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Stakeholder update

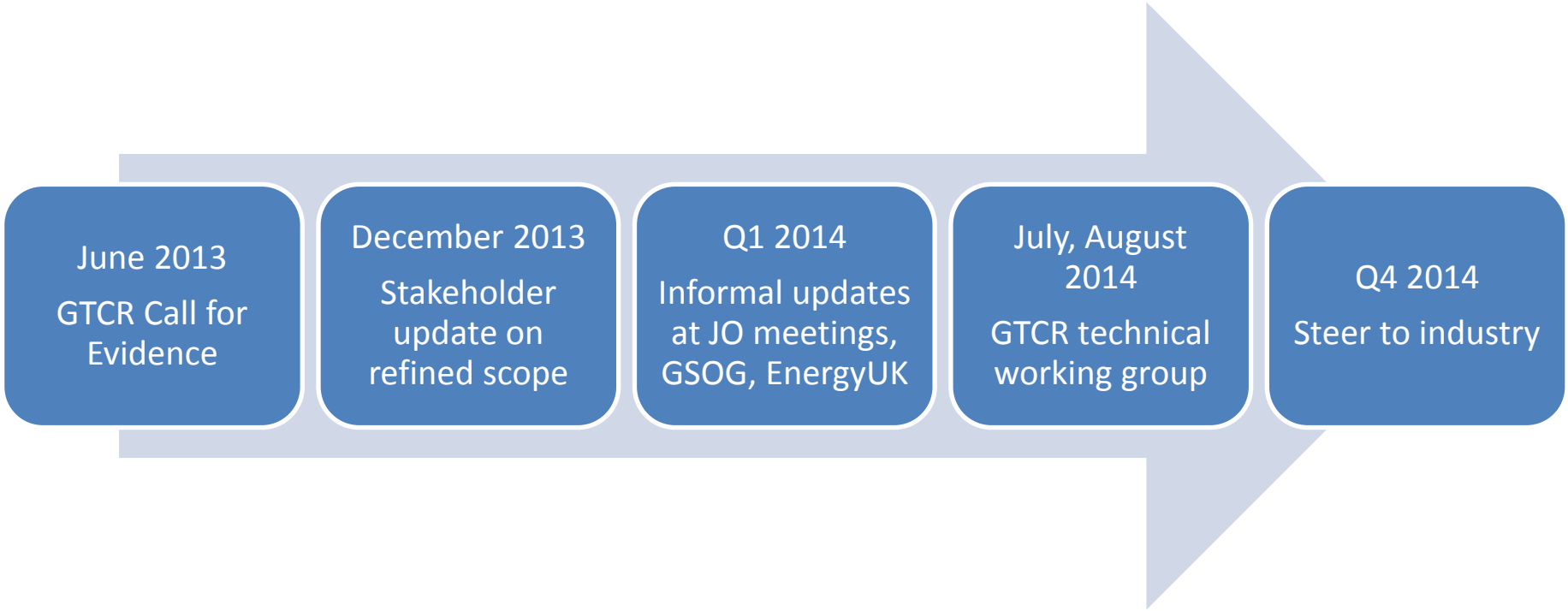
Gas Transmission Charging Review

14/10/14

Agenda

1. Spectrum of options (inflation, discounts, floating)
2. How does the Model work?
    1. Ofgem presentation
    2. Nick Wye/ industry report comments
3. Illustrative results from first model runs
    1. Ofgem presentation
    2. Nick Wye/ industry report recommendations for impact assessment
4. Process update

GTCR timeline



Spectrum of options

- Floating entry capacity tariffs
- QSEC inflation uprating
- Changes to short term capacity discounts

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The Model: Introduction

Model development

- We commissioned CEPA/TPA to develop a model to provide quantitative input to our forthcoming impact assessment consultation on GTCR policy options
- The GTCR technical group informed its development

Assumptions and limitations

- It is a tool with limitations, and will be used alongside other relevant evidence and analysis in the impact assessment
- The model inevitably contains a number of assumptions which will influence the outputs, including:
    - Future availability of gas supply sources to GB
    - NBP gas prices
    - Price responsiveness of demand for NTS capacity
- We are examining the validity of these assumptions and the sensitivity of the outputs to them

Overview of model framework

Model Control – define scenario

Inputs

- Obligated capacity
- Demand
- Supply capability assumptions
- Allowed revenue
- Existing bookings & known revenue
- Wholesale gas prices

Stages in model calculations

1. Calculate capacity charges
2. Calculate commodity charges
3. Determine dispatch by ASEP
4. Determine bookings by ASEP
5. Calculate revenue recovery by ASEP

Outputs

- Tariffs by ASEP
- NTS bookings
- Revenue recovery
- Cross subsidy tests
- Interconnector flows

Stages in model calculation

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Run tariff model under the previous year's flows and known capacity bookings

Determine flows (dispatch) and ST and LT capacity bookings through market modelling

Transportation model as input used to calculate capacity and commodity tariffs by ASEP

Price responsive

1) Take wholesale traded price input projections for each gas day and each year

2) Determine – under modelled tariff policy options – the cross-border flows of interconnectors

3) Determine storage flows for the gas year – import and export to the NTS

4) Determine profiled beach supplies from UKCS and Norway supply sources

5) Determine required LNG supplies to match supply with demand on each gas day

Determine source flows based on relationship between:

- Probability of constraint
- Relative monetary benefits of short-term vs long-term booking

Calculate revenue recovery by ASEP

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Comments on the model

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Illustrative comparison: base case vs. "full package" example

	Base Case	Full Package
Description	Current charging regime – combination of capacity and commodity charges	Applies a combination of all GTCR policy options, including changes to multipliers, indexation and floating
Inflation indexation		All bookings are indexed from start of financial year 2017/18
Floating tariff methodology	Not applicable	Fixed p/KWh/day secondary adjustment applies to all capacity products from 2017 (new and existing capacity) calculated to account for ST product discounts and forecast capacity bookings
Multipliers	QSEC – 1.0; MSEC – 1.0; DADSEC – 0.67; WDDSEC – 0; DISEC – 0	QSEC – 1.0; MSEC – 1.0; DADSEC – 0.67; WDDSEC – 0.67; DISEC – 0.67
NGG scenario used in modelling	Slow Progression	Slow Progression

Running the model (1)

Select scenario for model run >>>	0	0	7
Scenario name	Base case	Base case	Full package
Year when new tariff regime comes into effect?	2018	2018	2018
Form of tariff regime at Non-CAM points	1	1	9
Asymmetric tariff regime at Bacton (CAM)?	No	No	No
Form of asymmetric tariff regime at CAM (Bacton)	1	1	9
Does floating regime apply to existing capacity bookings?	No	No	Yes
Form of inflation adjustment to existing tariffs	1	1	3
Capacity Product Multiplier scenario	1	1	2
Obligated (input 1) or forecasts (input 2) capacity used in floating adjustments?	2	2	2
Allowed revenue to be recovered from entry	50%	50%	50%
Static or dynamic run of the model?	Dynamic	Dynamic	Dynamic
Future Energy Scenario	Slow Progression	Slow Progression	Slow Progression
Start of BBL reverse flow capability	2031	2031	2031
Treatment of capacity charge in IC arbitrage (0= sunk cost; 1= transaction cost)	1	1	1
Allow K factor adjustment to allowed revenue?	Yes	Yes	Yes
Exclude commodity charge?	No	No	No
Asymmetric regime for storage?	No	No	Yes
Use historic flows for Rough (On or Off)	On		

The green cells highlight the differences from the base case selected to run the full package scenario

Running the model (2)

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Run Model

Step 1

Select the year for the model run: 2021

Next year copy paste reference: 2022

Run model without Rough Solver

Run entire model

Press to run model to 2029/30

Step 2

Run goal seeks for floating tariff calculations

Run floating tariff calcs

Step 3

Run goal solver for Long Range Solver

Run Storage Injection

Press to run model to selected year

Step 4

Run ASEP ST and LT bookings calculations

Run booking strategy calcs

Step 5

Copy ST bookings outputs from Financial Year to support next year run.

Illustrative results (1): Capacity/commodity split in TO allowed revenue

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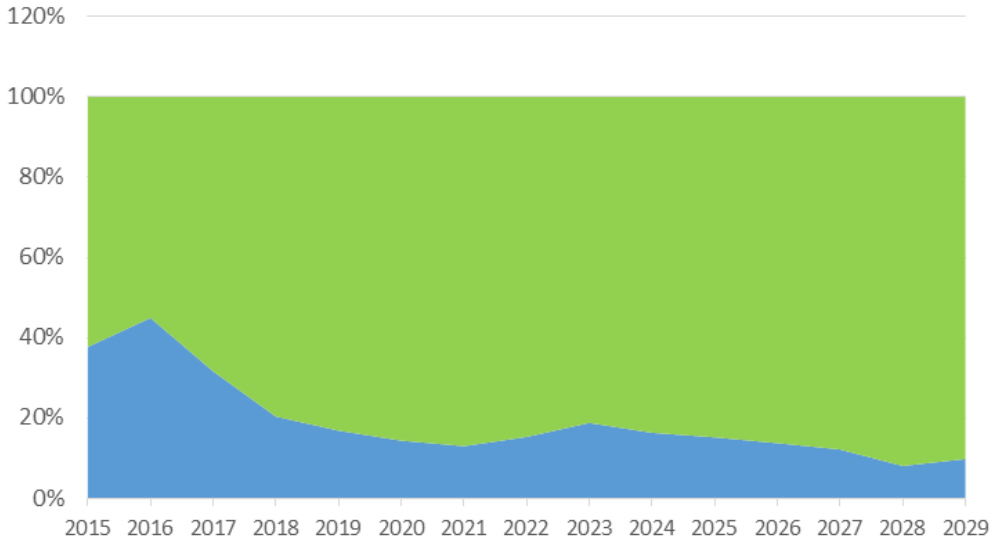
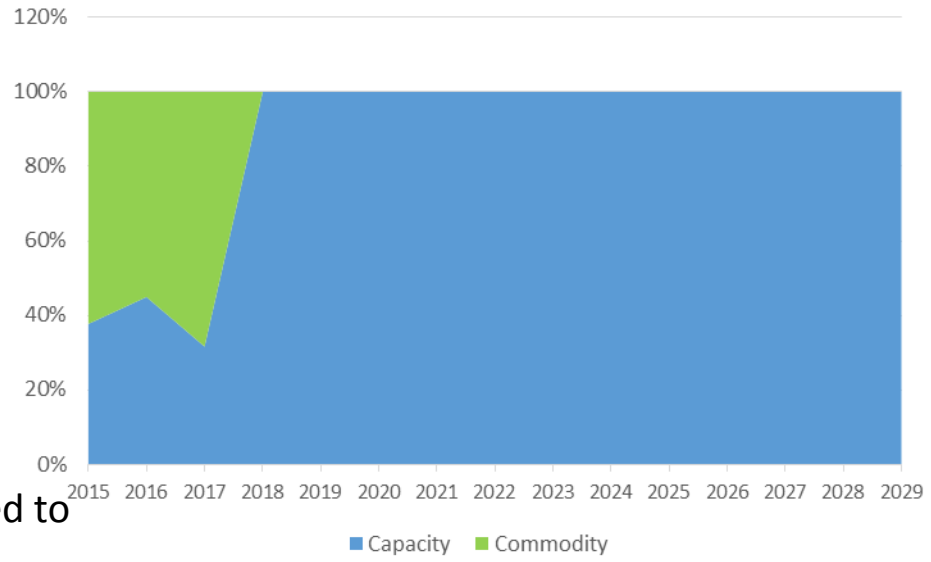
Base case
Increasing commodity-based recovery as existing QSEC contracts fall away



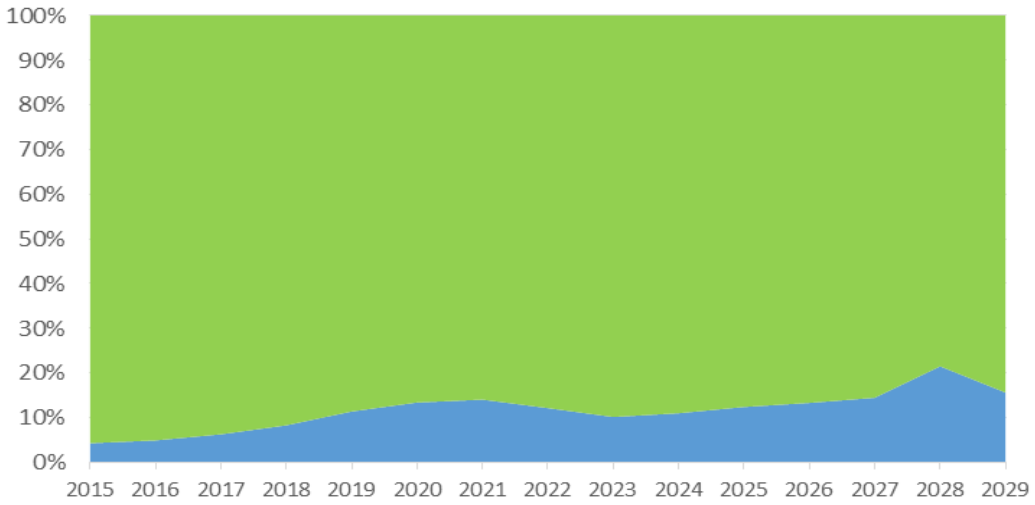
Full Package
Introduction of changes in 2017/18 results in 100% recovery from capacity*



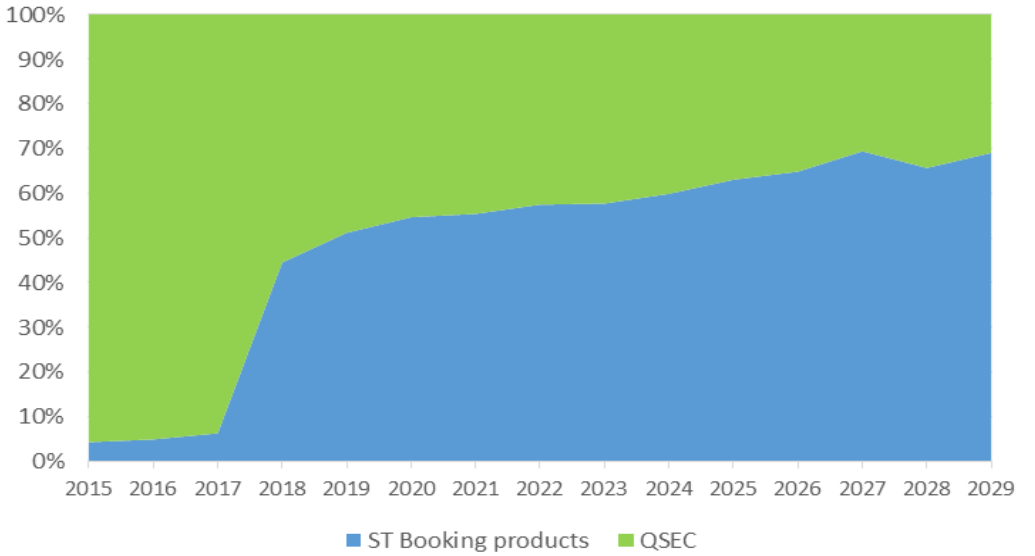
*A small flow-based charge will be applied to recover true variable costs

Illustrative results (2): Revenue recovery

Base Case
Low short-term booking recovery (continuation of discounts for short-term products)



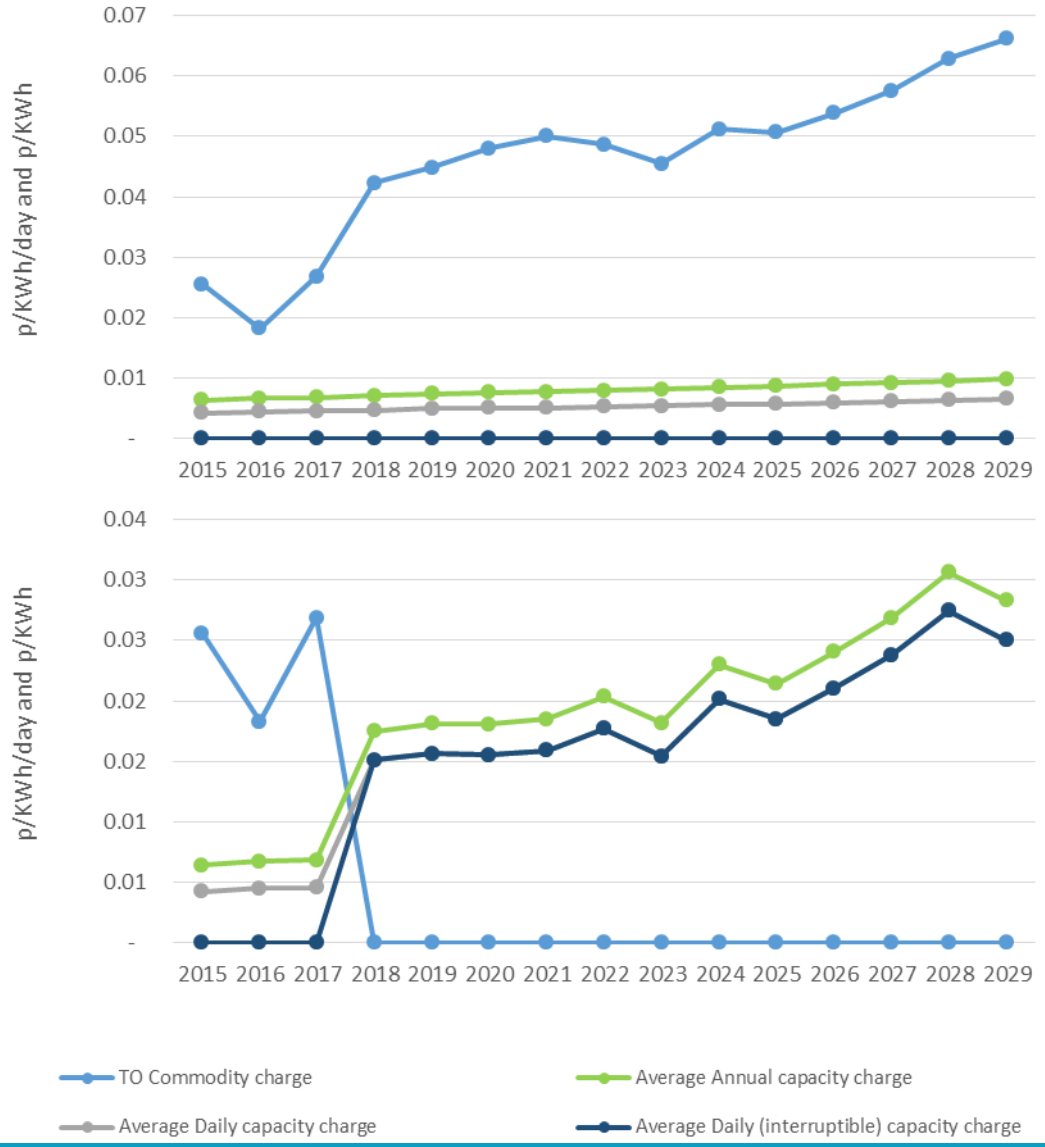
Full Package
Reduction of short-term discounts and move to fully-floating leads to ongoing increase in recovery from short-term products



Illustrative results (3): NTS tariffs - averages

Base Case
Commodity charge more than doubles while increase for capacity more marginal (remaining zero where 100% discounts still apply)

Full Package
Big increase in capacity charge to replace revenue from commodity on introduction of new regime. Discounts for daily interruptible reduced



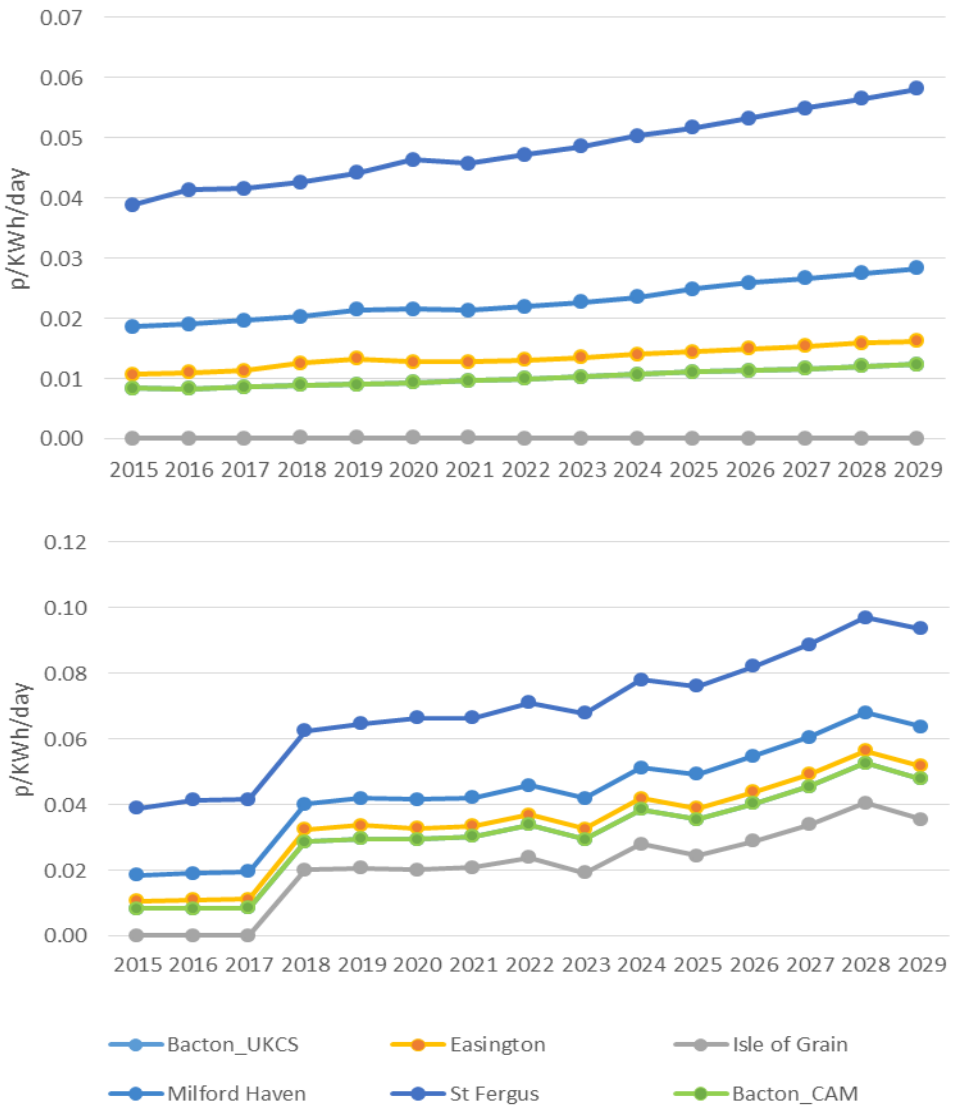
Illustrative results (4):NTS capacity tariffs for subset of ASEPs

Base Case

Increase in capacity charges limited as commodity accounts for increasing proportion of revenue recovery

Full Package

Step change in capacity charge at all ASEPs in subset when regime changes. Rank order unchanged



Tariff changes - summary of impacts (early model runs)

<table>
<tr><th></th><th>Flows >50% bookings</th><th>Flows ≤50% bookings</th></tr>
<tr><td>Long-term capacity</td><td>Cheaper – pay less of the socialised cost</td><td>More expensive – pay more of the socialised cost, as the floating adjustment is based on bookings. So these users will still be liable for the proportion of the socialised costs, even if they don't flow.</td></tr>
<tr><td>Long-term capacity – storage</td><td>Small increase from inflation uprating, depends on contract duration</td><td>Small increase from inflation uprating, depends on contract duration</td></tr>
<tr><td rowspan="2">Short-term capacity</td><td>Cheaper, even if assume short term is priced close to long term. The socialised element of the charge – commodity charge/floating adjustment – is set to increase at a faster rate than the capacity charges (it is already the dominant component of the total entry charge)

Under the proposed changes, the burden of the socialised charges will be shared across a wider base of network users, outweighing the impact of the loss of discounts.</td><td>More expensive – same effect as for long term capacity.

However, this may be mitigated by adjusting the short-term bookings (ie day ahead, on the day) closer to the actual flows.</td></tr>
<tr><td colspan="2">Example: Easington, 2021, within day

Current regime (only pay commodity charge on flows)
V
Full change package (pay floating tariff on bookings, plus new variable cost charge Commodity (V))

<table>
<tr><td>Bookings</td><td>100</td><td>100</td><td>100</td><td>100</td></tr>
<tr><td>Flows</td><td>100</td><td>75</td><td>50</td><td>25</td></tr>
<tr><td>Capacity</td><td colspan="4">0 for on the day capacity</td></tr>
<tr><td>Commodity</td><td colspan="4">0.0501</td></tr>
<tr><td>Floating tariff</td><td colspan="4">0.0335</td></tr>
<tr><td>Commodity (V)</td><td colspan="4">0.0017</td></tr>
<tr><td>Existing regime</td><td>5.01</td><td>3.76</td><td>2.51</td><td>1.25</td></tr>
<tr><td>New regime</td><td>3.52</td><td>3.48</td><td>3.44</td><td>3.39</td></tr>
</table></td></tr>
<tr><td>Short-term capacity - storage</td><td>More expensive: only pay capacity charges, so will notice the loss of discount.</td><td>More expensive: only pay capacity charges, so will notice the loss of discount. Again – can mitigate the increase in costs by matching bookings and flows more closely.</td></tr>
</table>

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Recommendations on impact assessment

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Date 11th Sept 2014

Aim of the GTCR

The aim of the project is to ensure that the structure of the GB charging regime is fit for purpose and protects the interests of existing and future consumers. We will assess the current charging arrangements and any options for change against the following criteria:

- economic efficiency in both the short run and the long run (eg efficiency in transmission infrastructure investment decisions)
- impact on cross-border trade
- reflection of developments in the transportation business
- impact on security of supply

Furthermore, we note there are some “must do” constraints that must form the baseline assessment of any options associated with legal compliance (including implementation of EU law) and requirements on transparency and non-discrimination.

We will provide a steer on our policy position on future charging arrangements by the end of the year, and invite your views

Ofgem impact assessment guidelines

Impact Assessment (IA) is a tool to help explain the effects of regulatory proposals which have an impact on consumers, industry participants, and on social and environmental issues.

Whilst IAs do not determine a final decision, they form a vital part of the decision-making process and provide a structured framework for understanding the impacts associated with important proposals.

- Consumers
- Competition
- Security of supply
- Sustainable development and the environment
- Health and safety

Social & distributional impacts

Strategic & sustainability issues