

Gas Contingency Arrangements Seminar 2007

UK Gas Emergency Arrangements

Andy Malins

NEC Officer

Agenda (Key Messages from NEC)

- ◆ Gas Safety (Management) Regulations 1996
 - ◆ UK Legislative framework and the role of the NEC
- ◆ Network Gas Supply Emergencies
 - ◆ Gas Deficit
 - ◆ Transportation Constraint
 - ◆ GS(M)R Safety Monitors
- ◆ Expected regime changes and their impact
- ◆ Emergency Exercises 2007

GS(M)R – 1996

Key Objectives

- ◆ To minimise the risk of an incident occurring through loss of pressure and/or failure to control the secondary and supplementary systems, thus mitigating any potential danger to the general public
 - ◆ Specifically aimed at the safety risk associated with gas distribution and supply
- ◆ Not security of supply or the wider social and economic issues
- ◆ GS(M)R requires ALL consumers to be protected
 - ◆ Industrial and domestic
 - ◆ But is particularly aimed at the most vulnerable consumers (e.g. domestic)

Role of the NEC

- ♦ **The NEC is responsible for coordinating actions of duty holders across the industry to prevent as far as possible a supply emergency developing, and where it cannot be prevented to take timely decisions to minimise the safety consequences.**

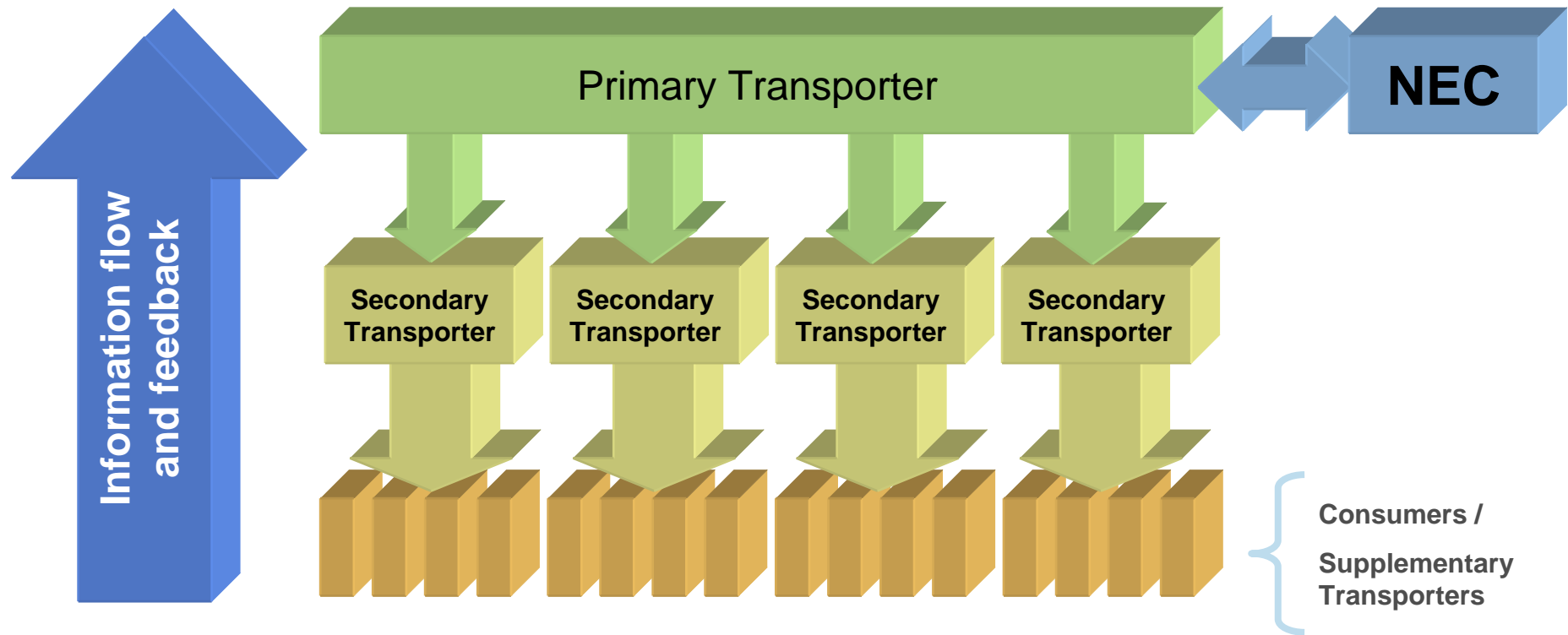
Typical Actions include:

- ♦ **Approve the proposed Emergency Strategy put forward by the NEMT & where applicable declaring each Stage of the NGSE, notifying the industry**
- ♦ **Authorising the admittance of Emergency Specification Gas**
- ♦ **Testing of the procedures**
- ♦ **Review the NGSE and issue report to industry**
- ♦ **NEC will take minimal actions necessary**

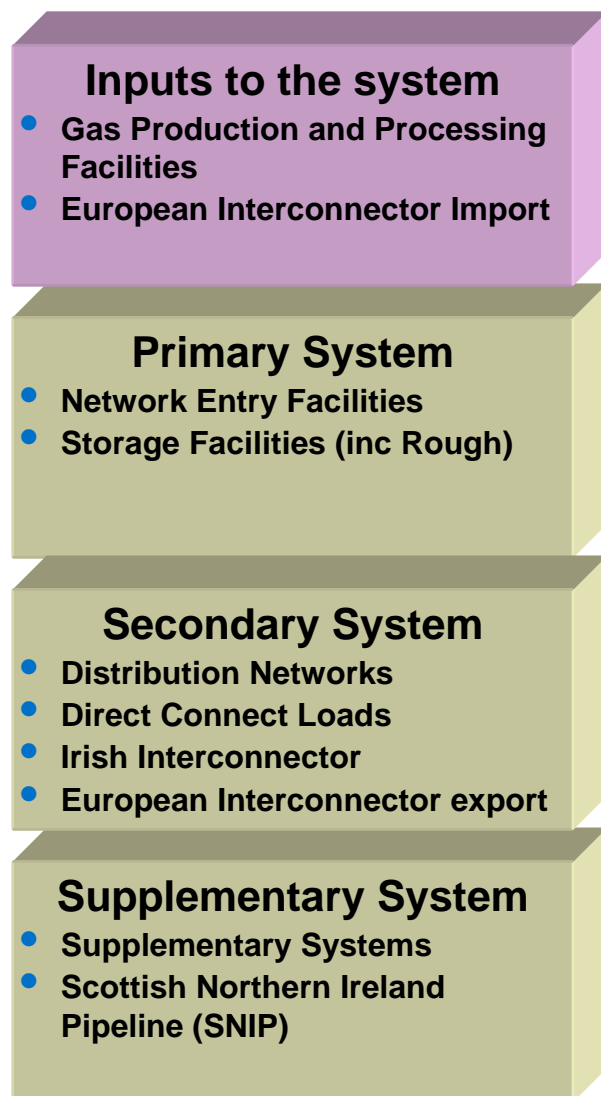
NEC Safety Case

- ◆ Identifies the NEC's responsibilities
- ◆ Defines the Network
 - ◆ Primary
 - ◆ Secondary
 - ◆ Supplementary
- ◆ Identifies types of gas supply emergencies on the primary system (NTS)
- ◆ Identifies arrangements for managing gas supply emergencies
- ◆ Describes the competency requirements of the NEC
- ◆ Current version accepted by the HSE in March 2005

NEC Interfaces



Co-operation under GS(M)R



Gas Production and Processing Facilities are subject to DTI processes

These systems are caught by GS(M)R, which state:-
“This regulation creates a duty on those ... to co-operate with gas transporters and the NEC as far as is necessary to enable them to comply with these regulations.

For a network to operate safely and to minimise the risk of a supply emergency, it is necessary for gas transporters to have appropriate information about the supply and demand of gas on their part of the network, so that the network as a whole remains in balance”

nationalgrid

Network Gas Supply Emergency Classifications

Gas Supply Deficit

- Occurs whenever there is insufficient gas available in the NTS to maintain a National supply / demand balance

Critical Transportation Constraint

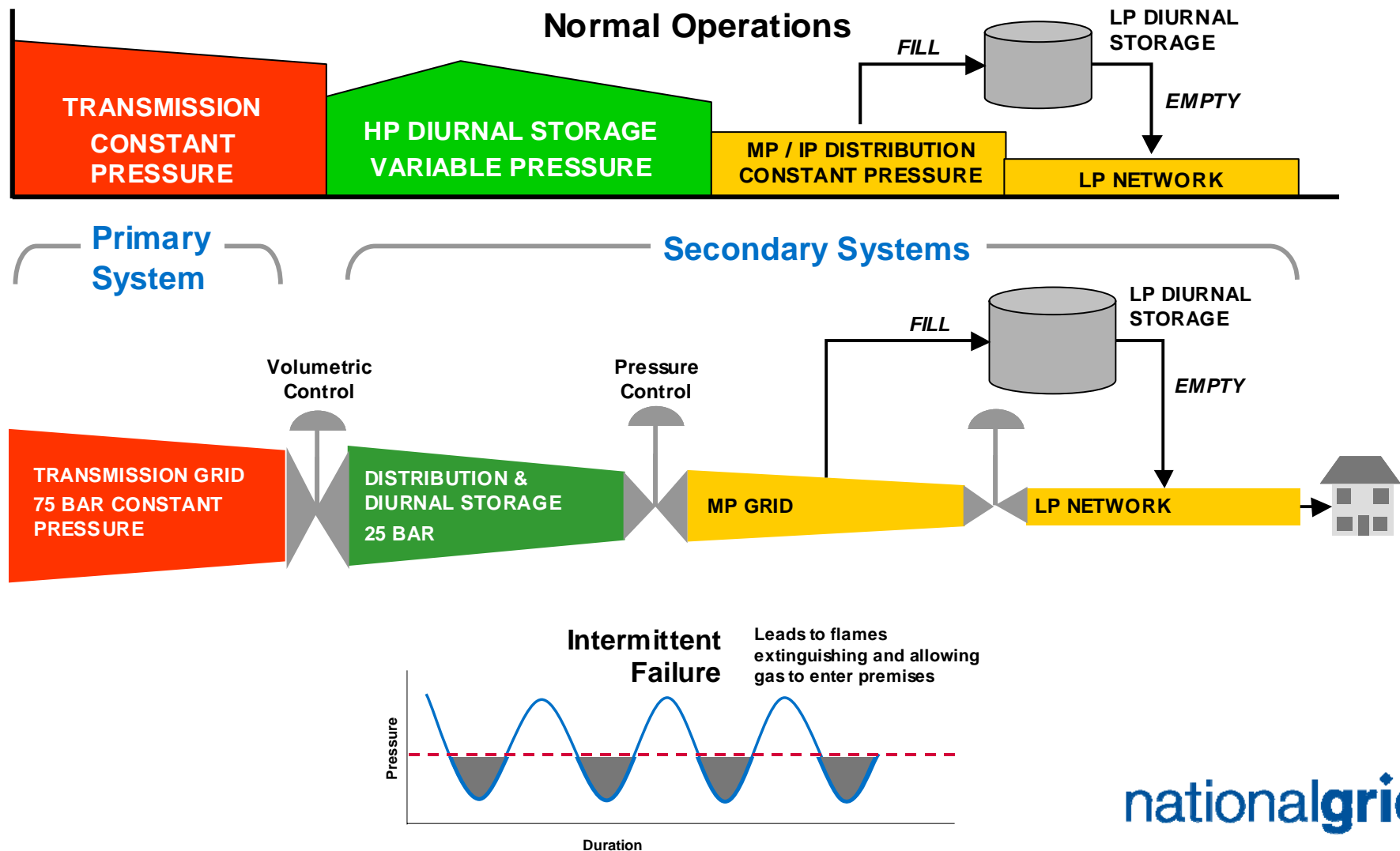
- Occurs when the Primary Transporter is unable to maintain adequate pressures at specific gas offtakes from the National Transmission System (NTS)
- Various options to reduce local demand are available in such an emergency
- A key difference being that the “On-the-day Commodity Market” (OCM) would not be suspended
- Typically short duration

GS(M)R Safety Monitor Breach

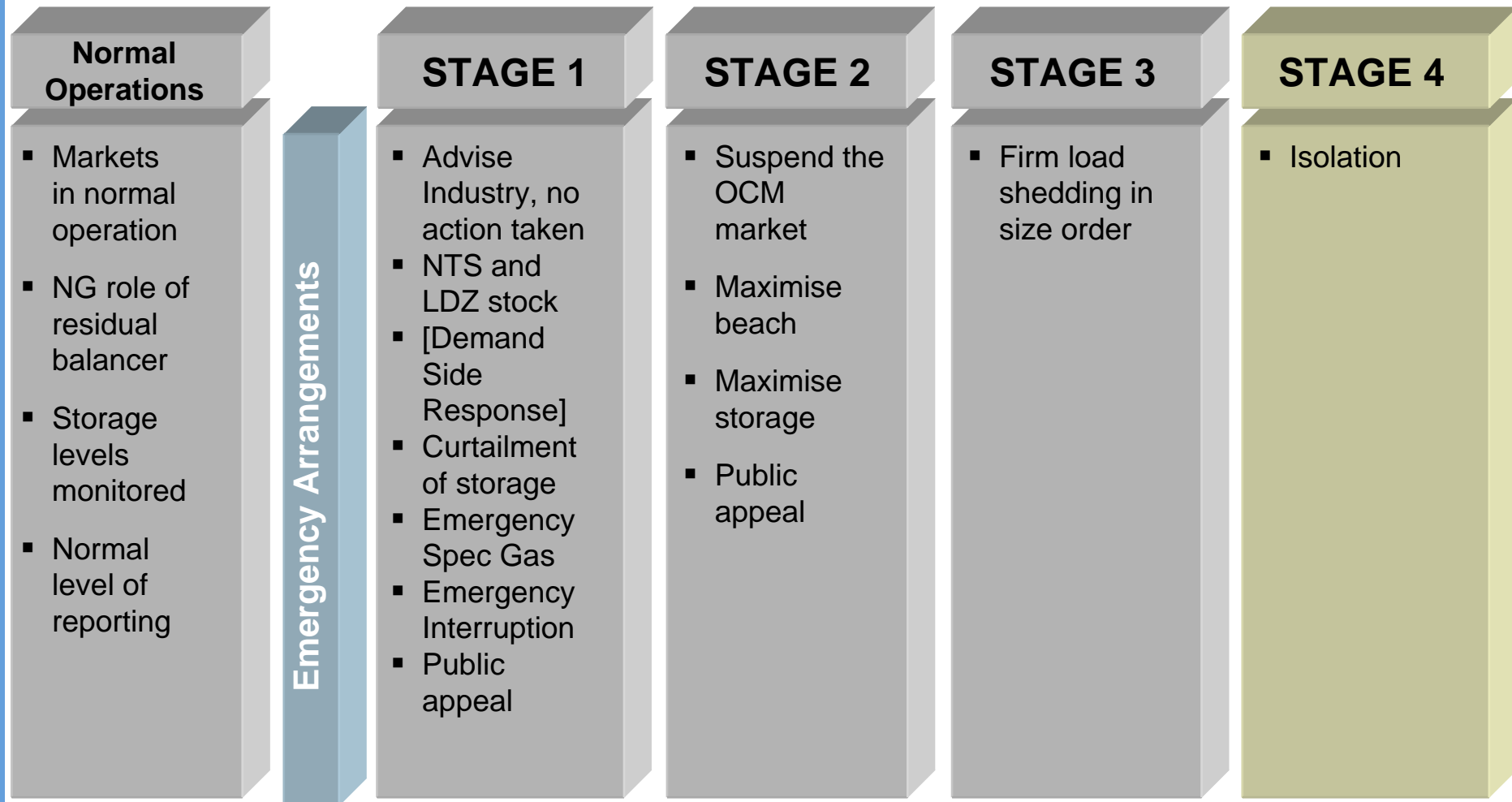
- If the safety monitor is breached for any storage type, the NEC will declare an emergency
- This type of emergency could be protracted and stay in place until either
 - The storage gas above the monitors is replenished, or
 - The monitor levels decline as the winter ends

Network Gas Supply Emergencies

Supply / Demand Balance – Failure Mode



NGSE Stages



Stage 5 - Restoration

Current NGSE Arrangements

Stage 1

Actions available:-

Emergency Spec Gas

NTS linepack

LDZ Storage

Expected response:-

Little if any turn up expected
may be used if a terminal is in
upset conditions

Ability to request LDZs to go
to minimum (and maximum?)
stock levels

Current NGSE Arrangements

Stage 1 - continued

Actions available:-

Emergency Interruption

High confidence in rapid
delivery of load reduction

Expected response:-

NTS interruption

- IUK interruption ~ 33 mcm
- CCGTs ~ 42 mcm
- Industrials ~ 3.5 mcm
- On typical winter day would expect 15 -18 mcm available

LDZ interruption

- ~ 58 mcm
- Would expect 30 mcm to be available on winter day

Current NGSE Arrangements

Stage 1 - continued

Actions available:-

Public appeal

available at stages 1, 2 and 3

Curtail storage withdrawal
(GS(M)R monitor breach only)

Expected response:-

Turn down of NDM load

Withdrawal ceases from
storage sites where the
monitor has been breached

Current NGSE Arrangements

Stage 2

Actions available:-

Maximise supplies

Suspend OCM (Subject to Mod 149 and safety case changes)

Expected response:-

Expected to be little turn up of UKCS supplies. Command and control of storage and loG

Gas deficit only market remains open for transportation constraints

Current NGSE Arrangements

Stage 3

Actions available:-

Firm load shedding...

VLDMCs (inc IUK)

>25,000 tpa loads

(Loads <2Mtpa are protected by monitor and not isolated in a GS(M)R monitor breach)

Load shed Priority users

Public appeal I & II

Expected response:-

Load reduction divided between NTS and DN loads

Delivery of load reduction by this consumer group is poor

Priority users shed after other >25,000 tpa load

Domestic loads requested to cease using gas

Current NGSE Arrangements

Stage 4

Actions available:-

Allocate supplies across secondary systems supplying domestic consumers

Isolation

Expected response:-

Secondary systems with no domestic consumers cease use of gas

Secondary systems isolate to balance

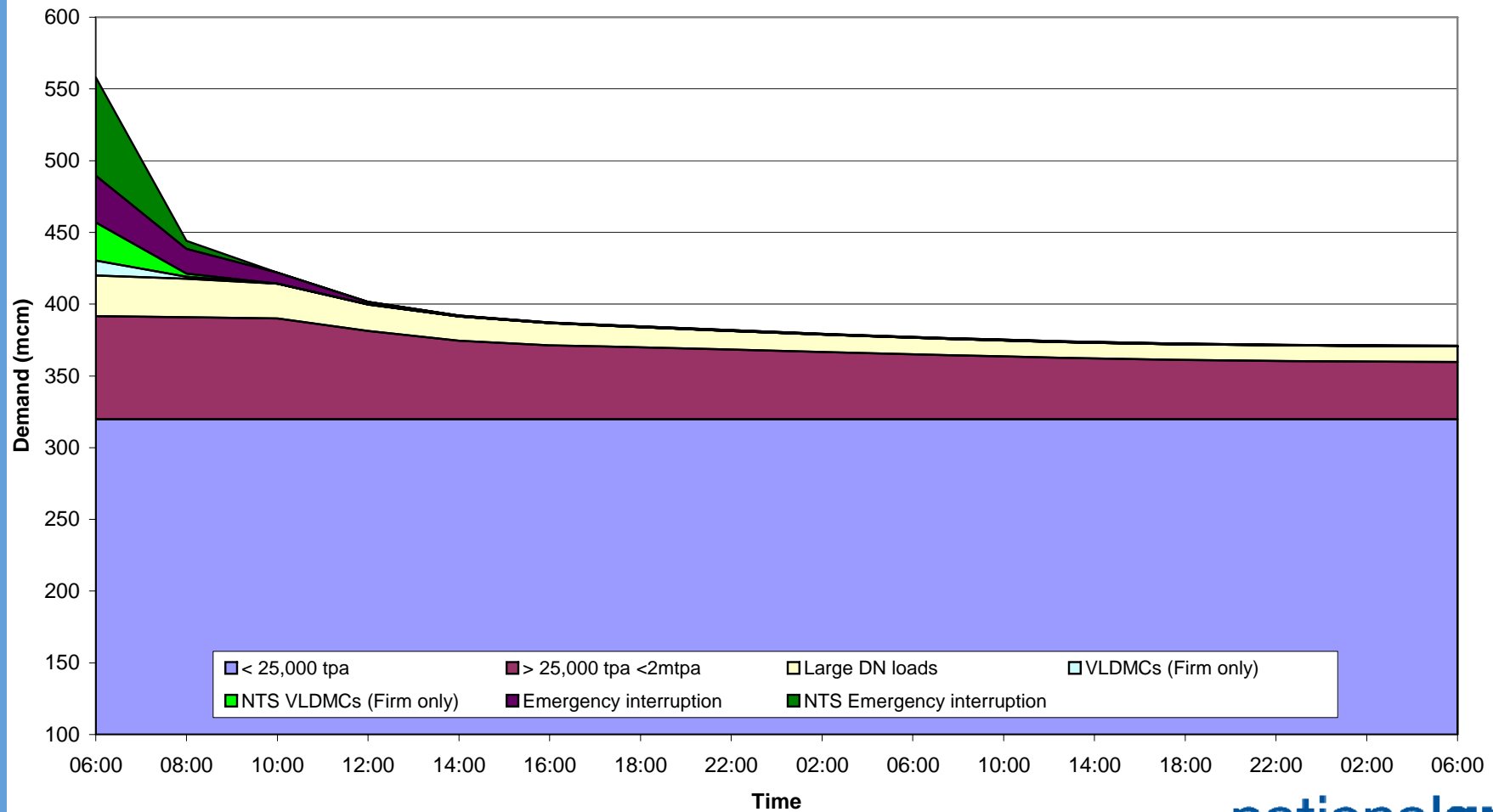
Stage 5 - Restoration

Proposed changes to the existing regime

- ◆ Mod 149 – OCM operating after stage 2
- ◆ Mod 116 – Exit Capacity
- ◆ Mod 090 – DN Interruption
- ◆ SOMSA exit – DN system operator changes

Current load reduction delivery

Total National Emergency Demand Management



Following the changes...

- ◆ Current performance must be maintained or improved following all changes
- ◆ Rapid load reduction will still need to be delivered
 - ◆ May need to escalate the emergency and deliver load reduction by emergency interruption and firm load shedding
- ◆ Large loads will be requested to load shed early in the process and have an obligation under GS(M)R to stop using gas when instructed to do so by their transporter

NEC Emergency Exercise Programme 2007

Neptune Observations	Affected Parties	Test Method	Comments
GNCC/DNCC communication	GNCC, DNCC	Desktop exercise	Fully test revised communication processes including new duties for the DNCC Liaison Officer. Test new forms and comms methods
E3 doesn't support immediate escalation	NEMT	Desktop exercise to test strategy development	Run multiple exercises to increase the pool of qualified staff
Changes to OIC roles			
>25,000 tpa load shedding exercise	DNs, >25,000 tpa loads	Firm load shedding exercise	Load shedding performance and contact data to be tested by DNs. Neptune format for data provision to HSE and NEC to be used for consistency.
Emergency Strategy Program (ESP)	NEMT	Fully test and train out new system to users	Roll out when new ESP is available
BGE information exchange	GNCC, BGE	Desktop between emergency planning/OIC Demand and BGE	Test new forms and OPNs include OIC Demand load reduction calculations
Storage sites understanding	OIC Supply, storage	Desktop exercise	Test information exchange and forms
LNG terminals	OIC Supply, LNG	Desktop exercise	Test new process for information exchange

>25,000 tpa load shedding exercise

- ◆ Minimum of top 200 sites in each LDZ to be contacted to allow comparison with previous exercises
- ◆ To assess load shedding deliverability networks will contact as many sites as possible in 4 hours
- ◆ Shippers to be notified so contact data can be verified
- ◆ Exercise to be carried out during normal working hours in a two week window in September. Notify HSE of proposed date as they may wish to observe.
- ◆ Results to be collated by NEC and sent to the HSE

To conclude..

- ◆ From the NEC point of view, the present emergency arrangements are in place and ready to respond to prevent or manage a Network Gas Supply Emergency should it occur.
- ◆ Hence physical and public safety will be preserved
- ◆ The key question to yourselves is: -
Are you clear of your obligations, and ready to deal with such low frequency, high impact events?

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Questions ?