Gas Transmission Charging Review
Impact of Entry options project

2nd GTCR Technical Group Meeting

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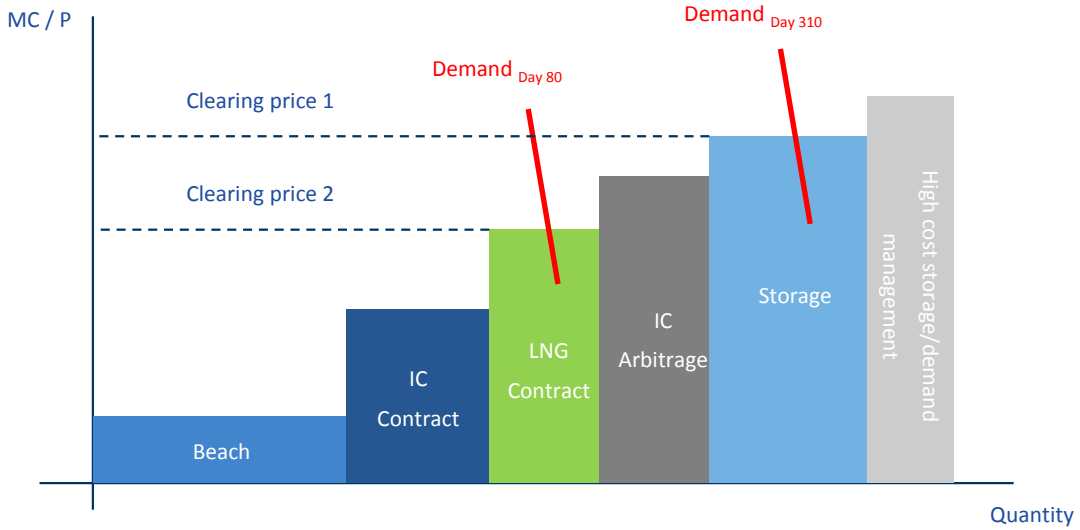
Contents

1 PRICE RESPONSIVENESS MODELLING

Recap of our proposed approach

Forward looking modelling of network users' price responsiveness of demand for NTS entry capacity

- We plan to model entry capacity bookings under network user profit maximising expectations under a staged modelling process
- The model will establish a supply mix with associated daily flow patterns for each ASEP by determining a merit order dispatch schedule
- ASEP flow patterns will be determined having modelled the impact ASEP NTS charges have on efficient dispatch [1]
- Model will then determine a ST/LT booking strategy by ASEP / supply source



Note 1: for some supply sources NTS price responsiveness of demand may be zero or negligible

Determining shipper booking strategies

Our proposed approach

1) Determine demand to flow gas at each ASEP for each gas day – see previous slide on dispatch modelling

2) Model the expected cost / value of NTS capacity at ASEPs from perspective of supply sources that use the ASEP

3) Establish probability of a constraint at ASEP and therefore the opportunity cost of relying on ST capacity

Is there also an option value of LT capacity bookings?

4) Is the expected value of a constraint > or < the relative monetary benefits of ST vs LT capacity bookings

Key price responsiveness modelling issues

How would you suggest we approach these issues …

Cross-border flow dispatch modelling

- What factors in general will need to be reflected in cross-border flow dispatch modelling?
- How can different forms of NTS charges impact on cross-border flow decisions?
- How does the impact of transportation costs on arbitrage decisions differ for IUK and BBL?

Storage flow dispatch modelling

- The economics of storage are well understood
- How can different forms of NTS charges impact on storage dispatch?
- How should we model storage in determining an efficient market dispatch?

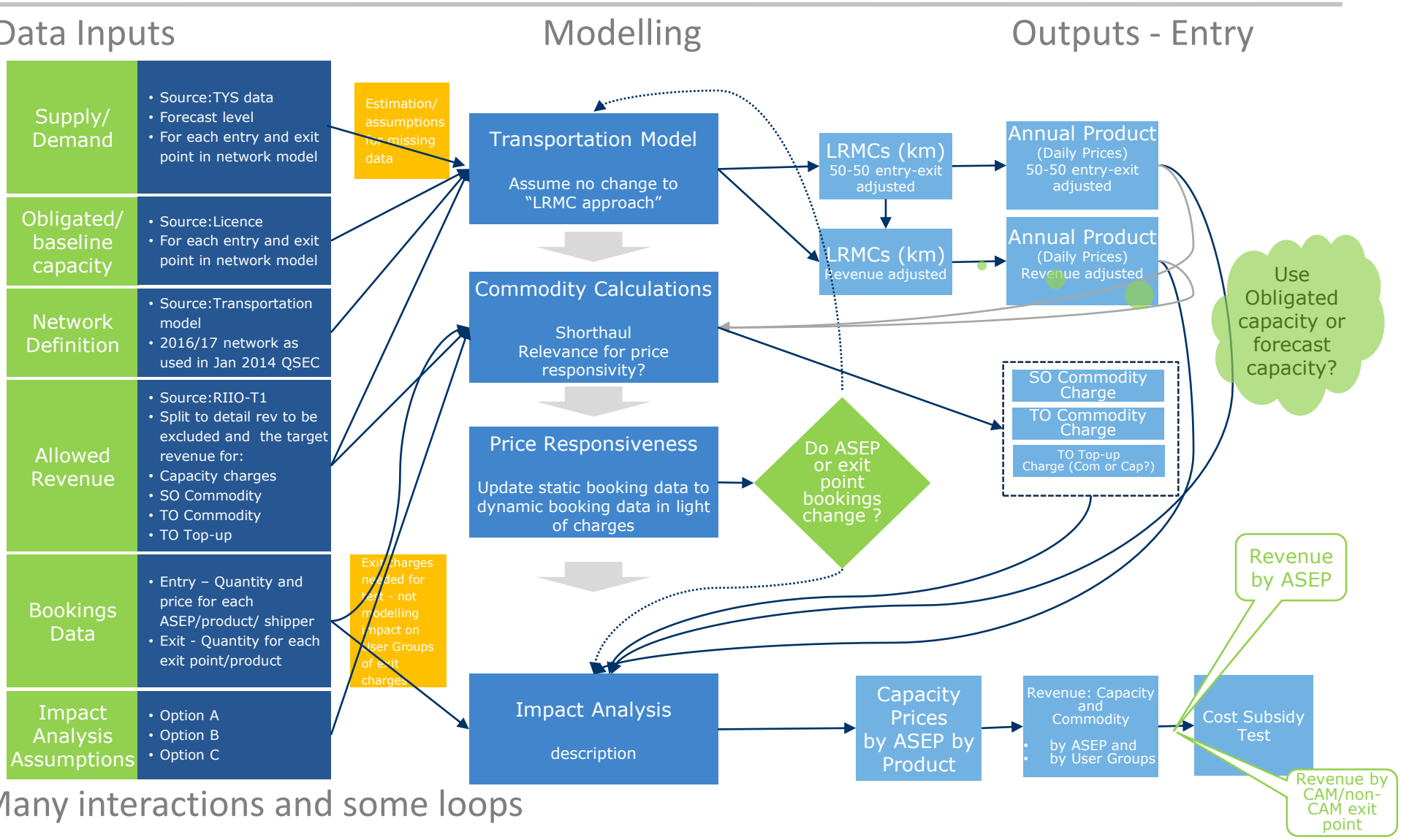
Determining LT vs. ST capacity bookings

- What factors do network users consider in practice when forming a booking strategy?
- Do you agree with our general proposed approach of determining ST vs. LT bookings under alternative tariffing arrangements?
- How should we determine the probability of a commercial constraint?

… recognising there are limits on what can be modelled and Ofgem's objectives for the impact assessment?

2 TARIFF MODELLING

Context Diagram for Modelling for Each Year



Many interactions and some loops

Modelling of charges – initial thoughts & questions

A few examples were raised in the first meeting

1. Calculation of adjusted entry prices for Allowed Revenue target (floating price)
   - whether to adjust using obligated or forecast capacity levels
   - Scaling or multiplicative adjustment

Use Obligated capacity or forecast capacity?

2. Bacton split
   - CAM/IC point and Non-CAM ASEP
   - Modelling will allow for application of different regime at each of these two points

Allow for same and different regime

3. Inflation of capacity prices for purchases in prior years
   - RPI or alternatives

RPI or alternatives

The following questions are for consideration ahead of the next meeting (18 July)

Question 1: Calculation of floating price

1. **Use 50/50 LRMC at obligated capacity level**

- This is the current auction reserve price

2. **Scale LRMC or add a constant to the LRMC?**

- Default : add a constant to produce an adjusted LRMC
  - Maintains locational relativities
  - Is the current process for exit
- Can build optionality to scale if required

3. **Multiply adjusted LRMC by obligated or forecast levels of supply (as used in Transportation model)?**

- Default : use forecast
  - Obligated implies an inherent under recovery necessitating a “top up” charge
  - Forecast implies less under-recover but may still imply under-recovery unless other parameters carefully chosen
- Can build optionality to use obligated if required

Proposal: Use 50/50 LRMC at obligated capacity level with a fixed adjustment and multiply by forecast levels of supply (as used in Transportation model)

Questions:

- Do you agree with this proposal?
- If not, please give reasons why and suggest how this could be better modelled?
- How would you justify building in optionality to scale and/or use obligated levels of supply?

Question 2: Bacton Split

1. Retain single point within the transportation model for calculation of LRMC

- Underlying costs for use of the downstream network from a specific location are independent of whether gas is sourced from UKCS or Continent
- Consistent with modelling for Easington/Rough

2. Adjust using agreed methodology as in Q1 to determine a revenue adjusted price

- CAM/IC point and Non-CAM ASEP
- Modelling will allow for application of different regime at each of these two points

3. Apply CAM and non-CAM methodology by using appropriate reserve price within Impact Analysis module

- CAM/IC point can have methodology consistent with Tariff Code and
- Non-CAM ASEP can retain existing methodology if required

Proposal: Retain single point within the transportation model for calculation of LRMC but allow option within impact analysis module to apply CAM and Non-CAM methodologies

Questions:

- Do you agree with this proposal?
- If not, please give reasons why and suggest an alternative approach?

Question 3: Inflation

1. Adjust charges for capacity bought in prior years for inflation

- Inflate by RPI
- Inflate by ratio of Allowed Revenue in year of use to Allowed Revenue in year of purchase
- Any alternatives?
- Adjustment rate can be parameterised for user input

Proposal: Inflate by RPI as the default value but allow user to input an alternative value

Questions:

- Do you agree with this proposal?
- If not, please give reasons why?
- Do you have any alternative suggestions?

Question 4: Discounts

Any combination of discounts (and/or multipliers) could be considered especially if a commodity top up is retained at least on the non-CAM points

- A discount/multiplier value is required for each product
  - Values could be same at all ASEPs or Specific to ASEP
  - Values could be set at same level as gas markets physically interconnected with GB
  - Potential range of values could be constrained to those in anticipated EU Tariffs Code
- Is there anything specific to Interruptible that needs building in?
  - Ability to restrict price to reflect the probability of interruption
- Suggested values for testing of model are welcomed but flexibility for user choice of multipliers will be built in

Proposal: provide flexibility for user choice of discounts/multipliers

Questions:

- Do you agree complete flexibility for user choice of multipliers should be provided?
- If not, please give reasons why and suggest any specific constraints that should be built in?
- Do you have any suggested starting values to use in model testing?

Question 5: How to accommodate short haul?

Proposal: Do not model short-haul and assume all flows (except storage) attract standard commodity charges

We propose not to model short-haul tariffs because:

- There is much uncertainty regarding short-haul in Draft Tariff Code:
  - Is it a dedicated service and therefore outside of the charging methodology?
  - Is short-haul likely to be allowed at CAM points?
- Short-haul is an alternative commodity charge and will be less attractive as commodity rates fall
- Data on short-haul is confidential and detailed data has not been provided to CEPA/TPA
- Current NG published modelling of short haul- treats revenues as SO and takes account of historic short-haul volumes when calculating commodity charges for both TO and SO commodity but only on an aggregate basis
- Impact assessment is largely concerned with changes to entry capacity charges and TO revenue collection

Proposal: Do model the impact of the short-haul tariff on incentives for cross-border arbitrage flows via the Bacton entry point

Questions:

- Do you agree with our proposals?
- If not, please give reasons why and suggest how this could be modelled?

3 NEXT STEPS

Next steps

Comments on the questions and answers requested before the meeting on 18 July …

- Is anything unclear?
- Have you any additional questions?
- If you wish your comments to remain confidential please state this.

… to facilitate discussions and modelling

At the next Technical Group meeting – 29th July – we plan to discuss:

- Impact assessment
- Market modelling framework and assumptions
- How to model the value of NTS capacity to determine ST vs. LT bookings

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