# NTS SO Storage Commodity Charge – Way Forward

5th March 2007

Gas TCMF

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# Objective

"Develop cost reflective SO Commodity Charge for NTS Storage Users"

- SO Commodity Charge Rate (Charging Methodology)
  - What elements of SO Costs should be recovered?
  - How much of such elements should be recovered?
- SO Commodity Charge (UNC)
  - How should the rate be applied to determine the charge?

Aim today is to debate these issues to inform development of proposals

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- Background
- Details of Original Proposal
- Issues with Original Proposal
- Methods of cost allocation – existing proposal and other options
- Alternative proposal
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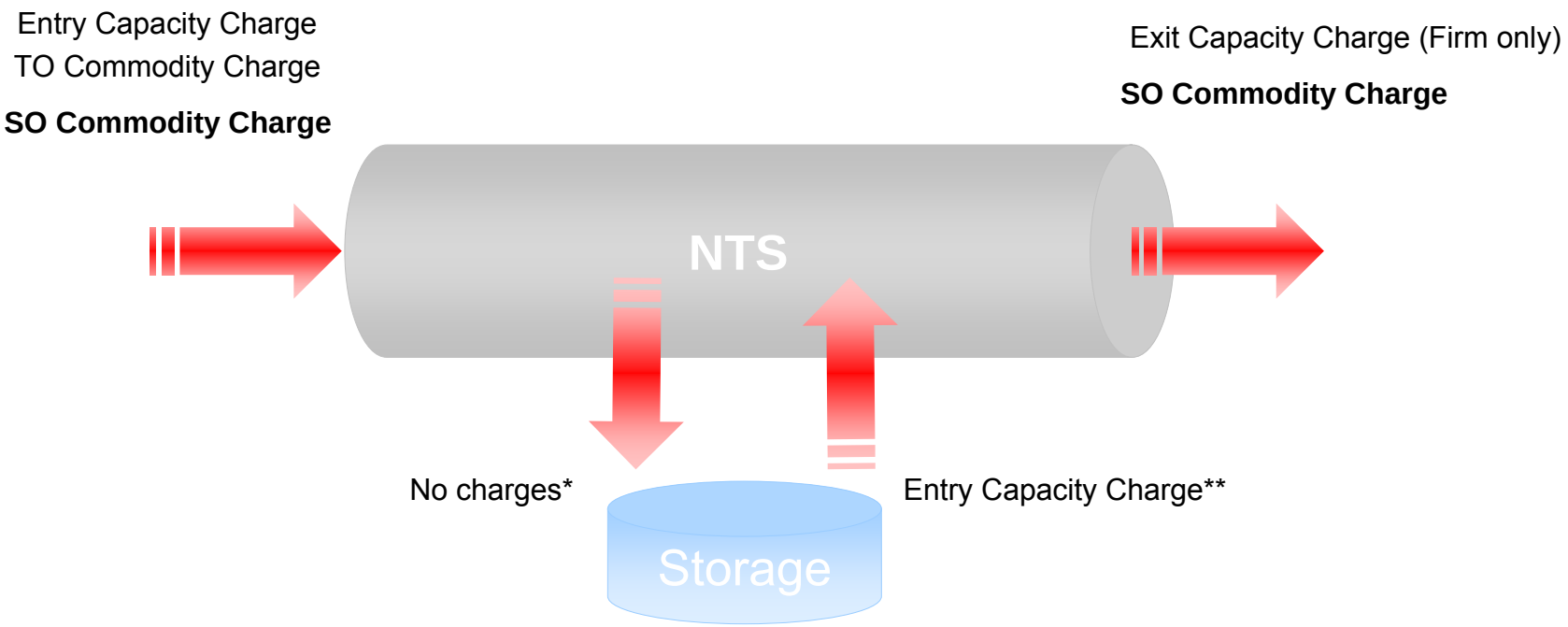
# Background - Current Arrangements

- Capacity (*p/peak day kWh/day*)
- **Commodity** *(p/kWh)*




No SO Commodity Charge levied on Storage Users

** SO Commodity not applied, TO Commodity levied on SO Commodity charge base, therefore not applied

*Treated as Interruptible. Historically, SO Commodity not applied.

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# Background - SO Commodity Charge

- Recovers relevant SO costs and outcome of incentive performance (see next slide)
- SO Commodity Charge Rate
  - Universal flat rate determined by forecast of SO MAR divided by forecast system throughput (in accordance with Charging Methodology)
- SO Commodity Charge determination for each User (under UNC)
  - Entry : £ (SO Commodity Charge Rate x UDQI)
  - Exit : £ (SO Commodity Charge Rate x UDQO)

UDQI and UDQO provided via “allocation statements” and represent the “Billable Quantity” (BQ)

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# Background - SO Incentive scheme & interaction with Commodity Charge

| Incentive Scheme | Cost Revenue Recovery (SOIC) | 2006/7 SO CostAllow ance |
|---|---|---|
| **Exit Capacity Investment (inc. CLNG)** | SO Commodity Charge | £5.2m |
| **System Balancing - Gas Cost (Compression)** | SO Commodity Charge | £90.3m |
| **System Balancing - Reserves (Operating Margins)** | SO Commodity Charge | £67.8m |
| **Internal Costs** | SO Commodity Charge | £61.6m |
| **Incentive Scheme Revenue Recovery (SOIR)** | SO Commodity Charge | £5.3m |
| **TOTAL** | | £230.2m |
| Entry Capacity Investment | NTS Entry Charges | n/a |
| Capacity Buybacks | NTS Entry Charges | n/a |
| Residual Gas Balancing | Energy Balancing Charges | n/a |
| Demand Forecasting | n/a | n/a |
| Information Provision | n/a | n/a |

Current rate = 0.0136 p/kWh

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# Proposal NTS GCM03 and UNC Mod 0120V

- Exclude elements of SO Costs that are not driven by use of storage i.e. compression costs, OM costs & outcome of SO incentives
- Of those SO costs deemed relevant, a portion is attributed to the Storage Commodity charge based on the ratio of storage throughputs relative to total system throughputs
- UNC Mod – application of charge as for bi-directional interconnector i.e. charge levied on Users' system inputs (UDQIs) & outputs (UDQOs) separately

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# Allocation of SO Costs to Storage Charge – Proposal GCM 03

| | 2006/7 SO Allowable Costs, £m | Included in storage Charge ? | Assumed Cost Driver | Costs allocated to storage[1], £m |
|---|---|---|---|---|
| **Compressor costs** | 116 | × | | 0.00 |
| **Unaccounted for gas** | 32 | √ | Throughput | 1.24 |
| **Internal Costs** | 58 | √ | Throughput | 2.24 |
| **Operating Margins** | 21 | × | | 0.00 |
| **Exit Capacity TO costs** | 57 | √ | Throughput | 2.20 |
| **Forecast 'K' from previous year** | -15.6 | √ | Throughput | -0.60 |
| **Incentive Profits /losses** | -6.7 | × | | 0.00 |
| **Totals** | **262** | | | 5.08 |

1 - Cost Allocation based on storage throughput v. total system throughput (4%)

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# Determination of SO Storage Commodity Charge Rate - Proposal GCM 03

- Of the SO costs, determine which are relevant or driven by provision of NTS storage, and exclude those that are not caused by storage, i.e :
  - Compression – gas is just “parked”, no increase in dist.travelled
  - Op’s Margins (OM) – OM used to support firm load
  - Outcome of SO incentive schemes – not appropriate for a “cost-reflective” charge
- Of the relevant SO costs, apportion a share of these to storage based on storage throughput relative to total system throughput
  - GCM03 original proposal used commercial storage throughputs; revised proposal based on physical storage throughputs]
- Derive SO storage commodity rate by dividing the relevant SO storage costs by forecast storage throughput
- Results in SO Storage commodity rate of 0.0055 p/kWh (based on revised proposal)

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# Application of SO Storage Commodity Charge Rate – "Mod 0120V proposal"

- Mod 0120V proposed to apply SO Storage Commodity Rate to commercial flows (UDQIs & UDQOs)
- Consistent with UNC regime for determination of all Transportation & Energy Balancing Charges, and mirrors prevailing arrangements at Bacton Interconnector
- This would have generated SO revenue of £4.4m for the forthcoming formula year
- If levied on "net" commercial flows (i.e physical flows), with no re-balancing of charge rate, the generated SO revenue would be £3.9m.

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# Ofgem Issues

- Lack of cost-reflectivity - allocation of certain SO costs (internal costs, deemed interruption) not in accordance with true cost drivers
- Insufficient transparency of cost breakdown and proposed methodology
- Mod 0120V proposed that charge to be applied to commercial flows, rather than physical flows

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# Industry Issues

- Lack of cost-reflectivity - allocation of certain SO costs (internal costs, deemed interruption) not in accordance with true cost drivers
- Insufficient transparency of cost breakdown and proposed methodology
- Mod 0120V proposed that charge to be applied to commercial flows, rather than physical flows
- Potential discriminatory arrangements
- Impact on storage cycling

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# Allocation of SO Costs to Storage Charge – SO Costs not driven by storage operation, hence excluded

| SO Cost | Explanation of cost | Why excluded? |
|---|---|---|
| Compression | Costs from operation and maintenance of NTS compressors | Use of compression a function of distance gas travelled. Gas "parked" in storage travels no greater distance from entering the system to exiting the system, than gas that has bypassed storage. |
| Op's Margins | The provision and use of Op's Margins to support firm load and safe "run-down" of system in the event of supply emergency | NTS storage is deemed interruptible |
| TO Exit Capacity Cost (CLNG) | Use of CLNG to support firm load ; | NTS storage is deemed interruptible |
| Outcome of Incentive Scheme | Costs / Revenues that arise from SO performance under its incentive scheme | Considered more appropriate and consistent to recover through standard rate (which recovers revenues not collected through cost-reflective commodity charges) ; no clear linkage with storage and would therefore weaken cost-reflectivity of storage charge |

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# Allocation of SO Costs to Storage Charge – SO Costs driven by storage operation, hence included

| SO Cost | Explanation of cost | Why included? |
|---|---|---|
| Unaccounted for gas | Arises from metering inaccuracies from all system entry and exit points. | A share of these metering inaccuracies will have arisen from metering at NTS storage facilities. Where single metering installed, errors will arise from gas flowing in either direction, and hence compounded, rather than “netted off”. |
| Internal Costs | Arise from support of IS and administrative processes associated with data and transactions at all system entry & exit points, and daily operation of the NTS. (split between 1. Dept.Costs (inc staff), 2. Depreciation of IS costs, 3. Share of sustaining costs/overheads) | No difference in administration of NTS storage sites compared to any other NTS supply point / CSEP, therefore a share of these costs will have arisen at NTS storage facilities. |

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# Allocation of SO Costs to Storage Charge – SO Costs driven by storage operation, hence included

| SO Cost | Explanation of cost | Why included? |
|---|---|---|
| Revenue foregone from deemed interruption | Represents revenue not collected through TO control at interruptible sites, due to capacity charges not being levied. This revenue foregone is treated as an SO cost, and recovered through the SO commodity charge. | A share of this SO cost will arise from NTS storage sites as they are treated as interruptible. |
| Forecast 'K' from previous year | 'K' represents difference between SO MAR and revenue collected from all SO commodity charges, which arises from forecasting errors in expected revenue and allowable SO costs. | As an element of the amount of 'K' will arise from the proposed SO storage commodity charge, then a portion of the forecast 'K' figure should be included in the storage charge (which may be positive or negative). |

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# Allocation of SO Costs to Storage Charge – SO Costs driven by storage operation – how should we cost target ?

| SO Cost | Cost Drivers | | |
|---|---|---|---|
| | Actual | Option 1 ? | Other Options ? |
| Unaccounted for gas | Throughput; size of metering | Throughput | |
| Internal Costs | None / Fixed ? | No. of accounting meters | Throughput ; no. of registered Users |
| Revenue foregone from deemed interruption | Registered Peak Flow capability, or I(SOQ) | Registered Peak Flow capability, or I(SOQ) | Throughput; no. of storage sites |
| Forecast 'K' from previous year | Many (e.g. revenue, forecast of costs v actuals, throughput) | Throughput | Generated Revenue |

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# Allocation of SO Costs to Storage Charge – "Alternative approach based on Industry responses"

| | 2007/8 SO Allowable Costs, £m | 2007/8 SO Allowable Costs, % of Total | Included in storage Charge ? | Cost Driver | Costs allocated to storage[1], £m | Costs allocated to storage, £m, based on final GCM03 |
|---|---|---|---|---|---|---|
| **Compressor costs** | 90.3 | 29.8% | × | Flow-km | 0.00 | 0.00 |
| **Unaccounted for gas** | 12.2 | 4.0% | √ | Flow | 0.53 | 0.53 |
| **Internal Costs** | 61.6 | 20.3% | √ | no. of meters | **13.36**[2] | 2.65 |
| **Operating Margins** | 67.8 | 22.3% | × | peak flow (firm) | 0.00 | 0.00 |
| **Exit Capacity TO costs** | 5.2 | 1.7% | × | None | 0.00 | 0.00 |
| **Deemed interruption** | 57.0 | 18.8% | √ | peak flow (Interrup.) | **10.66** | 2.46 |
| **Forecast 'K' from previous year** | 4.0 | 1.3% | √ | None | 0.17 | 0.17 |
| **Incentive Profits /losses** | 5.3 | 1.7% | × | None | 0.00 | 0.00 |
| **Totals** | **303.4** | 100.0% | | | **24.7** | **5.81** |

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1 – Based on Option 1 ; 2 – no. of storage meters/total NTS meters = 18/83

# Derived storage rates for different methodologies

| | Rate, p/kWh |
|---|---|
| Original Proposed Rate (GCM03) | 0.0069 |
| Revised Rate (GCM03 Conclusions Report) | 0.0055 |
| Rate based on revised cost-drivers in Option 1 (commercial flows) | 0.0264 |
| Rate based on revised cost-drivers in Option 1 (net physical flows) | 0.0293 |

Standard SO Commodity Rate for 1/4/07 = 0.0136 p/kWh

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# Determination of SO Storage Commodity Charge Rate – "Potential Alternative proposal"

- Of the SO costs, determine which are relevant or driven by provision of NTS storage, by excluding those not caused by Storage (i.e. compression, OM, outcome of SO incentive scheme, CLNG costs)
- Of the relevant SO costs, apportion a share of these to storage charge according to the appropriate cost-driver for each of the individual SO cost elements
- Determine the rate, by dividing the derived forecast SO storage cost by a forecast of the storage "net" physical flows
- Apply as a flow based "commodity" charge, i.e. p/kWh

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# Application of SO Storage Commodity Charge Rate – "Potential Alternative Proposal"

Default Arrangement

- User's Billable Quantity (BQ) for a Storage Facility determined based on deemed proportion of physical flow, by one of 3 options :
  - Option 1 – total BQ apportioned to each User according to their net "physical" flows
  - Option 2 – total BQ targetted to those Users whose net flow is in same direction as the storage site's net physical flow and apportioned according to their net physical flow
  - Option 3 – total BQ apportioned to each User according to their commercial flows (no "netting off")

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# Example of “default arrangement Option 1”

| Storage User | Storage Injection (UDQO) | Storage Withdrawal (UDQI) | Net Injection | Abs(Net Injection) | Proportion of Abs(Net Injection) | Billable Quantity |
|---|---|---|---|---|---|---|
| A | 20 | 0 | 20 | 20 | 0.8 | 12 |
| B | 5 | 10 | -5 | 5 | 0.2 | 3 |
| C | 5 | 5 | 0 | 0 | 0 | 0 |
| Sum | 30 | 15 | 15 | 25 | 1 | 15 |

Physical net flow of 15 units allocated to User A (12) and User B (3)

User’s BQ = Agg.(UDQI-UDQO) x User’s Abs (UDQI – UDQO) /
Agg [ Abs (UDQI – UDQO)]

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# Example of “default arrangement Option 2”

| Storage User | Storage Injection (UDQO) | Storage Withdrawal (UDQI) | Net Injection | Net Flow in same direction as agg. net flow | Proportion of agg. Net flow | Billable Quantity |
|---|---|---|---|---|---|---|
| A | 20 | 0 | 20 | 20 | 1 | 15 |
| B | 5 | 10 | -5 | 0 | 0 | 0 |
| C | 5 | 5 | 0 | 0 | 0 | 0 |
| Sum | 30 | 15 | 15 | 20 | 1 | 15 |

Physical net flow of 15 units allocated to User A (15)

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# Example of “default arrangement Option 3”

| Storage User | Storage Injection (UDQO) | Storage Withdrawal (UDQI) | UQDI+UDQO | Proportion | Billable Quantity |
|---|---|---|---|---|---|
| A | 20 | 0 | 20 | 20/45 | 6.67 |
| B | 5 | 10 | 15 | 15/45 | 5.0 |
| C | 5 | 5 | 10 | 10/45 | 3.33 |
| Sum | 30 | 15 | 45 | 1.0 | 15 |

Physical net flow of 15 units allocated to User A (6.67), User B (5) and User C (3.3).

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# Application of SO Storage Commodity Charge Rate – alternatives to default arrangements

2 alternatives :

1. Agent provide allocation of physical flow

   Each User's BQ = Physical flow allocation x charge rate

2. Invoice the aggregate daily storage charge to one party only (Storage Agent or Lead Shipper) – avoids systems complexity and Agent having to submit 2 sets of daily allocations

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# Way Forward

- Views from Gas TCMF sought, specifically :
  - What SO costs should be included ?
  - How should these costs be apportioned to storage ?
  - Has sufficient analysis been provided ?

- Views to assist National Grid in developing its storage charging proposals
- Possible subsequent Pricing Consultation Paper to be raised, proposing methodology based on revised cost drivers, and net physical flows, and accompanying UNC modification proposal

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