

# Gas Charging Review



Sub Group

October 2016

# Agenda

Area	Detail	
Introductions	<ul style="list-style-type: none"> <li>Quick introduction to the group</li> </ul>	
Terms of Reference	<ul style="list-style-type: none"> <li>Discussion and review of draft Terms of Reference</li> </ul>	
GB Charging Framework	<ul style="list-style-type: none"> <li>Quick reminder of the current framework, the LRMC Model, key inputs, difference between Entry and Exit Capacity</li> <li>Use of Commodity, key inputs.</li> </ul>	
LRMC Model	<ul style="list-style-type: none"> <li>Sensitivities of inputs to the model for Entry and Exit capacity</li> <li>Discussion on how these meet Objectives (Relevant, Stakeholder and EU) – rolling item</li> </ul>	
CWD Model	<ul style="list-style-type: none"> <li>Overview of model developed so far, key inputs</li> <li>Discussion on model, options to explore, issues and resolutions</li> </ul>	
Sharing Models and outputs	<ul style="list-style-type: none"> <li>Visualising the changes – how to compare options</li> <li>Discussion on how best to share the relevant models and outputs from these workshops</li> </ul>	
Issues , options and actions	<ul style="list-style-type: none"> <li>Summary of discussions and issues, options and actions from today's meeting.</li> </ul>	
Next Steps	<ul style="list-style-type: none"> <li>Outputs to NTSCMF and further development at future workshops</li> </ul>	

*This agenda can be flexible to facilitate the development at the meeting, however serves a guide to follow for a structured approach.*

# Overview – How each revenue stream is recovered

Transmission Owner (TO)

System Operator (SO)

TO Entry Charges

TO Exit Charges

Other Charges

SO Commodity Charges

Other Charges

TO Entry Capacity Charges

TO Entry Comm Charges\*

TO Exit Capacity Charges

TO Exit Comm Charges\*

DN Pensions / Metering

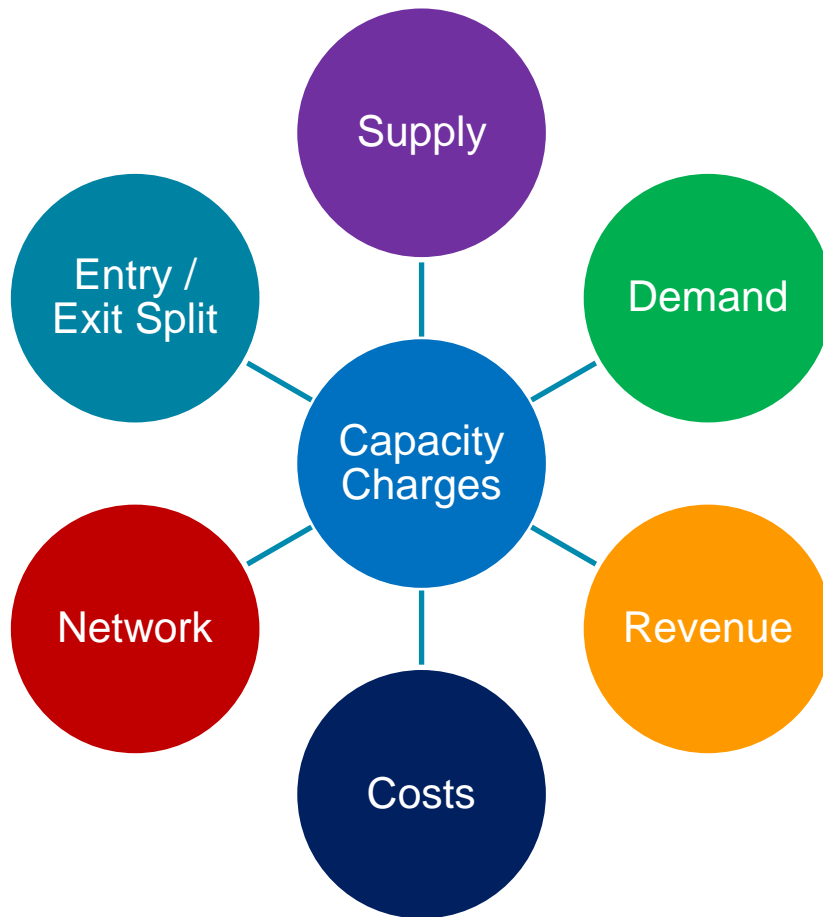
SO Entry Comm Charges\*

SO Exit Comm Charges\*

St. Fergus Compression / Shorthaul / Legacy Capacity

\* Storage Exemption

# Key inputs to Capacity Charging



Input	Detail
Supply	<ul style="list-style-type: none"> <li>Forecast Supplies</li> <li>Supply must equal demand</li> <li>Links to GTYS</li> </ul>
Demand	<ul style="list-style-type: none"> <li>Forecast 1 in 20 Peak Day Demand</li> <li>Links to GTYS</li> </ul>
Revenue*	<ul style="list-style-type: none"> <li>Required target revenue</li> <li>When used, required to recover Allowed Revenue for formula year</li> </ul>
Costs	<ul style="list-style-type: none"> <li>Estimated cost of network expansion expressed as £/GWh/km</li> <li>Annuitisation</li> </ul>
Network	<ul style="list-style-type: none"> <li>All nodes on network and associated distances</li> </ul>
Entry/Exit Split	<ul style="list-style-type: none"> <li>% split between Entry and Exit</li> </ul>

*\*Revenue only used in Exit Capacity charges, not used in Entry charges*

# Current methodology for Capacity Charges: The Transportation Model (1/2)

nationalgrid

- The NTS Transportation Model, available to the industry, is a Microsoft Excel spreadsheet run using Microsoft Excel Solver and Macros
- Calculates:
  - NTS Entry Capacity auction reserve prices
    - Long Run Marginal Cost
  - NTS Exit Capacity charges
    - Administered to recover allowed revenue
- Inputs are:
  - Allowed Revenue (in respect of Exit)
  - Forecast 1-in-20 peak day demand data and forecast supplies – linked to a flow scenario
  - Obligated capacity levels
  - Transmission pipelines between each node (km)
  - Expansion Constant (£/GWh/km) to calculate costs
  - Anuitisation Factor to calculate prices



# Current methodology for Capacity

## Charges: The Transportation Model (1/2)

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- Transportation Model has two components
- The NTS Transport Model that calculates the long run marginal costs (LRMCs) of transporting gas from each Entry Point (for the purposes of setting NTS Entry Capacity Prices) to a “reference node” and from the “reference node” to each relevant offtake point.
  - Long Run – Investment costs
  - Marginal Cost – adding an extra unit of supply or demand at a relevant node on the system
- The Tariff Model (in respect of Exit) calculates a Revenue Adjustment Factor, which when added to the LRMC at each demand, gives a revised marginal distance for each demand, such that the total revenue to be recovered from exit charges equals the target revenue.

# Core steps to determining prices

## Comparing Entry and Exit Capacity

Entry Capacity		Exit Capacity	
Marginal Distance	<ul style="list-style-type: none"> <li>• “Solved” Network using supply a demand provides marginal distances</li> </ul>	Marginal Distance	<ul style="list-style-type: none"> <li>• “Solved” Network using supply and demand provides marginal distances</li> </ul>
50/50	<ul style="list-style-type: none"> <li>• Balance Entry and Exit Average Distances</li> </ul>	Include cost components	<ul style="list-style-type: none"> <li>• Distances converted to prices using annuitisation of costs</li> </ul>
Include Cost components	<ul style="list-style-type: none"> <li>• Distances converted to prices using annuitisation of costs</li> </ul>	50/50	<ul style="list-style-type: none"> <li>• Revenue based adjustment</li> <li>• All prices equally uplifted</li> </ul>
Price Collar	<ul style="list-style-type: none"> <li>• Minimum price if calculated reserve is less than 0.0001 p/kW</li> </ul>	Price Collar	<ul style="list-style-type: none"> <li>• Minimum price if calculated adjusted price is less than 0.0001 p/kWh</li> </ul>
Payable Price	<ul style="list-style-type: none"> <li>• Set by auction.</li> </ul>	Payable Price	<ul style="list-style-type: none"> <li>• Calculated and changed each Gas Year (1 Oct)</li> </ul>

# TO and SO Commodity Charges

Transmission Owner (TO)

System Operator (SO)

TO Entry Charges

TO Exit Charges

Other Charges

SO Commodity Charges

Other Charges

TO Entry Capacity Charges

TO Entry Comm Charges \*

TO Exit Capacity Charges

TO Exit Comm Charges \*

DN Pensions / Metering

SO Entry Comm Charges \*

SO Exit Comm Charges \*

St. Fergus Compression / Shorthaul / Legacy Capacity

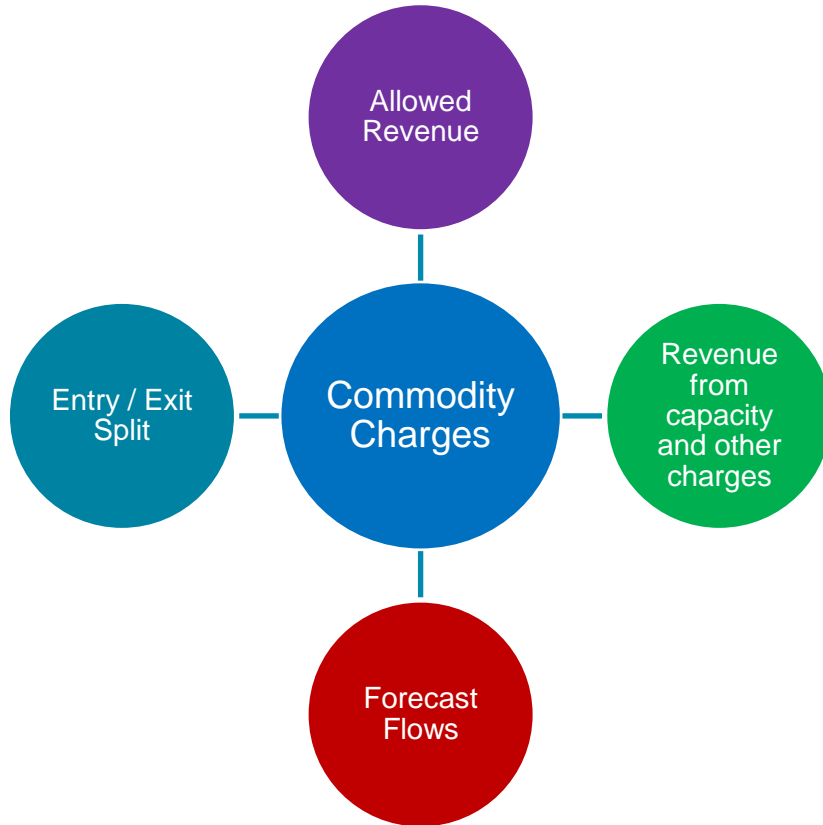
\* Storage Exemption



# Commodity Charges

Type of Commodity Charge	Summary
<b>TO Entry Commodity Charge</b>	<ul style="list-style-type: none"><li>An NTS TO Commodity charge is levied on Entry flows where entry auction revenue is forecast to be under-recovered.</li></ul>
<b>TO Exit Commodity Charge</b>	<ul style="list-style-type: none"><li>An NTS TO Commodity charge is levied on Exit flows where revenue from Exit capacity bookings is forecast to be under recovered.</li></ul>
<b>SO Entry and Exit Commodity charge</b>	<ul style="list-style-type: none"><li>The NTS SO allowed revenue is collected largely by means of a Commodity charge levied on Entry and Exit flows (same rate is applicable for both SO Entry and SO Exit Commodity charge).</li></ul>

# Key inputs to Commodity Charging



Input	Detail
Allowed Revenue	<ul style="list-style-type: none"> <li>Allowed Revenue for Formula year as calculated through the Licence</li> </ul>
Revenue from Capacity and other charges	<ul style="list-style-type: none"> <li>Forecast of Capacity revenue for the period</li> <li>Revenue from NTS Optional Commodity Charge, St. Fergus Compression, DN Pensions.</li> <li>Revenue from Commodity charges (applicable for mid formula year changes – i.e. from 1 October)</li> </ul>
Forecast Flows	<ul style="list-style-type: none"> <li>Forecast of Entry and Exit flows over which the commodity charge is to applied</li> </ul>
Entry/Exit Split	<ul style="list-style-type: none"> <li>% split between Entry and Exit</li> </ul>

# TO and SO Other Charges

## Transmission Owner (TO)

## System Operator (SO)

TO Entry Charges

TO Exit Charges

Other Charges

SO Commodity Charges

Other Charges

TO Entry Capacity Charges

TO Entry Commodity Charges\*

TO Exit Capacity Charges

TO Exit Commodity Charges\*

DN Pensions / Metering

SO Entry Commodity Charges\*

SO Exit Commodity Charges\*

St. Fergus Compression / Shorthaul / Legacy Capacity

\* Storage Exemption

## Other TO Charges

Charge	Detail
DN Pensions charge	<ul style="list-style-type: none"><li>• Charge levied directly to DNs that were sold for which National Grid retains certain pension responsibilities.</li><li>• Value incorporated into NTS TO Allowed Revenue. Amount is collected directly from respective DNs.</li></ul>
NTS Meter Maintenance charges	<ul style="list-style-type: none"><li>• Unit charges for the NTS meter maintenance under National Grid NTS's ownership.</li></ul>

The overall TO Allowed Revenue less these two items provides the target revenue to be collected through the remaining TO charges.

## Other SO Charges

Charge	Detail
NTS Optional Commodity charge (“Shorthaul”)	Users can elect to pay the NTS Optional Commodity Rate as an alternative to both the NTS Entry and Exit (SO & TO) Commodity Charges.
St. Fergus Compression charge	Applicable where gas is delivered at lower than normally expected pressures. Charge is cost of additional fuel per unit throughput (applies at Total entry point only).
Legacy Capacity Revenue	Revenue associated to incremental capacity triggered before April 2013 treated as SO for a period then transfers to TO. Timescales given in the Licence for when this transfer occurs.

# Gas Charging Review



Objectives

# Gas Charging Review Objectives

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- Relevant Objectives as per Licence
- Stakeholder Objectives – as developed and shared at NTSCMF
- EU Objectives – closely aligns with relevant objectives in Licence, as discussed at NTSCMF

# Charging Obligations / Relevant Objectives

Licence Obligations	Detail
Licence Standard Special Conditions <ul style="list-style-type: none"> <li>• A4 - Charging General</li> <li>• A5 - Charging Methodology</li> </ul>	<ul style="list-style-type: none"> <li>• Keep charging methodology under review</li> <li>• Use reasonable endeavours regarding methodology and charge changes:               <ul style="list-style-type: none"> <li>• Not to make changes more frequently than twice a year (on 1 April and 1 October)</li> <li>• In relation to exit capacity once a year on 1 October</li> </ul> </li> </ul>

Relevant Objectives	
<ul style="list-style-type: none"> <li>• Cost reflectivity</li> <li>• Promote efficiency</li> <li>• Avoid undue preference in the supply of transportation services</li> <li>• Best promotes competition between gas suppliers and gas shippers</li> </ul>	<ul style="list-style-type: none"> <li>• Take account of developments in the transportation business</li> <li>• Compliance with Regulation and decisions from the EC and ACER</li> <li>• Follow any alternative arrangement determined by the Secretary of State</li> </ul>



# What are we trying to achieve?

## TCMF – Proposed Objectives/Terms of reference\*

Issue	What does this mean to people? (examples to aid discussion)
<b>Minimise</b> Volatility	<b>Minimise</b> magnitude of changes within year; sensitivity of inputs in the overall reference price methodology and overall framework (inclusive of all adjustments, alternative products)
Predictability	Use of charges in their own charging frameworks, timing of changes and transparency . Including ability to understand methodology and reproduce/forecast charges
Stability of prices	<b>Minimise</b> magnitude of changes year to year, sensitivity of inputs in the overall framework
Fairness	Equitable treatment for users where appropriate; how the design and application of discounts, exemptions and alternative products is done
Security	Promote competition, facilitate cross border trade and supply of gas from domestic and non-domestic sources. Charges should facilitate delivery of new and flexible supplies as well as demand side response.
Network efficiency	Charges should encourage efficient use and operation of the system. In a future of falling demand, changing supply patterns and probable decommissioning of system points the charging framework should facilitate optimal utilisation of the network including delivery of new investment and signalling of redundancy

\*Consideration to be given to any legal obligations in force at the time

## EU Tariffs Code “Relevant Objectives”

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- Charges must be levied for access for existing and incremental infrastructure
- Access based on published tariffs available to all eligible customers
- Applied objectively without discrimination and approved by NRA
- Accounts for need of system integrity and improvement
- Reflect efficient costs incurred with appropriate return on investment

## EU Tariffs Code “Relevant Objectives”

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- Can take account of benchmarking by NRA
- Facilitate efficient gas trade and competition
- Avoid cross-subsidies between users
- Provides incentives for investment and interoperability
- Set separately for every entry and exit point
- Cannot restrict market liquidity nor distort cross-border trade
  - If cross-border trade hampered, TSOs and NRAs must cooperate to pursue convergence of tariff structures and charging principles