Network Transmission System
Gas Supply Emergency / Gas SCR Overview



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Agenda

1. What is a Network Gas Supply Emergency
2. Classifications of Network Gas Supply Emergencies
3. Gas Emergency Legislation & Procedures
4. Role of the Network Emergency Coordinator (NEC)
5. Constraint Management (Pre-emergency)
6. Network Gas Supply Emergencies stages
7. Exercise Wolf
8. Significant Code Review (SCR)
9. Emergency Cash out arrangements

What is a Network Gas Supply Emergency?

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*"A potential or actual **supply emergency** on the **primary system**"*

(NEC Safety Case)

Supply emergency: As defined by the Gas Safety (Management) Regulations 1996 (GS(M)R), an emergency endangering persons and arising from a loss of pressure in a network or any part thereof.

Primary system: The National Transmission System (NTS)

In other words…

A Network Gas Supply Emergency is a potential or actual loss of pressure on the network, affecting the NTS, which could endanger people.

Network Gas Supply Emergencies

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- Affects the National Transmission System
- Three types:

1. Gas Deficit Emergency (GDE)

- Could be caused by a shortage of beach or storage gas, failure of market arrangements, Supply shortage
- National supply < National Demand

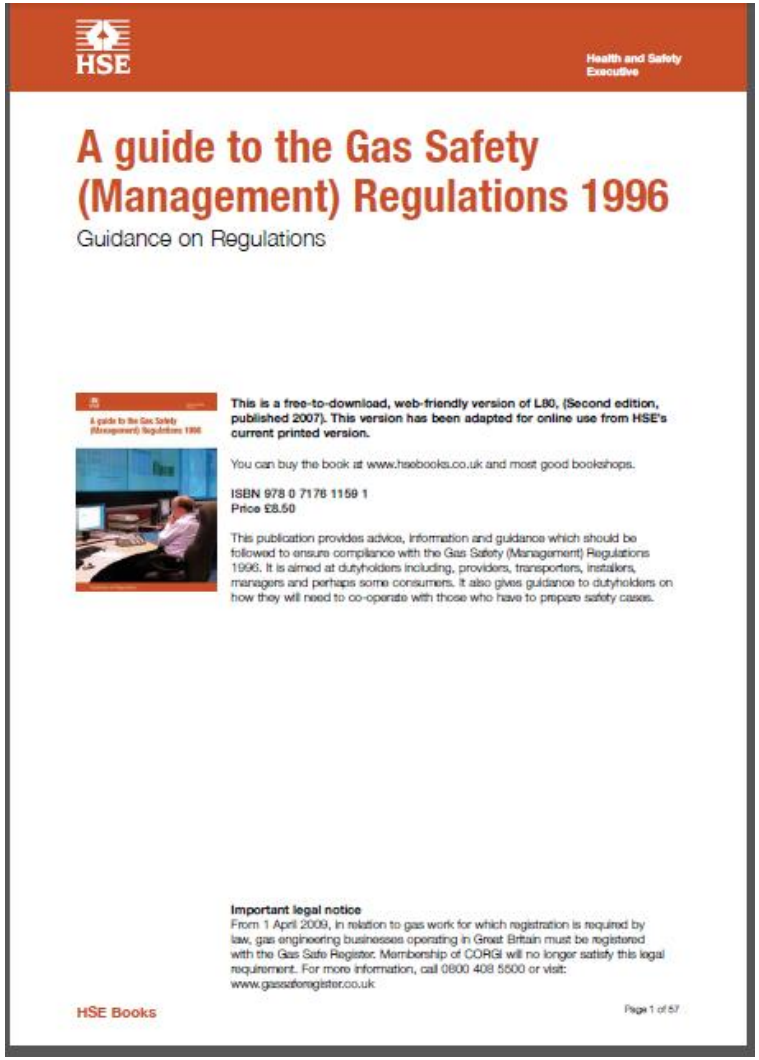
2. Safety Monitor Breach (SMB)

- Not enough gas in store to safely isolate non-protected loads
- Not enough gas in store to support protected loads in a 1in50 winter

3. Critical Transportation Constraint (CTC)

- Could by caused by damage to a NTS pipeline or compressor station etc
- A physical failure that impedes gas transmission

GS(M)R



HSE

Health and Safety Executive

A guide to the Gas Safety (Management) Regulations 1996

Guidance on Regulations

This is a free-to-download, web-friendly version of L80, (Second edition, published 2007). This version has been adapted for online use from HSE's current printed version.

You can buy the book at www.hsebooks.co.uk and most good bookshops.

ISBN 978 0 7176 1159 1
Price £8.50

This publication provides advice, information and guidance which should be followed to ensure compliance with the Gas Safety (Management) Regulations 1996. It is aimed at dutyholders including, providers, transporters, installers, managers and perhaps some consumers. It also gives guidance to dutyholders on how they will need to co-operate with those who have to prepare safety cases.

Important legal notice
From 1 April 2009, in relation to gas work for which registration is required by law, gas engineering businesses operating in Great Britain must be registered with the Gas Safe Register. Membership of CORGI will no longer satisfy this legal requirement. For more information, call 0800 408 5500 or visit: www.gassaferegister.co.uk

HSE Books

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"All gas transporters must prepare a safety case, submit to HSE and have it accepted before commencing operations.

Where two or more gas transporters are operating on a network, there should be a sole **network emergency co-ordinator (NEC)** for that network whose safety case has been accepted by the HSE"

Regulation 3(1)

Network Emergency Coordinator (NEC)

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Role performed by National Grid but NEC independent of System Operator

Co-ordination of actions of gas industry to prevent or minimise safety consequences of a supply emergency

Independent from any commercial interests of industry, including National Grid. Focus is on **public safety**

Network Emergency Coordinator (NEC)

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Industry parties have a duty to co-operate with the NEC under GS(M)R

NEC has the authority to direct gas consumers to reduce or cease consumption or increase supply within a given timeframe

HSE
Health & Safety Executive

Failure of NTS Users to co-operate with NEC directions could result in prosecution under criminal law

Constraint Management (Pre-emergency)

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Business as Usual & Constraint Management

- **Shipper Balancing & Incentives**
- **Transporter Balancing/Capacity Actions & Incentives**
- **ANS Messages & Notices**

- Shippers incentivised to balance themselves
- NTS reconfiguration, linepack usage, DN Flow Swaps etc
- National Grid trade to move SMP and drive NTS balance
- Contractual limits enforced (capacity limits, ramp rates etc)
- Scaleback Off-peak Exit Capacity & cease release of further Daily Firm Exit Capacity
- National Grid trade with Shippers to reduce demand (Exit Capacity Buyback, Offtake Flow Reduction & Locational Energy trading)
- Margins Notice
- Issue Gas Deficit Warning to industry
- Utilise Operating Margins Gas if necessary
- **Convene NEMT, engage NEC, Prepare Emergency Strategy**

Network Gas Supply Emergencies

Emergency Stage Framework

Emergency Stages

- NEC Safety Case outlines FOUR emergency stages
- Each stage has defined actions available details of which are available in the Network Gas Supply Emergency Procedure (E1)
- NEC authorises the declaration of each emergency stage
- Actions may be taken out of sequence **but** the stage must be declared before actions taken
- For an NEC to declare an Emergency it is assumed National Grid have taken all Commercial and Physical actions available

Emergency Frameworks Summary

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Business as Usual & Constraint Management

- Shipper Balancing & Incentives
- Transporter Balancing/Capacity Actions & Incentives
- ANS Messages & Notices

GAS DEFICIT WARNING

NEC EMERGENCY ACTIONS

Stage 1 (Potential)

- NTS Linepack Usage
- Distribution Co-operation & Storage Usage
- Gas Specification GS(M)R range widening

Stage 2

- National Grid suspends participation in OCM
- Maximise NTS Supplies
- Firm Load Shedding

Stage 3

- Distribution Network allocation & isolation
- Public Appeals

Stage 4

- Restoration of Supplies

NEC Exercise “Wolf”

When: Wednesday 14th & Thursday 15th October 2015

Principal objectives of NEC Exercise:

- Confirm that industry emergency arrangements remain aligned to the Procedure for Network Gas Supply Emergency (reference T/PM/E/1)
- Test of the National Grid and Oil and Gas Authority upstream Oil and Gas Crisis management procedure, web portal and emergency response communications
- Test of the NEMT emergency strategy development, industry communication and processes through emergency stages 1-3
- Test of the Distribution Networks Allocation and Isolation plans
- Test National Grid’s external emergency communications system
- Test National Grid’s emergency management instruction pro-formas are clear and concise and embedded within the industry’s emergency procedures
- Test that previous NEC exercise recommendations have been included into the emergency procedures

Three separate support exercises:

- Individual Distribution Network Emergency contact details validation and conformance to NEC instruction exercise (firm load shedding)
- Individual Distribution Network Critical Transportation Constraint (CTC) exercises
- National Grid Commercial strategy exercise leading into NEC Exercise Wolf

Gas Security of Supply Significant Code Review (SCR) - Overview

Background

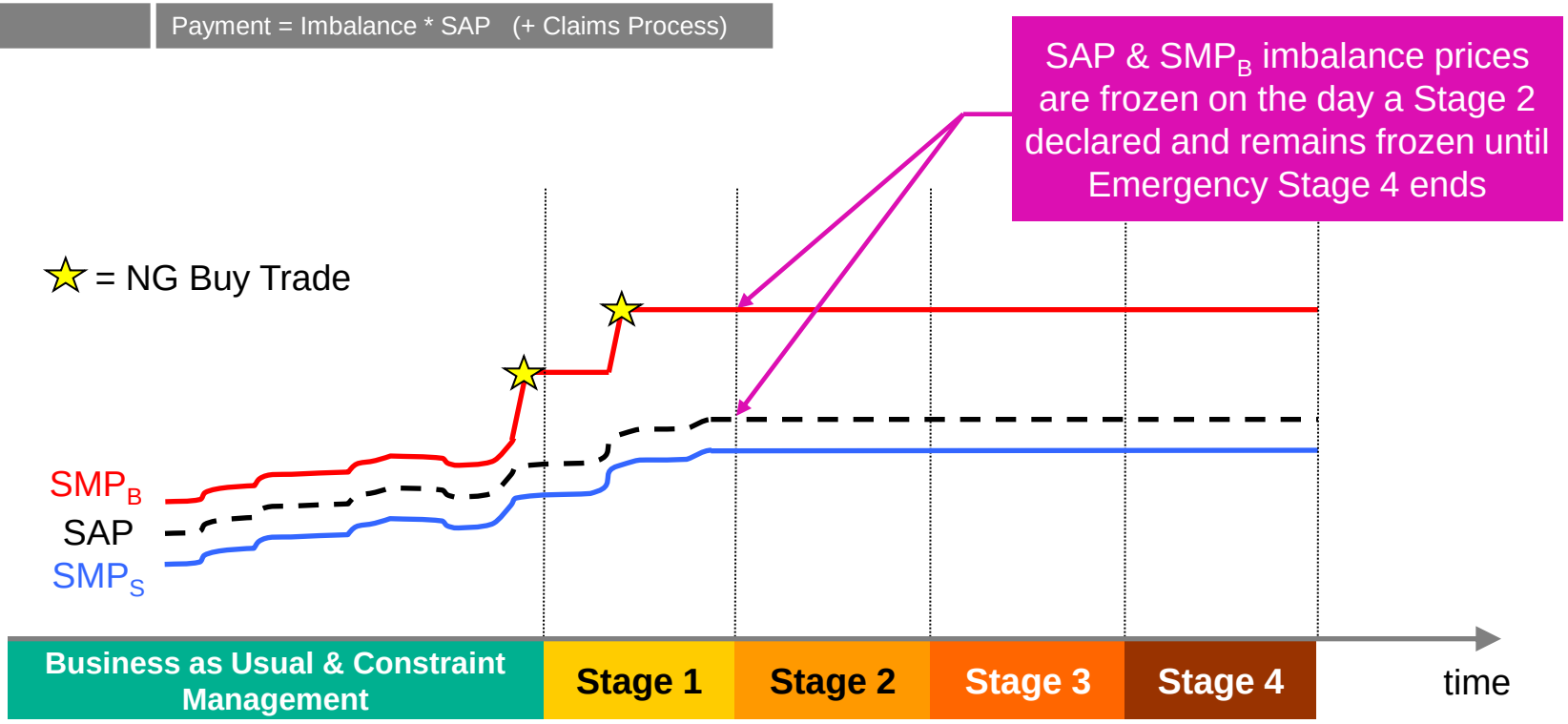
- Project Discovery (2009)
  - Concerns regarding ability to attract gas supplies to GB in an emergency (frozen cashout price)
- SCR Aims
  - Minimise likelihood of a Gas Deficit Emergency (GDE) occurring;
  - Minimise duration if a GDE occurs; and
  - Make payments to firm consumers for curtailment
- SCR duration January 2011 to September 2014
  - Ofgem direction to modify the UNC under Section 36C of the Gas Act 1986; and
  - Supporting modifications of Shipper and Supplier Licences
  - To be implemented by 1 October 2015

Gas SCR - Areas of Change

- Cash out charges in an emergency unfrozen to better reflect cost of consumer interruptions
- Involuntary disconnection payments to consumers are priced into cash-out
- Funds recovered from cash-out charges are used to make payments to consumers for their *involuntary* DSR service they provide
  - DM – 30 day average SAP
  - NDM - £14/therm for first day of disconnection (Stage 3)
    - ~£30/day - only applies to days when any new network isolation is initiated
- Obligation on shippers to pass on compensation to customers

Emergency Cashout Arrangements

Balance Position	Imbalance Charge/Payment
Balanced	Zero
Light	Charge = Imbalance * SMP_B
Heavy	Payment = Imbalance * SAP (+ Claims Process)

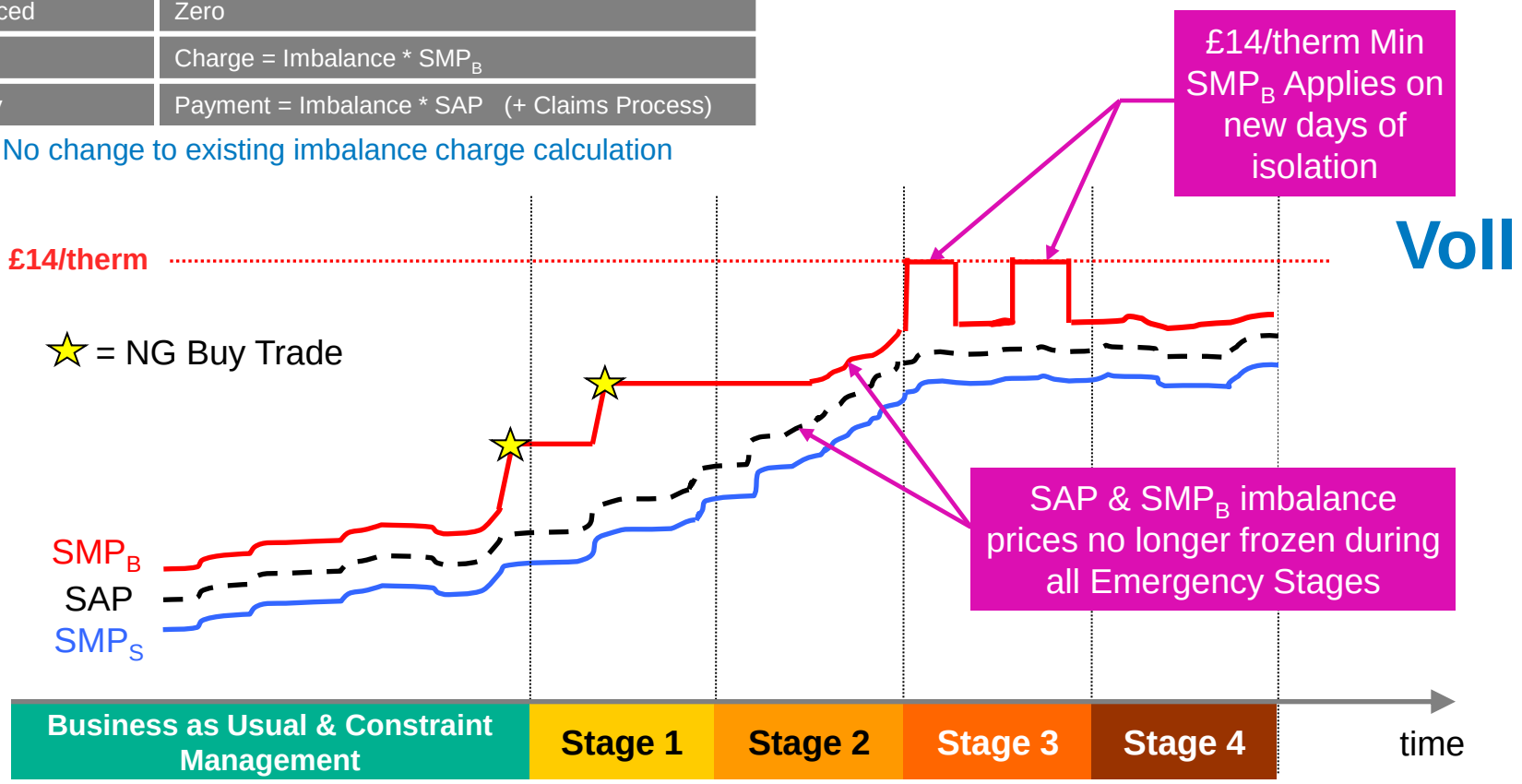


Emergency Cashout Arrangements

2015/16 Onwards (Driven through Ofgem Significant Code Review)

Balance Position	Imbalance Charge/Payment
Balanced	Zero
Light	Charge = Imbalance * SMP_B
Heavy	Payment = Imbalance * SAP (+ Claims Process)

Note: No change to existing imbalance charge calculation



Note: £14/therm minimum SMP_B not applicable if SAP + fixed differential rises above £14/therm

Note: The SMP_B price when entering Stage 2 or 3 is the "floor" price for the remainder of the emergency

SCR Summary

- Changes to the Gas Deficit Emergency Cashout arrangements that recompense End Consumers for involuntary demand side interruption of supply during a GDE
- Implementation date: 1 October 2015
- Operational Impacts to Industry:
  - Changes to cashout arrangements during an Emergency (SAP & SMP prices are un-frozen)
- Industry Activities:
  - Emergency processes are largely ‘AS IS’ for external parties
  - Minor changes to National Grid emergency procedures
  - National Grid Emergency Planning Team engaging with ICE Endex wrt ICE system changes
  - Changes to National Grid notifications to ICE Endex

Further information – emergency procedures

- A range of emergency procedural information is available on the National Grid website

  www.nationalgrid.com/NEC (shortcut link to NG emergency webpages)

- National Grid Transmission Contacts:
  - Gary Dolphin– Emergency Planning Manager (01926 65 6210) gary.dolphin@nationalgrid.com
  - Chris Hewitt – Emergency Planning Officer (01926 65 3846)

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- National Grid Transmission Emergency Planning Team:

  gasops.emergencyplanning@nationalgrid.com