

Gas Security of Supply Significant Code Review

Business Rules

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Assumptions

- For each day within a Gas Deficit Emergency (GDE), where the GDE has progressed to Stage 2 but Firm Load Shedding has not occurred, the cashout price for short and long Users will be 'dynamic':
 - The cash out price for each User's short balance position will be the daily System Marginal Price (Buy), subject to a cap equating to Value of Lost Load (VoLL). (This cap will not apply for the first day in which the NEC declares a Stage 2 emergency); and
 - the cash out price for each User's long balance position will be the daily System Average Price, subject to a cap equating to VoLL (This cap will not apply on Day 1 of stage 2 of the GDE).
- Cashout for long balance positions will continue to be dynamic throughout the GDE as described above.
- Cashout for short balance positions will continue to be dynamic prior to Firm Load Shedding. Thereafter, the System Marginal Price (Buy) will be set at VoLL.
- Where a GDE has begun and finished within the same calendar month all charges described within these business rules shall be included in that month's Energy Balancing Invoice. If the GDE spans across two calendar months the daily charges described within these business rules shall be included within the relevant M+23 Energy Balancing Invoice.
- Funds required to pay End Consumers for Involuntary Demand Side Response (DSR) will be deemed to be Balancing Neutrality Charges.
- In accordance with prevailing Balancing Neutrality arrangements all Balancing Neutrality Charges (all charges to National Grid NTS and Payment from National Grid NTS) will be netted off with any imbalance;
 - If the net neutrality position is in shortfall; these costs, the DSR Fund imbalance, will in the first instance be recovered from Users that have a negative imbalance position on the relevant gas flow day. If these 'targeted' costs do not fully recover the DSR Fund Imbalance, the remaining shortfall will be recovered via neutrality.
 - If the net neutrality position is in surplus; the surplus funds will be smeared to Users through the existing Neutrality process.
- DSR Payments to Users, for the settlement of End User payments for involuntary DSR curtailment, will not be executed within the settlement timescales prescribed for the relevant Energy Balancing invoices. All DSR funds will reside within the Neutrality account; and will be settled on a subsequent payment timescales, to ensure that all payments into the DSR Fund have been recovered.
- Non-payment of a User's Energy Balancing Invoice may result in a shortfall in the Neutrality account. In this case the usual arrangements for non-payments would apply i.e. recovered through neutrality.

- Shippers will pass DSR Payments onto relevant suppliers as soon as reasonably practicable who will then in turn credit consumers' accounts (as soon as reasonably practicable). (This obligation will be governed through licence changes rather than code changes.) If consumers have changed suppliers prior to receiving their DSR Payment, it would be the Shipper(s) and Supplier(s) at the time of DSR Payments are allocated that would receive the money and be required to pass it on.
- Post Oct 2012 GDE stages (as proposed in Modification 0412 – 'Changes to the Stages of Emergency Resulting from Changes introduced by Exit Reform') are used to reference GDE stages within these business rules.
- All sites (other than those on commercially interruptible contracts), will receive DSR Payments where instructed to curtail load during GDE Stage 2 Firm Load Shedding. Such sites will receive DSR payments for each day they are curtailed, unless they are within the area of a Local Distribution Zone (LDZ) that is subject to Network Isolation.
- Where Network Isolation has occurred, curtailed sites (both DR and NDR) within the affected area will receive DSR payments for Day 1 of the Network Isolation only. DSR Payments will continue to be made for each day where a relevant site (that is curtailed due to Firm Load Shedding) is NOT within the area of an LDZ that is subject to Network Isolation. Storage and interconnector users will not be entitled to DSR payments. Demand eligible for DSR payments will be referred to as DR (DM sites that are eligible for DSR payments) and NDR (NDM sites that are eligible for DSR payments).
- DR Emergency Curtailment Quantity (ECQ) will be used to calculate the volume for which DSR payments that should be paid within Stage 2 Firm Load Shedding for DR sites (DR sites include voluntary and elective DM sites).
 - If sites with commercially interruptible contracts are curtailed by their transporter following a NEC instruction, these sites would receive the contractually agreed exercise price from their supplier. The quantity would not be included in the DR ECQ process for that supplier and would therefore not receive the System Average Price of the last 30 days but will retain any volume for the purposes of their imbalance position. To this end, suppliers will be required to provide information on commercially interruptible contracts to NGG. Contracts for commercial interruption for NDR will not be able to be included in this process.
- NDRs will receive DSR payments based on the overall NDR curtailed volume, within the relevant LDZ, pro rata'd over the total SOQ value of all curtailed NDR sites within the LDZ.
- In respect of each relevant LDZ; the relevant NDR Users' market balance calculation will include an NDR ECQ that accounts for the NDR demand curtailment volumes above that which has been allocated through Gemini. The NDR ECQ will be based on the the forecast undertaken prior to the NEC instruction to the DN to reduce load. The NDR ECQ will be enacted in the form of a 'deemed' trade with the SO. The NDR ECQ will determine the payment for additional gas that is 'contracted' to be delivered by NDR Users; the User will receive 30 day SAP for this gas.

- On the GDE day; where the NEC has instructed the DN to reduce offtake to an LDZ; and NDR curtailment is likely to reduce NDR Allocation, Users' will be informed of the revised forecast demand that includes an NDR ECQ, which reflects the additional quantity of gas that is required to be delivered.
- The NDR ECQ used in the calculation of market imbalances for NDR Users will only be used for Day 1 of the demand curtailed as part of Network Isolation. If additional Network Isolation is initiated on Day 2, only demand curtailed as part of this additional Day 2 Network Isolation will be included in the calculation. For avoidance of doubt, a site will only be factored into the NDR ECQ calculation on the first day it is subject to Network Isolation.
- Where, following Stage 3 Network Isolation, the number of Supply Points affected by Network Isolation becomes clearer, a process will allow for the amended list of Supply Points to receive DSR payments.
- For the purposes of calculating imbalances, if NDR sites are asked to reduce or curtail the flow of gas to the site, the default assumption is that the customer obliges.
- For the purposes of calculating DSR payments if large NDR sites are asked to reduce or curtail the flow of gas to the site, the default assumption is that the customer has not reduced the flow of gas unless the customer can prove that the site has been curtailed. This does not apply in the case of network isolation, as DNs will be able to verify which customers have been physically isolated from the system.
- For the purposes of these business rules VoLL is equivalent to £0.682428 pence per kWh (£20/Therm).

Business Rules

These business rules explain the proposed changes to the Uniform Network Code associated with the Gas Security of Supply – Significant Code Review.

1. Overview

In the event of a GDE (stage 2 and above) being declared by the National Emergency Coordinator (NEC) the following shall apply;

1.1. Prior to Firm Load Shedding;

- (a) In the case of short Users the SMP Buy price for the day will apply with no cap.
- (b) The day after stage 2 of the GDE has been declared, the SMP Buy price will be subject to a cap equating to Value of Lost Load (VoLL).
- (c) In the case of long Users the SAP for the day will apply but will be subject to a cap equating to VoLL from the Day 2 of stage 2 onwards.

1.2. Once the GDE has progressed to Firm Load Shedding within Stage 2 (and above):

- (a) In the case of short Users, the cash out price for the day will equate to VoLL until restoration of the market.
- (b) In the case of long Users, the cash out price for each GDE day will be at SAP of the gas flow day (subject to a cap equating to VoLL until restoration of the market).

Table 1: Cash out applicable to short Users (prior to Firm Load Shedding) and long Users (from stage 2 onwards)

	Short Users (GDE stage 2 Day 1)	Short Users (after GDE stage 2 Day 1)	Long Users (GDE stage 2 Day 1)	Long Users (after GDE stage 2 Day 1)
Maximum Price (cap)	None	VoLL	None	VoLL
Price	SMP (Buy) of the day	SMP (Buy) of the day	SAP of the day	SAP of the day

For Clarity:

*“As specified in the UNC section F1.1.2 (d) **“Balancing Neutrality Charges”** are amounts payable by or to National Grid NTS, so that it does not gain or lose by the payment and receipt of Market Balancing Action Charges, Daily Imbalance Charges, Scheduling Charges*”

1.3. The total DSR Fund will be included as a Balancing Neutrality Charge, however, the DSR payments from the account to the Users, to settle End Consumers DSR costs, will not be settled within the timescales of the relevant Energy Balancing Invoice payment due date.

1.4. The DSR Fund will reside in the Neutrality account and settled under separately prescribed timescales of 4th EBI following the relevant EBI.

- 1.5. In accordance with the Neutrality arrangements, all Balancing Neutrality Charges, payments and receipts, are netted off. Any residual negative (shortfall) imbalance in the net neutrality position will be deemed to be a DSR Fund Imbalance and recovered in accordance with paragraph 4.4.
 - 1.6. Any DSR Fund Imbalance Charges will be accounted for and settled within the same Energy Balancing Invoice as the relevant Balancing Neutrality Charges.
 - 1.7. LDZ Forecasts provided by DNs shall reflect the reduction in demand associated with NDR reduction in the LDZ.
 - 1.8. With the exception of Supply Points with a commercially interruptible contract, where a User's Supply Point has been curtailed during Stage 2 or Stage 3 of a GDE, National Grid NTS will pay that User a DSR Payment in relation to each relevant Supply Point. DSR Payments will only pay out those funds available at the time of settlement; if insufficient funds are available to fully pay the DSR Payment, all payments will be pro-rated. DSR payments will not be made to storage curtailment or to interconnector curtailment.
 - 1.9. Where a Supply Point with a commercially interruptible contract is curtailed as part of Firm Load Shedding, the DR ECQ process will not apply for the contracted volume and no corresponding DSR Payment will be allocated for the contracted volume.
 - 1.10. For the purposes of these business rules VoLL is equivalent to £0.682428 per kWh (£20/Therm).
2. Market Imbalance Calculation applicable in the event of a GDE
- 2.1. For Stage 2 of a GDE, the calculation to determine each Users market imbalance will be calculated using the following:
 - (a) The DR ECQ methodology will be used to calculate DR volumes;
 - (b) A new NDR ECQ methodology will be used to calculate NDR volumes (see below).
 - 2.2. Where NDR demand has been curtailed, a new NDR ECQ methodology will be implemented that will 'uplift' a NDR Users UDQO to account for the drop in demand that would have been allocated to that specific User were no NDR curtailment to have taken place. This NDR ECQ quantity will be based on the difference between the forecast NDR demand for the gas flow day and the NDR allocation for the gas flow day.
 - 2.3. The NDR ECQ will be enacted in the form of a 'deemed' trade with the SO; and will be used to determine payment for additional gas that is 'contracted' to be delivered by NDR Users.
 - 2.4. The User will be paid the NDR ECQ multiplied by the average of the previous 30 days SAP.
 - 2.5. The NDR ECQ used in the calculation of market imbalances for NDR Users will only be used for Day 1 of the NDR demand curtailed as part of a Network Isolation. If additional Network Isolation is initiated on Day 2, only demand curtailed as part of this additional Day 2 Network Isolation will be included in the calculation.
 - 2.6. For stage 2, where NDR demand has been curtailed and is likely to reduce the total LDZ's NDR allocation quantities, the NDR ECQ will be calculated for

each day that the relevant NDR demand is curtailed, or affects the NDR allocation.

3. Demand Side Response Fund and Payments

3.1. The DSR Fund will be calculated using the following formula:

$$\text{DSR Fund} = \text{DR curtailment Funds} + \text{NDR curtailment Funds}$$

Where:

$$\text{DR curtailment Funds} = \text{VoLL} \times \text{applicable DR curtailment volume}$$

And:

$$\text{NDR curtailment Funds} = \text{VoLL} \times \text{applicable NDR curtailment volume}$$

Applicable DR and NDR curtailment volume is calculated as in Appendix A.

3.2. Each User will receive, on behalf of each curtailed end consumer, a Demand Side Response Payment for each applicable Supply Point curtailed during Stage 2 and 3 of a GDE in line with the following;

$$\text{User DSR Payment} = \text{Users DR curtailment Payment} + \text{Users NDR curtailment Payment}$$

Where:

$$\text{Users DR curtailment Payment} = \text{VoLL} \times \text{Users DR curtailment payment volume}$$

And:

$$\text{Users NDR curtailment Payment} = \text{VoLL} \times \text{Users NDR curtailment payment volume}$$

Users DR curtailment payment volume is calculated using the DR ECQ methodology.

Users NDR curtailment payment volume =

$$\frac{\text{Total curtailed NDR volume}}{\sum \text{SOQs for all curtailed NDR supply points}} \times \sum \text{Users consumers specific SOQ}$$

- (a) Subject to paragraph 3.2(b), for each day within Stage 2 and above of a GDE, where a Firm Supply Point is curtailed as part of Firm Load Shedding, the User will receive a Demand Side Response Payment for each relevant Supply Point as calculated using the methodology in 3.2.
- (b) For the avoidance of doubt, for each day within Stage 2 and above of a GDE, where a User's Supply Point, with a commercially interruptible contract, is curtailed as part of Firm Load Shedding, the User / consumer will receive no Demand Side Response Payment for the contracted volume.

- (c) Sites curtailed as part of a GDE other than those identified in paragraph 3.2(b) will be identified in line with the process described in Section 6 of these business rules.
 - (d) Subject to paragraph 3.2(b), where a Firm Supply Point is curtailed as part of Network Isolation, the User will receive a Demand Side Response Payment for each relevant Supply Point as calculated using the methodology in 3.2 for the first day of curtailment only.
- 3.3. The emergency curtailment volume for Supply Points with a commercially interruptible contract shall be calculated using the DR ECQ methodology using the information as stated in Section 7 of these Business Rules.
- 3.4. Xoserve will determine each Users aggregate DSR Payment for all Supply Points across all days of the GDE in accordance with the DSR Payment calculation (see para 3.2).
- 3.5. NDR Supply Points which participate in Stage 2 Firm Load Shedding shall provide information to prove that the flow of gas to the Supply Point was reduced or curtailed to the level determined in accordance with paragraph 3.2. If no proof is provided, DSR payment will not be made.
- 3.6. Where there is more up to date information on what sites have been curtailed, the following will apply:
- a. Where additional sites have been identified as having been curtailed above that identified in the initial DN DSR curtailment information provision, the additional payment, calculated using para 3.2 above, will be recovered from neutrality and go towards topping up the DSR Fund. These additional funds will be passed onto the relevant User as an additional DSR Payment;
 - b. Where it has been identified that there is a reduction in the number of sites that have been curtailed, the DSR Fund will return the equivalent money to neutrality. If a DSR Payment has been made to a User that therefore should not have been made, this will be recovered from the User.

This process will be run each month, for the first 4 months following the end of an emergency and then on an ad-hoc basis dependent on information received.

- 3.7. Interest accrued by the DSR Fund will be passed through neutrality.

4. DSR Fund

- 4.1. The total DSR Fund account will be defined as a Balancing Neutrality Charge, however the “DSR payments” from the account to the Users, for the settlement of End Consumers DSR costs, will not be settled within the timescales of the relevant Energy Balancing invoice payment due dates defined within the UNC Section S.
- 4.2. The DSR Funds will reside in the Neutrality account and settled in separately prescribed timescales of 4th EBI.
- 4.3. As part of the Neutrality mechanism all Balancing Neutrality Charges, payments and receipts, are netted off:

- (a) A residual of the net neutrality position which is in surplus will be paid, through the Neutrality mechanism, to Users based throughput for the relevant gas day.
 - (b) A residual of the net neutrality position that is in shortfall will be deemed to be a DSR Fund Imbalance and recovered in accordance with paragraph 4.4.
- 4.4. Where there is a DSR Fund Imbalance the following arrangements will apply:
- (a) Users with a negative Daily Imbalance Volume shall pay a DSR Fund Imbalance Charge, (in accordance with paragraph 4.5);
 - i. following the application of the DSR Fund Imbalance Charge;
 - ii. where there continues to be a shortfall in DSR Fund Imbalance the shortfall will be settled through the Neutrality mechanism;
 - iii. where there is a surplus in DSR Fund Imbalance the surplus will be smeared back to all Users through Neutrality mechanism.
- 4.5. For the purpose of calculating the DSR Fund Imbalance Charge; a Unit DSR Fund Imbalance Price will be determined.
- (a) The Unit DSR Fund Imbalance Price shall be the sum of the DSR Fund Imbalance divided by the greater of; the total volume of DSR curtailed through Firm Load Shedding or Network Isolation for the relevant day; and the total volume of Users short imbalance.
 - (b) The DSR Fund Imbalance Charge will be the Unit DSR Fund Imbalance Price multiplied by the User's total negative Daily Imbalance volume.
- 4.6. Users with a negative Daily Imbalance will pay National Grid NTS a DSR Fund Imbalance Charge. The DSR Fund Imbalance Charge will be in addition to the emergency imbalance charge.
5. Settlement Timing
- 5.1. Imbalance Charges and DSR Fund Imbalance Charges will be included within the same relevant Energy Balancing Invoice.
 - 5.2. DSR Payments to Users, for the settlement of End Consumers payments for involuntary DSR curtailment, shall be invoiced in a subsequent Energy Balancing Invoice within the defined DSR payment timescales of 4th EBI following issue of the relevant EBI. If there is a shortfall in the DSR Fund when payment is due, the DSR Payments will only credit Users the money available. Therefore, each Users DSR Payment will be pro-rated using the available DSR Fund (i.e. money recovered up to the 4th EBI) and the value of the DSR Fund if all monies had been received. Residual DSR payments will be invoiced in subsequent EBIs as sufficient funds become available.
 - 5.3. If a GDE spans across two or more calendar months, the Imbalance Charges calculated in paragraph 2 shall be included within the relevant (separate) Energy Balancing Invoice and not invoiced together.
 - 5.4. For GDEs that span across two or more calendar months, the DSR Payments to Users will be paid in a single invoice after the GDE has ceased (see 5.2 for expected timescales).
 - 5.5. Users will be obliged to pass the relevant DSR Payments on to their suppliers (as soon as reasonably practicable), which in turn will be obliged to

pass these on to customers (as soon as reasonably practicable), e.g. through a rebate on the next energy bill. This process will be enforced through licence conditions.

5.6. Xoserve will administer the reconciliation outlined in paragraph 3.6.

6. Demand Side Reduction information

6.1. This section explains the process to identify the supply points curtailed in the event of a GDE escalating.

For Firm Demand Curtailment (as part of stage 2):

6.2. In the event of a firm demand side curtailment occurring as part of a GDE the relevant Gas Transporter (NTS and DN) shall determine each site affected for each day of the GDE and identify for each site;

- (a) Meter Point Reference Number; and
- (b) For DR sites, volume of demand curtailed (it is expected that this volume will be the same as that calculated for DR ECQ);
- (c) For NDR sites, User name(s).

6.3. This information will be passed onto Xoserve no later than 5 business days after the curtailment has occurred.

For Network Isolation (as part of stage 3):

6.4. In the event of a Network Isolation occurring within an LDZ as part of a GDE the relevant Gas Transporter (DN) shall determine each NDR property affected by the Network Isolation for each day of the GDE and identify for each property;

- (a) Meter Point Reference Number; and
- (b) Postcode and house number.

Xoserve will use this information to determine the following:

- (c) Meter Point specific Supply Offtake Quantity (SOQ).

6.5. No later than 5 business days following the start of a GDE, all Gas Transporters will confirm to Xoserve whether or not Network Isolation occurred within one or more of its Local Distribution Zones and, if Network Isolation has occurred, provide the accompanying Network Isolation information as stated in paragraph 6.4(a) & (b) above.

6.6. If, following the submission of the information described in paragraph 6.4, the relevant Transporter is aware of an amendment to this information the relevant Transporter shall submit an amended version of this information to Xoserve as soon as is reasonably practical. This information shall feed into the process outlined in para 3.6.

6.7. If National Grid NTS is unable to process the relevant DSR Payments before submitting the 'final' Energy Balancing Invoice as described in paragraphs 5.1 and 5.2, these payments will be processed within a proceeding Energy Balancing Invoice and shall be funded by Neutrality.

6.8. National Grid NTS will, where a User has received a Demand Side Response Payment for one or more of its smaller NDR Supply Points, provide to each User the relevant supporting information to support the

onward payment of the DSR Payment to the End Consumer. This supporting information will include the information described in 6.2(a) and 6.2(b).

7. Where a Supply Point with a commercially interruptible contract is curtailed as part of Firm Load Shedding

7.1. Suppliers shall, where a commercially interruptible contract has been agreed between the Supplier and end consumer, submit to National Grid NTS, 30 days prior to the start of October each year, or, as soon as is reasonably practical after the information is known but prior to the emergency occurring, the following information relating to the relevant Supply Point

- (a) The quantity of gas calculated as available for reduction or discontinuance per day "Daily Curtailment Volume" (*maximum can be no more than SOQ*);
- (b) Details of the specific site, i.e. site name, postcode, LDZ site is located and meter point reference number;
- (c) Relevant User / supplier name and contact information; and
- (d) Any other remarks that will need to be known e.g. limitations in time to turn down.

7.2. For sites with partial commercially interruptible contracts, the same process will be used as outlined in para 7.1. In addition to the information outlined in para 7.1, the following additional information will be required:

- (a) The quantity of gas calculated as available for reduction or discontinuance per day "Daily Curtailment Volume" as a proportion or percentage of the overall demand; or
- (b) The quantity of gas demand remaining post curtailment.

7.3. The information submitted in 7.1 and 7.2 will be used to determine the volume of demand that will be assumed to be interrupted prior to the curtailment of firm demand in stage 2.

7.4. Xoserve will maintain a register of all Supply Points submitted to it by Users in accordance with paragraph 7.1 submitted to it by Users in accordance with paragraph 7.1.

7.5. Where a Supply Point with a commercially interruptible contract is curtailed as part of Firm Load Shedding, the relevant User shall receive no Demand Side Response Payment for the volume of contracted commercial demand interruption as calculated in 7.3. The DR ECQ methodology will not apply to this volume of contracted commercial interruption and as such the DR demand shall be assumed to have been reduced by this volume.

8. Process Closeout

8.1. The process will close out in line with the current provisions in Section S, 1.8, i.e. 18 months after the invoice due date. The close out of the process will mean:

- (a) No additional curtailment information will be taken into account post close out date;
- (b) Any surplus / deficit in the DSR Fund will be recovered from / passed onto neutrality at the next settlement date;
- (c) No additional DSR Payments will be made to Users or onto consumers;
- (d) No additional payments will be recovered from Users or Neutrality.

APPENDIX A

Emergency Curtailment Volume Calculation

A1. DSR Volumes

- A1.1 The daily Emergency Curtailment Volumes will be calculated using the following formula:

Applicable DR curtailment volume + Applicable NDR curtailment volume

- A1.2 The following information is required:

- (a) DM metered volumes;
- (b) LDZ metered volumes;
- (c) Forecast demand prior to NEC demand curtailment instruction.

- A1.3 For DR applicable curtailment volume :

DR demand side curtailment volume = The expected offtake for the relevant day, using same methodology as the DR ECQ process – Emergency Curtailment Volume

For days of part curtailment, pro-rated volumes shall be used

- A1.4 For NDR demand applicable curtailment volume:

Applicable NDR curtailment volume = (Forecast demand – End of day metered demand)

End of day metered demand = LDZ metered at the end of the day – DM demand

Forecast demand = Forecast demand prior to NEC demand curtailment instruction