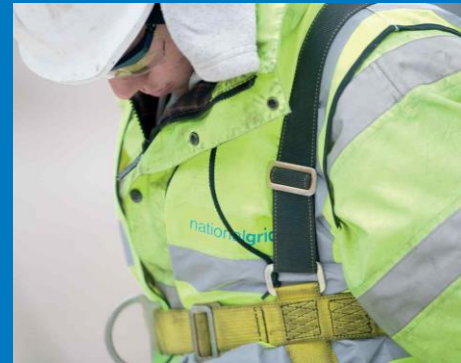


Gas Charging Review

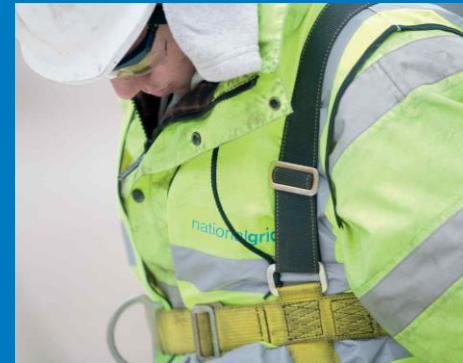


NTSCMF – 24 April 2017

Agenda

| Area | Detail |
|-------------------------------------|---|
| EU Tariffs Code – Current Outlook | <ul style="list-style-type: none">• Key updates relevant to Gas Charging Review |
| Output from sub-workgroup | <ul style="list-style-type: none">• Summary of the April sub workgroup and outputs available• Focus of future sub group meetings |
| Charging Spreadsheets for Modelling | <ul style="list-style-type: none">• Reminder of the spreadsheets and supporting documentation available• Further development of the spreadsheets to help in the Gas Charging Review to model potential changes to Gas Transportation charges |
| Forecasted Contracted Capacity | <ul style="list-style-type: none">• Overview of Forecasted Contracted Capacity (FCC)<ul style="list-style-type: none">• Discussions to date and FCC in Calculation of charges• Discussion on further development |
| Plan and change process | <ul style="list-style-type: none">• Update on UNC Modification Development, change process and timescales• Discussion on UNC Modification Structure |
| Issues Log | <ul style="list-style-type: none">• Review of Issues |
| Next Steps | <ul style="list-style-type: none">• Further development at NTSCMF and future NTSCMF sub workgroups |

Gas Charging Review



EU Tariff Code – Current Outlook
Colin Hamilton

ENTSOG Activity: IDoc

■ Reminder:

- Consultation on Implementation Guideline (IDoc)
- Respond by **30 June 2017** to TAR-NC@entsog.eu
- updated version of the TAR NC IDoc to be published before the second TAR NC Implementation WS
 - Workshop planned for **October 2017**
 - coincides with second application date
 - Contents of WS currently under discussion

1st Implementation Workshop - outcome

- Updated materials now published on ENTSOG website including:
 - Minutes of workshop (including Q&A)
 - http://www.entsog.eu/public/uploads/files/publications/Tariffs/2017/TAR0811_040317_Minutes_TAR%20NC_Implementation_WS_Final.pdf
 - Updated slide pack with notes
 - http://www.entsog.eu/public/uploads/files/publications/Tariffs/2017/TAR0806_170322_Presentation_TAR%20NC%20Implementation%20Workshop_Final_Updated_Notes.pdf
- Short videos of speakers (to be published)



Where to publish TAR NC information?

2 sources: *ENTSOG TRA Platform* and *TSO/NRA website* (Art. 31)

| Where | Similarities | | Differences | | | |
|---------------------------------|---|---|--|--------------------------|--|--|
| | When | How | What | For which points | Language | Additional |
| On the website of TSO/NRA | - Before auctions - Before tariff period | - In a user-friendly manner - Clear, easily accessible way - On a non-discriminatory basis - Downloadable format | All tariff information | All points on the system | In official language(s) of MS + in English, to the extent possible | Link on ENTSOG TRA Platform to TSO/NRA website |
| Directly on ENTSOG TRA Platform | | | Some tariff information: - Reserve prices - Flow-based charge - Simulation of all costs for flowing 1 GWh/d/year | IPs only | In English only | In a standardised table |

ENTSOG TRA PF (in English) → for IPs only

- **June Y:** reserve prices for firm and interruptible capacity at IPs
- **30 days before TP starts:** flow-based charge (if any) and simulation for all charges
- **Standardised table (ST) required:** updated in June Y (and 30 days before TP starts for the 1 GWh/d/y flow, *see infra*). ST covers: 1) reserve prices, 2) flow-based charge (if any), and 3) simulation of all charges

TSO/NRA website (in MS language + English if possible) → for all points

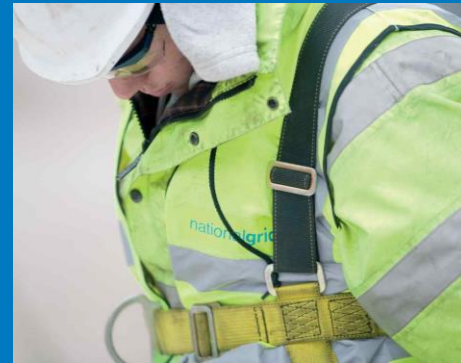
- **June Y:** reserve prices for firm and interruptible IPs + additional info (e.g. probability of interruption...)
- **30 days before TP starts:** non-IPs capacity tariffs + flow-based charge (if any) + additional info (e.g. on non-transmission tariffs)
- **Link on TRA PF to the website of TSO/NRA**

In case of mismatch between TRA PF and TSO/NRA website: TSO/NRA website prevails!

TAR NC: GB Implementation

- UNC MOD 0611 raised February 2017
 - Amendments to the firm capacity payable price at Interconnection Points
 - Progress can be followed here:
 - <http://www.gasgovernance.co.uk/0611>
- Next meeting 4 May 2017

Gas Charging Review



Output from sub workgroups
Colin Williams

Output from sub workgroup

- Since 4th April NTSCMF, sub workgroup meetings:
 - 11th April
- All documentation and outputs from the meetings will be available

<http://www.gasgovernance.co.uk/ntscmf> and

<http://www.gasgovernance.co.uk/ntscmf/subg>

Output from sub workgroup (2)

- Reminder, in relation to the Gas Charging Review:
- The Sub Group continues to discuss a wide range of topics, issuing papers summarising discussions, conclusions (with rationale) feeding into NTSCMF.
- The sub group discussions, in addition to those at NTSCMF, will be used to inform Modelling and UNC Modification(s)
- Comments / questions welcome on material produced at or in between NTSCMF meetings.

Output from sub workgroup

April Focus

- Further development of the Charging Spreadsheets
 - April subgroup focused on reviewing the initial spreadsheet to discuss additional functionality
 - Accommodating of Behavioural Assessments presented and discussed at 5 April NTSCMF
 - Discussion on future releases of the Spreadsheets
- Further discussion on Forecasted Contracted Capacity
 - Options for the FCC
 - Methods of assessing or scoring options for FCC to facilitate selection
- Discussion on role of the subgroup going forwards

Output from sub workgroup: Additional Functionality for the Spreadsheets

| Item | Detail on changes to make in the next release / Assumptions made |
|------|--|
| 1 | Add in functionality to be added into the anticipated revenue recovery tab to give the ability to use a the range of capacity booking scenarios offered in the original FCC options. These will be used (by multiplying the calculated reserve prices generated using the FCC and any adjustments) to determine a forecast revenue shortfall/excess. This will allow users of the spreadsheets to enter a different booking profile to the FCC values that were used in setting the reserve prices. The five options here will be as per those for the FCC plus the ability to enter your own. |
| 2 | To calculate unit price adjustment values for the anticipated shortfall (or credit in the event of an excess) and have a range of options to use as the denominator <ol style="list-style-type: none"> The Booking profile selected (as per item 1); Historical Bookings; Historical Flows; Forecast Flows. |
| 3 | For the scenarios given under (2) the option will be there to include or exclude IP values and existing contracts. |
| 4 | All these work on setting annual charges on an ex ante basis – looking forwards with an assumption during the charge setting process that there will be a view on these values. |
| 5 | These do not assume the ability to change within year at this stage – any potential for changing any prices mid-year will be part of additional discussion and assessment related to the TAR NC. |

Changes listed here will be incorporated into a release to be published w/c 1 May 2017

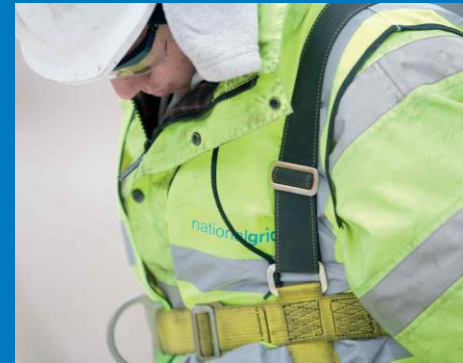
Output from the sub workgroup: Forecasted Contracted Capacity

- Discussed further the use and role of FCC in the charging calculations for Capacity prices
- Objectivity criteria and commentary against some of the potential options
- Additional analysis to help facilitate discussions
- Reviewed draft conclusions
- Agreed to discuss further at NTSCMF - separate section of this slide pack on FCC

Sub workgroup – future development

- Future Sub Groups
 - Continue to focus on discussion topics to help and support Modification process
 - Charging spreadsheet development for behavioural impacts to be discussed and reviewed
- Consider the role the sub workgroup can provide as part of the UNC Modification process for the Gas Charging Review - Discussion

Gas Charging Review



Charging Spreadsheets for Modelling
Colin Williams

Gas Charging Review: Charging Spreadsheets for Modelling

| Date | Detail |
|----------------|---|
| 5 April 2017 | <ul style="list-style-type: none"> Demonstration of the Transmission Capacity Weighted Distance (CWD) spreadsheet and Non Transmission Services (unit price calculation) spreadsheets at NTSCMF Initial comments gathered with some actions taken to make updates |
| 6 April 2017 | <ul style="list-style-type: none"> Transmission Services CWD and Non Transmission Spreadsheets made available on Joint Office website http://www.gasgovernance.co.uk/ntscmf |
| 7 April 2017 | <ul style="list-style-type: none"> WebEx session held by National Grid on using the Spreadsheets |
| 11 April 2017 | <ul style="list-style-type: none"> Discussion at the NTSCMF Sub Workgroup for Charging review on additional functionality beyond that agreed at 5 April NTSCMF |
| 20 April | <ul style="list-style-type: none"> Updated suite of spreadsheets and user guides made available on the Joint Office website http://www.gasgovernance.co.uk/ntscmf Updates linked to changes agreed at 5 April NTSCMF Notice issued via Joint Office to make industry aware of publications |
| 24 April 2017 | <ul style="list-style-type: none"> NTSCMF – Discussion on further development of spreadsheets and the future publications |
| w/c 1 May 2017 | <ul style="list-style-type: none"> Update to the model following the updates discussed at the 11 April Sub Workgroup (as per slides on outputs from 11 April Sub Group) To be made available as soon as possible during this week. |

Gas Charging Review: Charging Spreadsheets for Modelling

- In line with the discussions on the Reference Price Methodology (RPM) at NTSCMF and at the Charging Review Sub Groups, it is proposed not to continue with the LRMC Model.
- Where a RPM is used it will either be using Capacity Weighted Distance (CWD) or Postage Stamp

Gas Charging Review: Charging Spreadsheets for Modelling

- Available now are:
 - Transmission Services CWD spreadsheet plus User Guide
 - Transmission Services Postage Stamp spreadsheet plus User Guide
 - Non Transmission Services – Unit price calculation spreadsheet

<http://www.gasgovernance.co.uk/ntscmf>

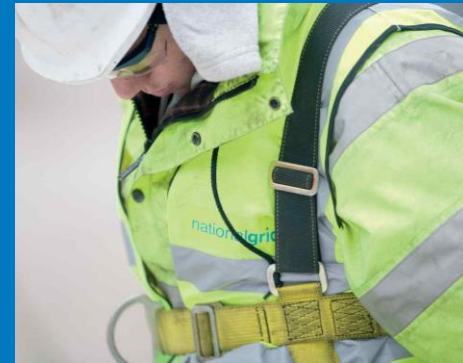
- Any questions / comments on the spreadsheets, please contact us:

box.transmissioncapacityandcharging@nationalgrid.com

Gas Charging Review: Charging Spreadsheets for Modelling

- Discussion:
 - Any comments on the spreadsheets and user guides that have been published?
 - Consideration for future updates and releases

Gas Charging Review



Forecasted Contracted Capacity
Discussion

Gas Charging Review: Forecasted Contracted Capacity

- Forecasted Contracted Capacity
 - A requirement under EU TAR NC
 - Not a defined term
 - Key input into the calculation of reference prices and therefore reserve prices
- Key inputs to the CWD calculation
 - Revenue
 - Distance
 - Capacity (FCC)
- What is an appropriate selection or method of determining an FCC for GB?

Gas Charging Review: Forecasted Contracted Capacity

Current conclusions (as per v0.5 of the FCC Discussion Paper)

<http://www.gasgovernance.co.uk/ntscmf/subg1page>

In relation to the FCC there are a number of issues to work through and also additional analysis to conduct. Some of the potential framework is taking shape, with focus on a form of objectivity assessment of the options.

FCC is a necessary input to the RPM and as such reference to it can be made in the initial UNC Modification, and its methodology of calculation and impact of options can be further developed as part of the UNC change process.

Ultimately the FCC needs to have a value per point per year.

Conclusions will become clearer via the development of the end-to-end model in addition to subgroup/NTSCMF discussions and throughout the UNC Modification process.

There could be a step change as a result of FCC and therefore a transition into new values may be useful to change for 2019 and beyond.

It may be beneficial to consider a combination of options for FCC if there is benefit in delivering against the objectives of using the FCC.

Gas Charging Review: Forecasted Contracted Capacity

How to assess and select FCC values : (as per v0.5 of the FCC Discussion Paper)

<http://www.gasgovernance.co.uk/ntscmf/subg1page>

It is necessary to consider, in development of the FCC, how to avoid resulting values not being open to interpretation and challenge.

In selecting an FCC it would be helpful to develop objectivity assessments to help narrow down the options. Selection criteria may not identify a perfect option but they should help to reduce the number of options to only a few.

Proposed criteria are as follows:

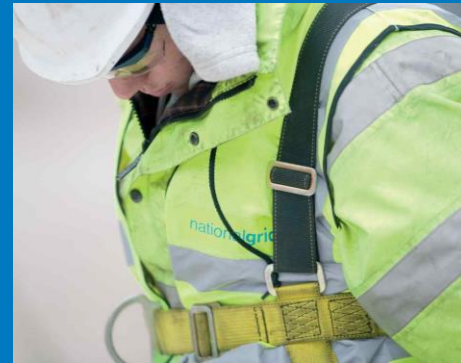
- Are the values published/publically available?
- How far out into the future are the values available?
- Stability of values (yr to yr)
- Objectivity of values

These objectivity criteria have been incorporated into the Appendix Tables of the FCC discussion paper (<http://www.gasgovernance.co.uk/ntscmf/subg1page>) for the options.

NTSCMF Discussion:

Discussion on FCC development, objectivity criteria and on the FCC and its use in the Charging Calculation Process

Gas Charging Review



Plan and change process
Colin Williams

Gas Charging Review:

Change process – GB / EU Processes

- As part of the GB and EU Changes process there are a number of necessary steps
- At 5 April NTSCMF we discussed the method of incorporating the required EU processes, notably the consultation on the charging framework
 - In Series – run the EU Consultation based on one option decided as part of the UNC Change process
 - In Parallel – run the UNC / EU Consultations together (i.e. on all alternates proposed)
- Whilst not decided as yet this will be kept under review and discussed during the early stages of the UNC Mod process

UNC Modification – Timeline update

| Date | Meeting# | Detail |
|---------------|---------------|---|
| 5 April 2017 | NTSCMF | <ul style="list-style-type: none"> High level pre modification discussions Provide overview of scope of proposed UNC Modification for discussion |
| 24 April 2017 | NTSCMF | <ul style="list-style-type: none"> Continue pre-modification discussions on scope of proposed UNC Modification Discuss overview of what it will and won't contain at this stage, links to the key topics under discussion |
| 8 May 2017 | NTSCMF | <ul style="list-style-type: none"> Pre-modification discussion on all topics to include draft proposals for each for inclusion into the UNC Modification Discuss overview of what it will and won't contain at this stage, links to the key topics under discussion |
| 23 May 2017 | NTSCMF | <ul style="list-style-type: none"> Discuss the draft for the UNC Modification ahead of any revisions before being submitted to June Panel |
| 5 June | NTSCMF | <ul style="list-style-type: none"> UNC Modification review and development |
| 15 June 2017 | UNC Mod Panel | <ul style="list-style-type: none"> Decision on UNC Modification(s) recommending referral to workgroup (at NTSCMF) |

#There will be opportunities to use the Sub group over this period and beyond to help support and facilitate UNC Modification process.

Draft UNC Modification Structure nationalgrid

presented at 5 April NTSCMF for discussion

| Modification Structure | Topics covered in Modifications | Comments |
|---|--|---|
| Principal Modification | Reference Price Methodology, Revenue Reconciliation approach, Multipliers, Specific Discounts (e.g. Article 9 discounts), historic treatment of capacity | <ul style="list-style-type: none"> Covering topics that are closely linked and beneficial to keep together For the “satellite” modifications the subject areas will be referenced to draw the link between Modifications Placeholders / defaults for Multipliers / Discounts |
| Satellite Modifications – to be referenced in main modification with specific methodology or approach in separate modification. | Interruptible Approach | <ul style="list-style-type: none"> Interruptible Capacity Charging Method |
| | Forecasted Contracted Capacity (FCC) | <ul style="list-style-type: none"> Options and solution for FCC |
| | ASEP Splitting to facilitate Storage Discount | <ul style="list-style-type: none"> Options and solution for how to identify capacity at combined ASEPs |
| | Avoiding Inefficient bypass | <ul style="list-style-type: none"> Design, objectives and application of such a product |

Gas Charging Review:

Draft UNC Modification Structure

- At 5 April NTSCMF comments were received that favoured a “super-mod” approach consolidating all these into a single UNC Modification
- There were a number of reasons
 - Easier management for the change process, including decision making, if there are alternates to any proposals
 - Dependencies between topics mean it may more appropriate to treat together
- Recognising these views we thought it useful to have a further discussion considering previous UNC changes

Gas Charging Review:

Draft UNC Modification Structure - Discussion

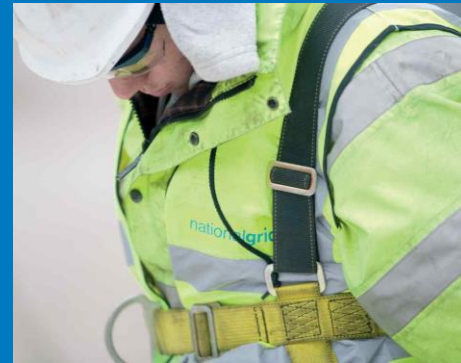
- How have broad UNC Modifications been done before?
- EU Phase 2 that delivered CAM, Balancing and much of Interoperability codes. Specifically on the issue of packaging of issues into UNC Mods
 - Delivered across 12 mods in total. Feedback[#] was that this was well managed although some of the mods were “beasts”.
 - Are there any key differences for the Gas Charging Review or elements to learn from EU Phase 2 related to structuring the UNC Modification(s)?
- Is a consolidated “Super-Mod” preferred for Charging?

[#] From lessons learned presented at Feb 2016 Ops Forum

Gas Charging Review: Using the Sub Groups through the UNC Mod

- The Sub Workgroups to support the Gas Charging Review have:
 - Helped expedite development on key discussion topics
 - Deliver analysis to take the detail out of NTSCMF to keep content relevant to discussions
 - Bring back discussions and outputs to NTSCMF
 - Helped develop and test the models that have been published
- Can Sub Group be used during the UNC Mod Process to help support?

Gas Charging Review



Issues Log

Issues Log

- Review of Issues Log (review of the spreadsheet including links to the Gas Charging Review Decision list – and RAG Status)
- Discussion on any proposed new items

Gas Charging Review



Next Steps

Gas Charging Review: Next Steps

| Date | Meeting# | Detail |
|---------------|---------------|---|
| 5 April 2017 | NTSCMF | <ul style="list-style-type: none"> High level pre modification discussions Provide overview of scope of proposed UNC Modification for discussion |
| 24 April 2017 | NTSCMF | <ul style="list-style-type: none"> Continue pre-modification discussions on scope of proposed UNC Modification Discuss overview of what it will and won't contain at this stage, links to the key topics under discussion |
| 8 May 2017 | NTSCMF | <ul style="list-style-type: none"> Pre-modification discussion on all topics to include draft proposals for each for inclusion into the UNC Modification Discuss overview of what it will and won't contain at this stage, links to the key topics under discussion |
| 23 May 2017 | NTSCMF | <ul style="list-style-type: none"> Discuss the draft for the UNC Modification ahead of any revisions before being submitted to June Panel |
| 5 June | NTSCMF | <ul style="list-style-type: none"> UNC Modification review and development |
| 15 June 2017 | UNC Mod Panel | <ul style="list-style-type: none"> Decision on UNC Modification(s) recommending referral to workgroup (at NTSCMF) |

#There will be opportunities to use the Sub group over this period and beyond to help support and facilitate UNC Modification process.

Contact us:

box.transmissioncapacityandcharging@nationalgrid.com



Jenny Phillips
Gas Capacity and Charging
Development Manager
Tel: +44 (0)1926 65 3977
Mob: +44 (0) 7776 318646
Email: jenny.phillips@nationalgrid.com

Colin Williams
Charging Development Manager
Tel: +44 (0)1926 65 5916
Mob: +44 (0)7785 451776
Email: colin.williams@nationalgrid.com

Colin Hamilton
EU Code Development Manager
Tel: +44 (0)1926 65 3423
Mob: +44 (0) 7971 760360
Email: colin.j.hamilton@nationalgrid.com

Sarah Chleboun
Senior Commercial Analyst
Tel: +44 (0)1926 65 4246
Email: sarah.chleboun@nationalgrid.com

Laura Johnson
Senior Commercial Analyst
Tel: +44 (0)1926 65 6160
Email: laura.johnson@nationalgrid.com