a review of the tariff methodology, and will do so at least every five years from 31 May 2019, to ensure compliance with TAR NC. The CRU expects to publish its consultation in Q4 2018, and having taken into account the responses to its consultation, the CRU expects to publish a decision in Q1 2019. The resulting methodology will be used to set the transmission tariffs for the 2019/20 gas year. For the avoidance of doubt, any changes to the methodology will not affect the tariffs that have been set for the 2018/19 gas year.

Appendix A

Transmission Tariffs for 2018/19			**Published Tariffs**			
	2018/19 Tariffs		**2015/16 Tariffs**	**2016/17 Tariffs**	**2017/18 Tariffs**	**% Change**
	€	**(2018/19 Monies)**	**€**	**€**	**€**	**Nominal from 2017/18**
Exit						
capacity	**389.884**	per peak day MWh	430.882	428.352	402.080	-3.0%
commodity	**0.235**	per MWh	0.267	0.256	0.238	-1.1%
Moffat Entry						
capacity	**325.979**	per peak day MWh	367.786	360.253	359.183	-9.2%
commodity	**0.113**	per MWh	0.118	0.123	0.114	-1.1%
Bellanaboy Entry						
capacity	**630.428**	per peak day MWh	617.996	610.463	658.431	-4.3%
commodity	**0.113**	per MWh	0.118	0.123	0.114	-1.1%
Inch Production Entry						
capacity	**123.452**	per peak day MWh	164.186	156.653	156.656	-21.2%
commodity	**0.113**	per MWh	0.118	0.123	0.114	-1.1%
Illustrative Transmission Transportation Costs						
	€		**€**	**€**	**€**	
Transmission Transportation Cost of UK Gas						
capacity	**715.864**	per peak day MWh	798.668	788.605	761.263	-6.0%
commodity	**0.348**	per MWh	0.385	0.379	0.352	-1.1%
Transmission Transportation Cost of Bellanaboy Gas						
capacity	**1,020.312**	per peak day MWh	1048.878	1038.815	1060.511	-3.8%
commodity	**0.348**	per MWh	0.385	0.379	0.352	-1.1%
Transmission Transportation Cost of Inch Production Gas						
capacity	**513.337**	per peak day MWh	595.068	585.006	558.736	-8.1%
commodity	**0.348**	per MWh	0.385	0.379	0.352	-1.1%

Appendix B

Technical characteristics of the transmission system

In accordance with Art. 30 (1)(a)(i) of TAR NC, this appendix includes information on parameters used in the reference price methodology that are related to the technical characteristics of the transmission system.

Transmission tariffs are calculated using a matrix methodology based on forward-looking cost long run marginal cost (LRMC) considerations. The model contains a representative network, which is based on actual pipeline distances between Entry points and Exit points. The model calculates the cost of expansion between each entry and each exit zone using a matrix. However, as there can only be only be one entry tariff at each Entry point a mathematical formula (least squares) is applied to determine a single entry tariff. The same approach is applied at exit.

The cost of expansion is calculated using expansion constants. An expansion constant provides a numerical value for the cost of expanding capacity so that one unit of gas travels over a specified distance. This can be summarised as €/MWh/km. To determine the values of an expansion constant, actual evidence of pipeline and compressor capital and operating costs are used. As the GNI system is comprised of both dry (onshore) and wet (subsea) pipelines, the CRU calculated two separate expansion constants to reflect the different costs associated with each. Both dry and wet expansion constants are comprised of a blend of pipeline costs together with compression costs. The dry expansion constant is €7,874 and the wet expansion constant is €8,757.

Art. 30(a)(i)

The technical capacity at entry and exit points of the transmission network is not a relevant variable for the purpose of the methodology of calculation of the transmission tariffs. However, the technical capacity at the entry points to the transmission network is available on GNI's transparency dashboard, available at the following link.

Art. 30(a)(ii)

The forecasted contracted capacity at the entry points and at exit[17] is available in Table 2.2. The assumptions underlying the calculation of forecasted contracted capacity are detailed in Table 2.1.

Art. 30(a)(iii)

Demand is assumed to be met first by domestic production (i.e. Bellanaboy and Inch), with Moffat providing the marginal source of gas. The direction of gas flow from entry to exit is not a variable in the matrix model that effects the calculation of the transmission tariffs. However, a representation of how gas flows around the network is available on GNI's transparency dashboard, available at the following link.

Art. 30(a)(iv)

The structural representation of the GNI's transmission system is provided on the following page.[18]

Art. 30(a)(v)

There is detailed technical information related to the technical characteristics of the transmission system that is involved in the calculation of the expansion constants and annuitisation factor. The information involved in the calculation of the annuitisation factor has previously been provided in CER/15/1059, for the calculation of expansion constants see CER/15/060. These files are available for download at the following link.

[17] The forecasted contracted capacity at individual exit points on the transmission network is not a variable that effects the calculation of transmission tariffs. The total level of forecasted contracted capacity at exit is the variable that has an effect and this is provided in Table 2.2.
[18] Note this map includes both the ROI and NI transmission systems.

Figure 0.1: Gas Networks Ireland's transmission system