Consultation on the introduction of entry charges into the Northern Ireland postalised regime for gas:

Guide to illustrative gas transmission tariff model

User Manual for illustrative Gas Transmission Tariffs Model

1. Introduction

1.1 The Utility Regulator (UR) published a _**Consultation Paper**_ _**on the introduction of entry charges into the Northern Ireland postalised regime for gas**_ published on 16th October 2014. In the next steps section of the consultation paper we indicated that we would publish for industry review an illustrative spreadsheet model for the calculation of forecast charges, auction reserve prices etc.

1.2 The illustrative model was published on the UR website on 27th October 2014. This paper provides a guide to using the illustrative model and therefore presents a brief summary of:

- the structure of the Utility Regulator's (UR's) new model for the calculation of gas transmission tariffs ('the model')
- the actions needed to update the model.

1.3 It should be noted that the model illustrates the proposals contained in the consultation paper on the introduction of entry charges only. Therefore, it is subject to change and it does not provide any indication as to future tariffs. It merely illustrates the proposed process in the consultation paper referenced above.

1.4 This paper consists of the following sections:

- **Section 2: High level structure**. This section contains a brief description of the worksheets of the model and how they link together;
- **Section 3: Data to be input.** This section contains a list of cells in the model which need to be updated, and indicates how regularly this should be done;
- **Section 4: Structure of calculations.** This section contains a brief description of the calculations in the model.

2. High level structure

2.1 The model contains fourteen worksheets, of which eleven (sheets 3-13) are substantive. Table 1 below lists each sheet and briefly describes its function.

Table 1: Description of worksheets in the model

	Worksheet	Description
Introductory		
1	Cover	This sheet contains the model's title
2	Contents	This sheet contains hyperlinks to each of the worksheets in the model
Inputs		
3	INPUT|UR	This input sheet contains the inputs to the model excluding forecast and actual capacity and commodity bookings, which are contained in sheet 4.
4	INPUT|Vols	This input sheet contains forecast and actual capacity bookings and volumes for the current gas year.
Calculations		
5	CALC|Revalloc	This calculation sheet allocates the forecast required revenue (Forecast Required Revenue) and allowed required revenue (Actual Required Revenue) using the capacity/commodity split
6	CALC|Com	This calculations sheet calculates the forecast and year end commodity tariffs using the allocated revenue from sheet 5 and the volumes from sheet 4. It calculates the entry/exit split implied by the tariffs calculated.
7	CALC|Cap	This calculations sheet calculates the forecast and year end capacity tariffs using the forecast and actual capacity figures, the forecast and actual revenue requirements and relevant price multipliers. It uses the allocated revenue from sheet 5 and the volumes from sheet 4. It calculates the entry/exit split implied by the tariffs calculated.
8	CALC|Debt	This calculations sheet calculates the monthly debt payments by transporter, from the debt data in sheet 3.
9	CALC|ShipInv	This calculations sheet produces invoices for each month in the Gas Year by shipper from the tariffs in sheet 5 and 6 and the volumes in sheet 4.
10	CALC|Rec	This calculations sheet calculates the post payments and the bullet reconciliation payments and allocates them by transporter and shipper. It uses the revenues from sheet 9 and the tariffs from sheets 5 and 6.
11	CALC|PTL licence	This calculations sheet calculates the PTL supplemental payments. It is not currently used.
12	CALC|Dist	This calculations sheet calculates the PoT distribution payments from sheets 9 and 10.
13	CALC|Termination	This calculations sheet calculates the termination payments.
Outputs		
14	OUTPUT|Outputs	This outputs sheet reproduces forecast and actual prices, debt payments, reconciliations and cashflow data from the calculations tabs.

3. Data to be input

3.1 This section tabulates the data in the input sheets, and indicates when that data is likely to require updating. It is intended as a checklist for users of the model.

Table 2: Data in the Input|UR sheet

Data	Row(s)	Update
Current gas year starts in	8	This entry should be updated each year
Forecast Required Revenue 14/15	13-17	Yearly from the TSOs' licences
Actual Required Revenue 14/15	25-28	Yearly from the TSOs' licence
Capacity/Commodity split	34-36	These entries should be updated when the UR changes the split
Seasonal factors	41, 55	These should be updated if the UR changes seasonal factors
Product multipliers	45-50, 59-60	These should be updated if the UR changes the product multipliers
Days by quarter, month and year	65-67	During a Gas Year which contains a February 29, the number of days in February will need to be set to 29. The following year, it will need resetting to 28. The number of days in the quarter will update automatically.
Termination payments	83-102	If a shipper ceases trading, columns I-L will require updating. If a shipper no longer uses a TSO, column G should be updated.
VAT	106	If the Government changes the VAT rate
Debt payment inputs	111-267	These should be updated if one or more shippers default on payments.
Auction prices	272-287	These rows should be updated each month if auctions for entry and exit capacity are held.

3.2 The INPUT|Vols sheet will need updating as follows:
- the forecast data, which is recorded in the columns on the left, should be updated each year; and
- the actuals data, which is recorded in the columns to the right of the corresponding forecast data, can be updated each month, to obtain progressively accurate forecasts of the reconciliation payments.

4. Structure of calculations

Calculation of the tariffs

3.3 The annual firm entry tariff is calculated first since this forms the reference price for the calculation of the non-annual capacity products. As with the current arrangements, the tariff will be split between a capacity and commodity charge at both entry and exit.

3.4 Firstly revenues are allocated between capacity and commodity products in the "CALC|Revalloc" worksheet.

3.5 The annual firm capacity tariff is then determined by multiplying the revenue that has been allocated to the entry point by the capacity split and dividing by the weighted forecast capacity booked for the total forecast capacity bookings at entry and exit. This calculation is undertaken in the "CALC|Cap" worksheet.

3.6 The calculation of the annual reserve price from the annual allowed revenues must use capacity figures weighted by product and by season. This is best illustrated mathematically (simplifying by assuming that there are only annual and quarterly products, as follows:

> Allowed revenue = (annual price x annual capacity quantity at entry) + (annual price x annual capacity quantity at exit) + (annual price x quarterly weightings x quarterly capacity quantities + …)
>
> Or, taking out a factor of the annual price on the right hand side:
>
> Allowed revenue = annual price x (annual capacity quantity at entry + annual capacity quantity at exit + quarterly weightings x quarterly capacity quantities)
>
> Dividing both sides by the bracketed term and swapping the left hand side and the right hand side around:
>
> Annual price = allowed revenue / (annual capacity quantity at entry + annual capacity quantity at exit + quarterly weightings x quarterly capacity quantities)

3.7 The resulting annual tariff is the reference price used for the calculation of reserve prices for the short term entry capacity. Since the UR is proposing to treat the entry/exit split as an output, rather than an input to the tariff calculations, the reference price for exit capacity will be the same as the reference prices for entry capacity at both Moffat and Gormanston.

3.8 The commodity tariff is calculated by dividing the revenue that has been allocated to commodity products by the total forecast commodity volumes. This calculation is undertaken in the "CALC|Com" worksheet.

3.9 The annual capacity tariff is used to calculate the reserve price for the short term capacity products together with the relevant seasonal factor, multipliers and time factors.

3.10 The reserve price for quarterly, monthly and daily firm capacity is calculated according to the formula below:

$$P_{st} = M \times (P_y / 365) \times D \times S_m$$

Where:

Pst is the reserve price for the respective short term (st) capacity product;

M is the level of the multiplier corresponding to the respective standard capacity product;

Py is the reference price;

D is the duration of the respective standard capacity product expressed in gas days.
Sm is the seasonal factor for the relevant month (m=1-12)

3.11 The calculation above results in a reserve price for the quarterly, monthly and daily firm capacity products. These reserve prices are used in the auctions which are carried out throughout the gas year and discussed in the following section.

Calculation of the reconciliation payments

3.12 The TSOs will calculate the year end capacity and commodity tariffs from the finalised volume, capacity and revenue figures. The end of year tariffs for the short term products are then calculated from this information by applying the relevant seasonal factor. This will result in year-end tariffs for all of the capacity products and a year-end commodity tariff.

3.13 Individual shipper reconciliation payments for the capacity element are then calculated for each capacity product (at entry and exit) by multiplying the amount of capacity used for each capacity product by the difference between the year-end tariff and the forecast tariff.

3.14 Similarly, individual shipper reconciliation payments for the commodity element are calculated by multiplying the actual amount of gas flowed by the difference between the year-end and forecast commodity tariff. The individual

shipper capacity and commodity elements are then summed to give a single reconciliation payment per shipper for both entry and exit. A single reconciliation payment across entry and exit may facilitate one bullet payment between shippers and the TSOs.