

Emergency Curtailment Quantity (ECQ) Uniform Calculation Methodology

1. Introduction

In accordance with UNC TPD Section Q 6, the quantities of gas, associated with Emergency Curtailment actions, undertaken by Transporters for each day of a Gas Deficit Emergency (GDE), will be assigned to an effective trade (NBP title transfer) between National Grid NTS (as residual System balancer) and the relevant User for the relevant Gas Day.

Emergency Curtailment covers both Emergency Interruption within a Potential Gas Deficit Emergency (Stage 1 ~ Potential GDE) and Firm load shedding in stage 3 of an actual GDE. The Emergency Curtailment Quantity (ECQ) title trade seeks to ensure that a User's Daily Imbalance is maintained after Emergency Curtailment has been actioned. Each Transporter would be responsible for the calculation of its element of the ECQ for the relevant connected System Exit Points. This document defines the uniform methodology for calculating the ECQ element for all Transporters.

The Emergency Curtailment Quantity is defined within UNC TPD Section Q 6 as "The quantity of gas (in kWh) which the Transporters, in aggregate, reasonably estimate that User would have offtaken from the Total System at System Exit Points in respect of which Emergency Curtailment has occurred but for the fact that Emergency Curtailment had occurred at those System Exit Points".

2. Overall Methodology

The ECQ calculation methodology has defined steps that will be used to derive an ECQ estimate for the relevant Gas Day for which a site has been subject to Emergency Curtailment as defined in section Q.6.1.1 of the Uniform Network Code.

For the 1st Gas Day the estimate of the ECQ will be based on:

- i) For those relevant System Exit Points for which OPNs are provided to the Transporter, the estimate will be based on the OPN prevailing at the time of the emergency curtailment;
- ii) For those relevant System Exit Points that do not provide OPNs or, where OPNs are not available, the estimate will be based on historical allocations;
- iii) Where neither OPNs nor historical allocations are available:
 - a) in the case of Distribution Network (DN) Offtakes the estimate will be based on either scaled SOQs (where available) or, standard SOQs, or

b) in the case of Exit points which are directly connected to the National Transmission System (NTS) the estimate will be based on:

A users Firm NTS Exit Flat Capacity entitlement at affected offtake(s)

A 'pro-rata' calculation will be carried out should the curtailment start time occur after the start of the Gas Day.

For the 2nd and subsequent Gas Day(s) the ECQ for all System Exit Points will be based on:

iv) Historical allocations for all relevant System Exit Points; or;

v) Where historical allocations are not available:

a) in the case of DN Offtakes the estimate will be based on either scaled SOQs (where available) or, standard SOQs, or

b) in the case of Exit points which are directly connected to the NTS the estimate will be based on:

A users Firm NTS Exit Flat Capacity entitlement at affected offtake(s)

A 'pro-rata' calculation will be carried out should the Curtailment start time occur after the start of the Gas Day.

2.1 Curtailment Duration

Curtailment will be assumed to have been initiated at the relevant Supply Point at a time after the time of the Emergency Interruption Notice or Firm Load shedding direction; this will be the Curtailment start time for the purposes of calculating the Curtailment duration. The lead-time between the Curtailment notice and the Curtailment start time will be based on information provided from the site along with other information available to the Transporter including operational experience. If no restoration time is provided then the Curtailment duration will be calculated from the Curtailment time up until the end of the relevant Gas Day. This is the curtailment duration.

2.2 Further Curtailment

Should further Emergency Curtailment be required within the relevant Gas Day then each relevant Transporter will calculate a revised (i.e. increased) ECQ element. National Grid NTS will initiate further ECQ trades to reflect any changes in the ECQs.

2.3 Restoration

Should the offtake of gas be restored at System Exit Points where Emergency Curtailment had earlier been initiated within the relevant Gas Day then each

relevant Transporter ~~would~~ will calculate a revised (i.e. reduced) ECQ element based on the revised restoration time. National Grid NTS will initiate further ECQ trades to reflect any changes in the ECQs.

2.4 Subsequent days of an Emergency

{This methodology will be applied separately for each day of a GDE.} The list of relevant System Exit Points for each day of the GDE may be the same or may be different due to restoration and further curtailment notices.

3. Distribution Networks

3.1 Historical allocation calculation method

The following algorithm is used to estimate the ECQ Supply Point component from historical allocation data:

Step 1

Identify whether Curtailment occurred during the last 28 days and note which days were curtailed.

Repeat the following steps for each curtailed Supply Point

Step 2

Identify relevant Gas Day...

If Curtailment did not occur on D-7, use D-7 otherwise...

If Curtailment did not occur on D-14, use D-14 otherwise...

If Curtailment did not occur on D-21, use D-21 otherwise...

If Curtailment did not occur on D-28, use D-28 otherwise...

Start at D-8 and work backwards to D-28 until a gas day is found where Curtailment did not occur. If all days are curtailed, do not set estimate of curtailment using this method.

Step 3

Having identified which day is to be used, ~~get~~ obtain the allocated quantity (kWh) for this site for the relevant Gas Day.

Step 4

Multiply the allocated quantity by the curtailment duration and divide by 24.

3.2 SOQ (scaled)

The following algorithm is used to estimate the ECQ Supply Point component from the Flexi-SOQ.

Repeat the following for each curtailed Supply Point

Step 1

Obtain Flexi-SOQ for the relevant System Exit Points.

The Flexi-SOQ is calculated from a Scaling Ratio (SR) that allows for forecast demand to be less than the 1-in-20 peak forecast demand i.e. the Registered Supply Point Capacity. The Ratio is calculated from the aggregated forecast demand divided by the aggregated Registered Supply Point Capacity, i.e. the SOQ, for the relevant System Exit Points.

SOQi ~ Supply Point Offtake Quantity at Exit Point i (kWh)

Flexi-SOQ ~ Flexi Supply Point Offtake Quantity at Exit Point i (kWh)

SRj ~ Scaling Ratio for LDZ j (-)

$SR_j = (\text{Aggregate Forecast Demand for all relevant System Exit Points}) / (\text{Sum of RSPC for all relevant System Exit Points})$

Flexi- SOQi = SRi * SOQi

Step 2

Calculate an estimate...

CDi ~ Curtailment Duration at Exit Point i (hours)

ECQi ~ Emergency Curtailment Quantity component for Exit Point i in LDZ j(kWh)

$ECQ_{ij} = \text{Flexi- SOQ}_i * (CD_i/24)$

3.3. Supply Point Offtake Quantity (Registered Capacity) ~ SOQ

The following algorithm is used to calculate an estimate of the ECQ Supply Point component from the SOQ.

Repeat the following for each curtailed Supply Point

Step 1

Obtain Registered Supply Point Capacity for the relevant System Exit Point.

RSPCi ~ Registered Supply Point Capacity at Exit Point i (kWh)

Step 2

Calculate estimate...

CDi ~ Curtailment Duration at Exit Point i (hours)

ECQi ~ Emergency Curtailment Quantity component for Exit Point i (kWh)

$ECQ_i = RSPC_i * (CD_i/24)$

4. NTS Directly Connected sites,

4.1 As indicated in paragraph 2 above, the following steps will apply in estimating the ECQ:

For the 1st Gas Day the estimate of the ECQ will be based on:

- i) For those relevant System Exit Points for which OPNs are provided to the Transporter, the estimate will be based on the OPN prevailing at the time of the emergency curtailment;
- ii) For those relevant System Exit Points that do not provide OPNs or, where OPNs are not available, the estimate will be based on historical allocations as described under 3.1 above;
- iii) Where neither OPNs nor historical allocations are available, the estimate will be based on:

A users Firm NTS Exit Flat Capacity entitlement at affected offtake(s)

For the 2nd and subsequent Gas Day(s) the ECQ will be based on

- iv) Historical allocations for all relevant System Exit Points as described under 3.1 above or;
- v) Where historical allocations are not available, the estimate will be based on:

A users Firm NTS Exit Flat Capacity entitlement at affected offtake(s)

5. Shared Supply Meter Points

For non VLDMC Shared Supply Meter Points, the Users (or agent on behalf of the Users) can provide a User allocation method, on notification of a relevant Emergency, which applies unless Users have called User "interruption". If no User allocation method is available a Transporter derived ECQ element would be used e.g. historical allocation.

For VLDMC Shared Supply Meter Points, the Users (or agent on behalf of the Users) can provide an allocation method, on notification of a relevant Emergency, which applies unless Users have called User "interruption". If no User allocation method is available, a Transporter derived ECQ element would be used e.g. historical allocation.

6. Information Flow

The UNC places an obligation on all relevant Transporters to calculate the ECQ component for each relevant System Exit Point and pass the data, aggregated by User, on to National Grid NTS.

Each Transporter will aim to provide its element of a Users ECQ to National Grid NTS in its role as residual system balancer, as soon as is reasonably practicable after Curtailment has been initiated.

The residual system balancer would be responsible for collating and aggregating the ECQ elements from all Transporters, generating the trade price and initiating the trades, based on the aggregated Transporter ECQ components, and calculating the trade payments. Payments will be made via Xoserve.

National Grid NTS will endeavour to enter the ECQ trade as soon as reasonably practicable after Curtailment has been initiated and will update the quantity as each Transporters' component of the ECQ becomes available.

7. Impact and Notification of User “Interruption”

A User should notify the Transporter of User “interruption” only if the Supply Point stops the offtake of gas under any commercial arrangement with that User. If a User offers demand reduction via a physical or locational action on the OCM then the initiated demand “interruption” should be covered by a P70.

If a User “interrupts” a Shared Supply Meter Point then it should not issue a P70 if it intends to act as the User for that System Exit Point under other contractual arrangements such as the purchase of gas by the end-consumer.

If a Supply Point was subject to an operationally validated P70 notification, prior to the time of the Curtailment notice sent under the powers of the NEC, then the ECQ component will be set to zero.