



BGE UK, NGEF and Exercise Avogadro

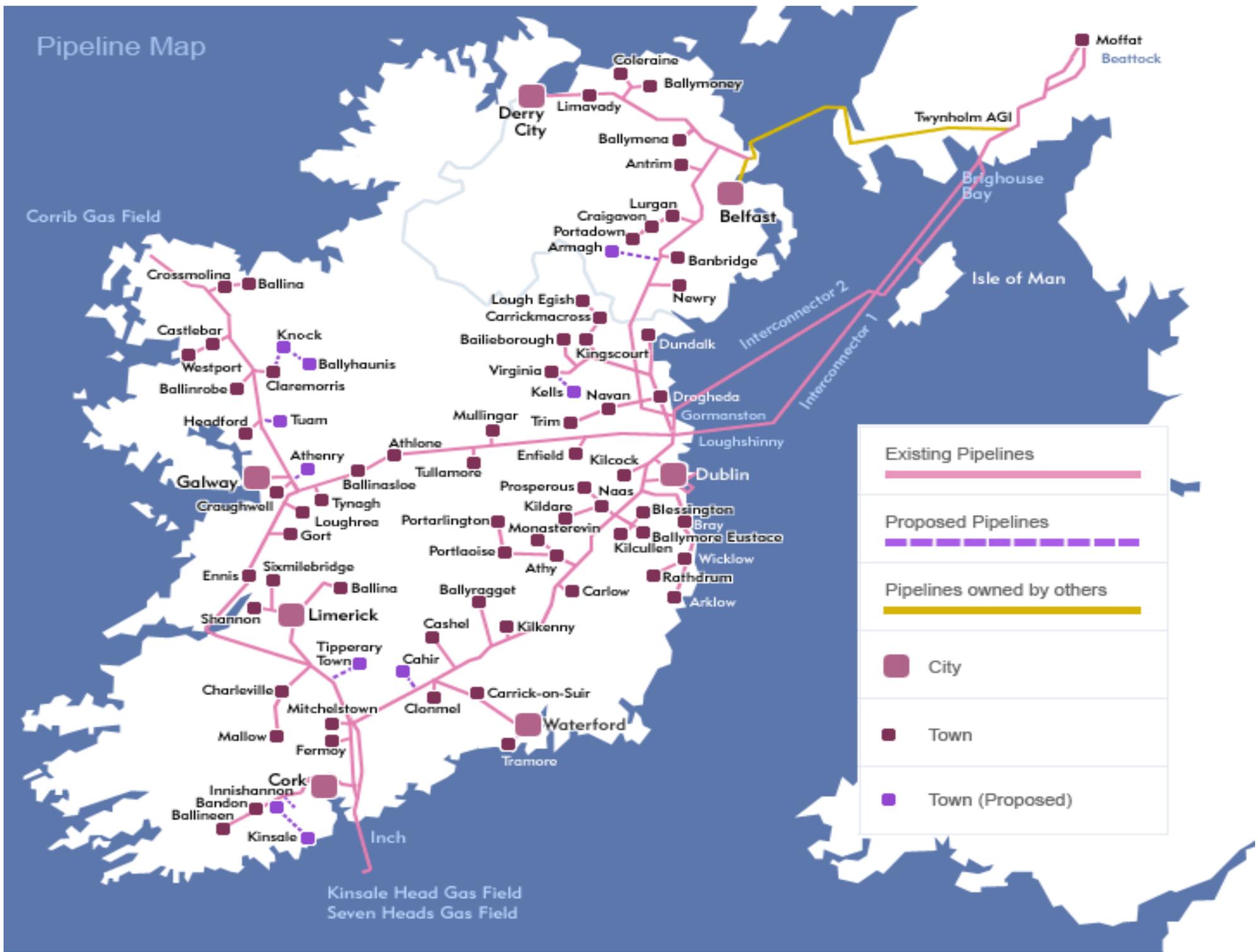
Presentation to UKOPA

February 2011

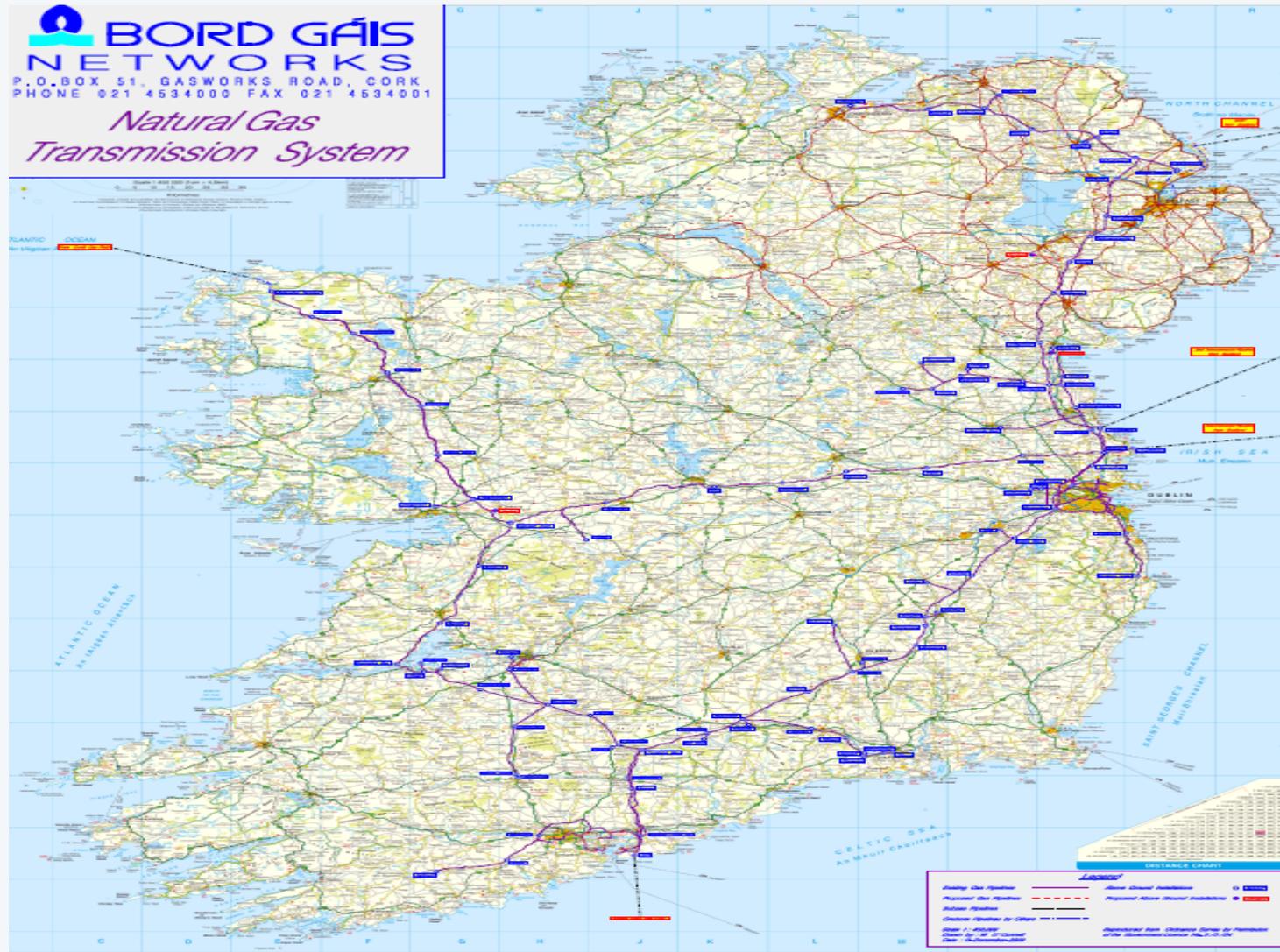
BGE Transmission Pipeline Network



Pipeline Map



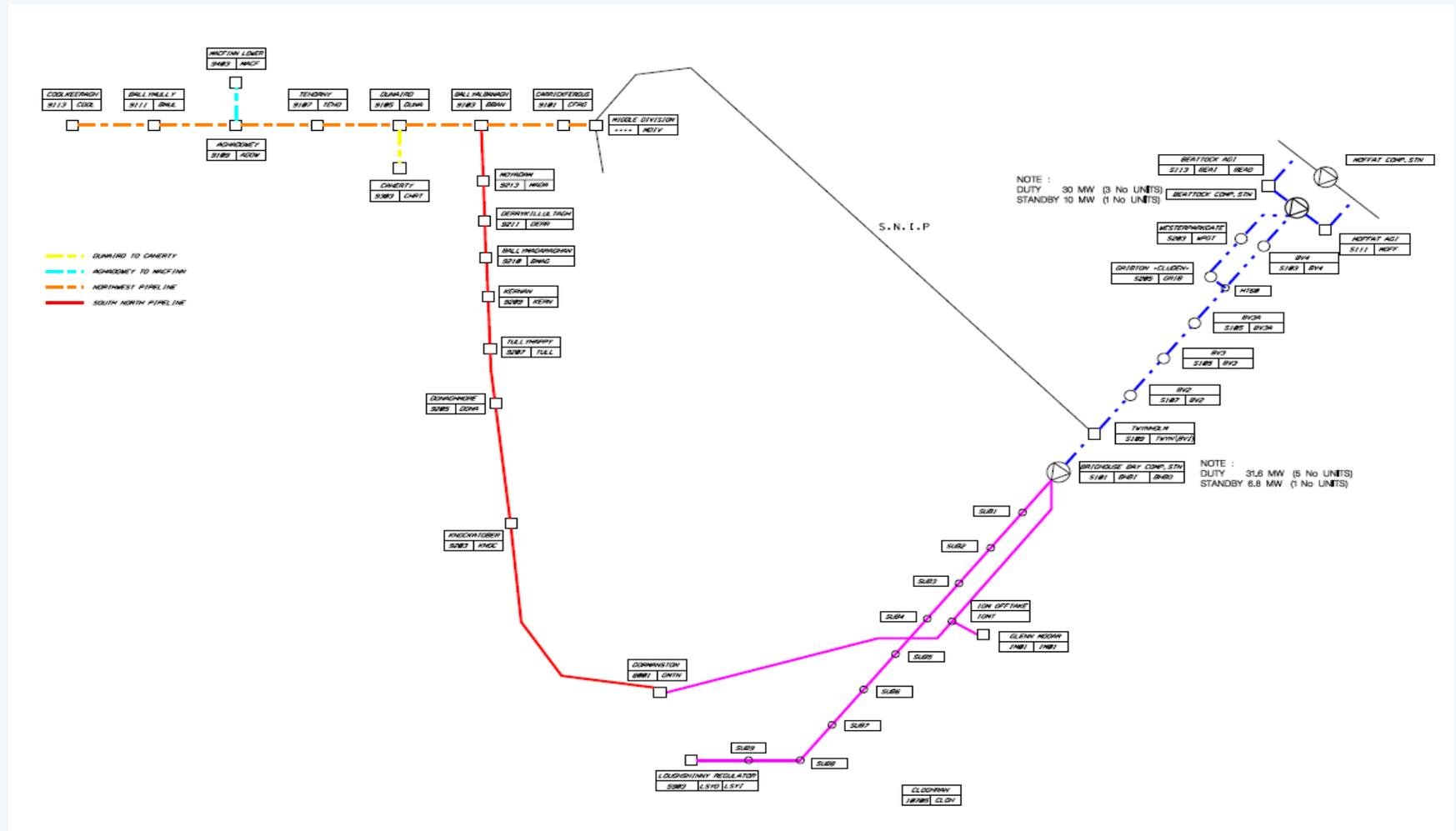
Onshore Ireland Network



Moffat & Beattock



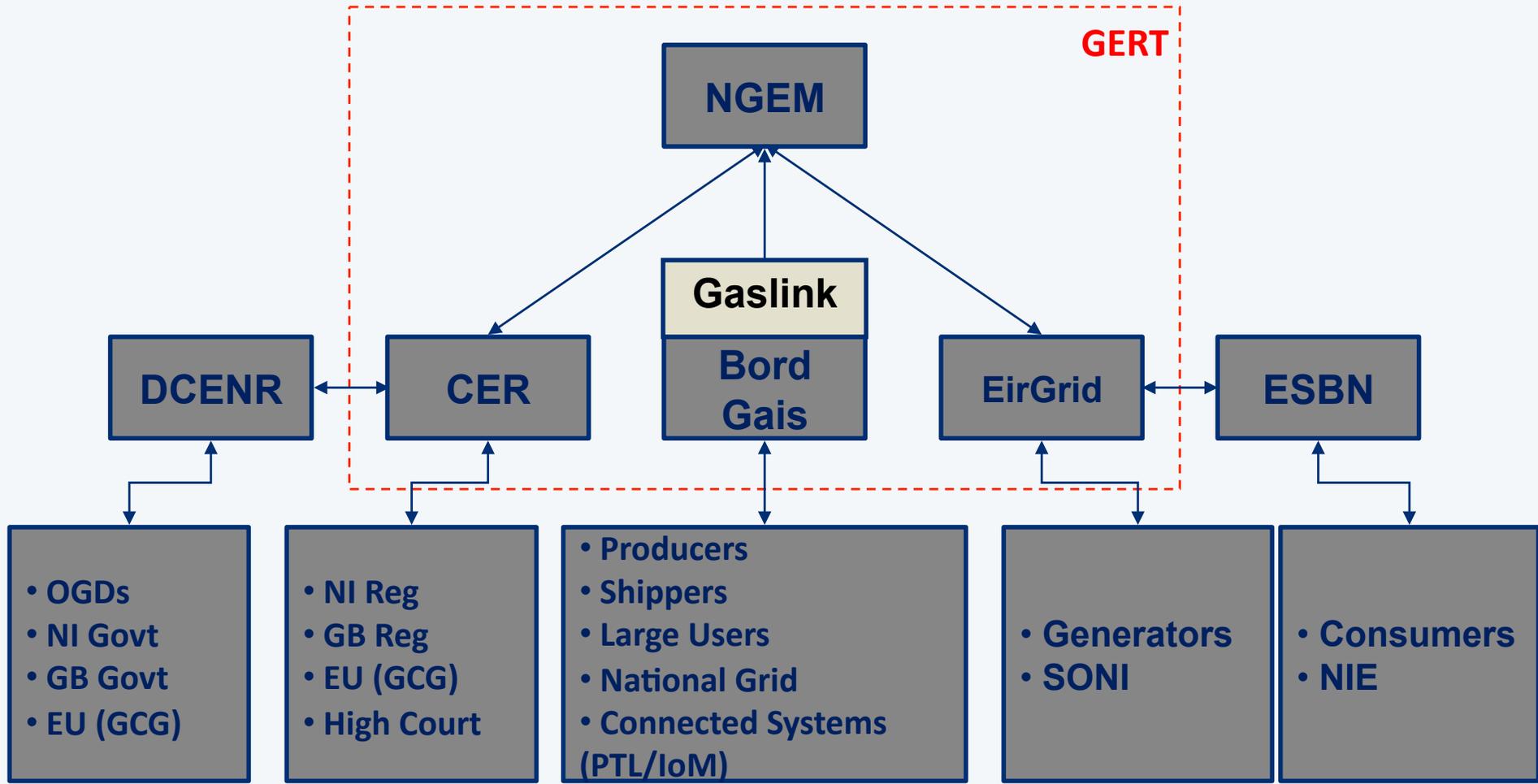
BGE UK Network



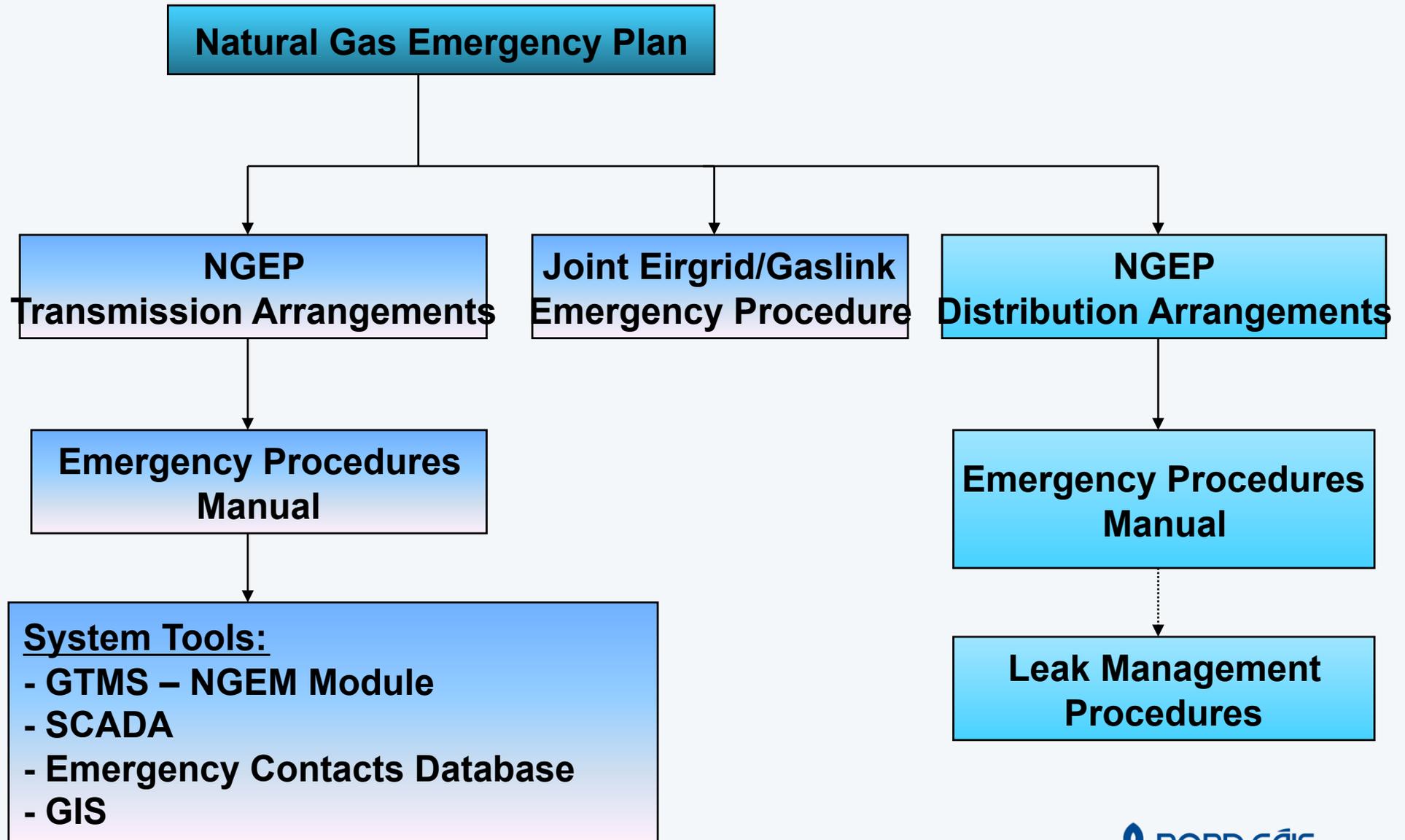
Natural Gas Emergency Plan (NGEP)

- BGN, acting as the National Gas Emergency Manager (NGEM) on behalf of Gaslink, is responsible for coordinating actions across affected parts of the Network to take action to prevent, as far as possible, a Gas Supply Emergency developing, and where it cannot be prevented, to manage the emergency in accordance with the Natural Gas Emergency Plan (NGEP).
- The NGEP is available on the Gaslink website (www.gaslink.ie)
- The aim of the NGEP is to :
 - Protect the safety of the general public.
 - Protect property and key infrastructure.
 - Minimise disruption resulting from a local gas supply emergency or a national gas supply emergency.
- Primary focus of the NGEP is Safety.
 - Commercial Arrangements in development.

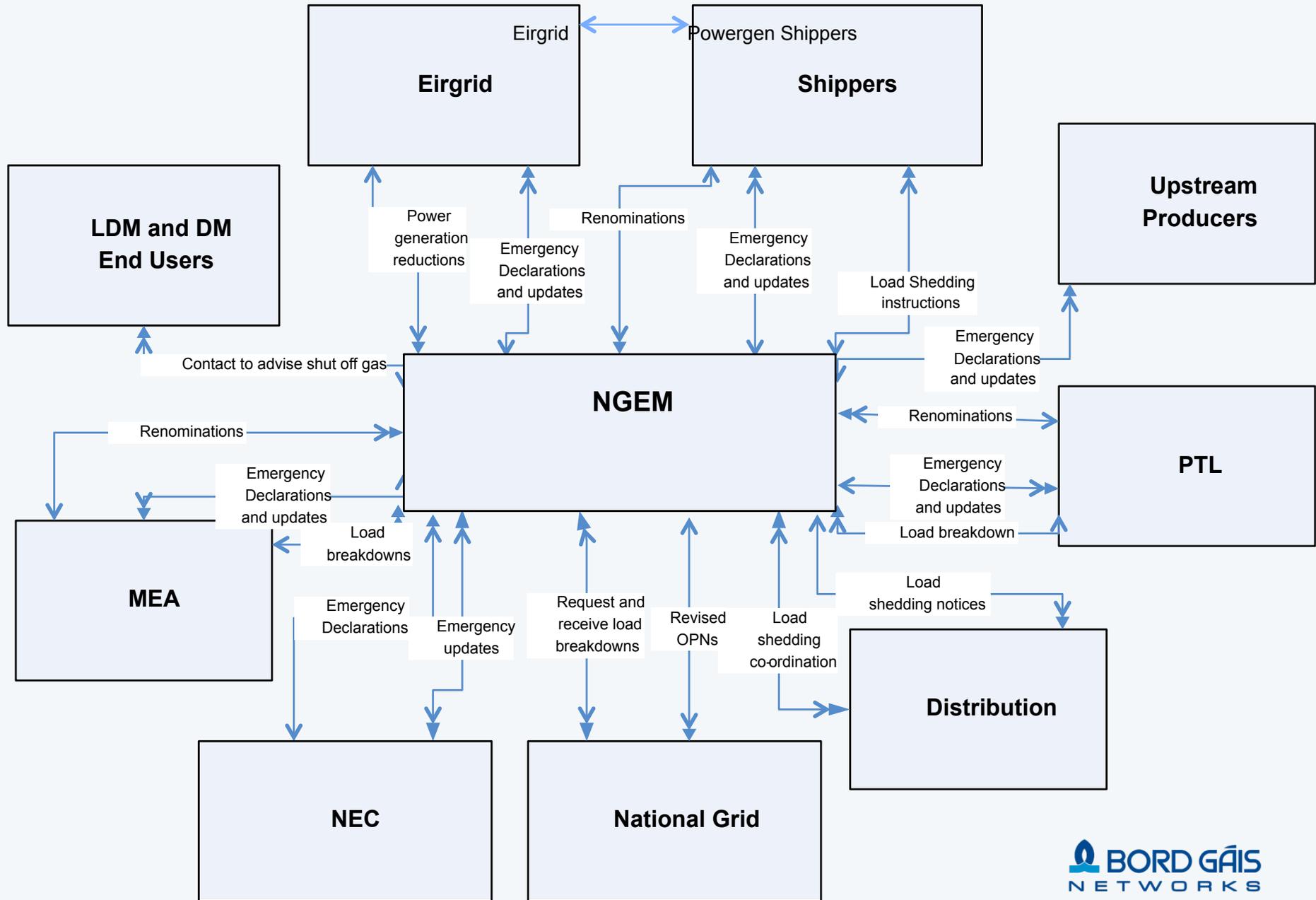
NGEP Framework



Emergency Framework



NGEM Stakeholders



Exercise Avogadro 2010.

Scope:

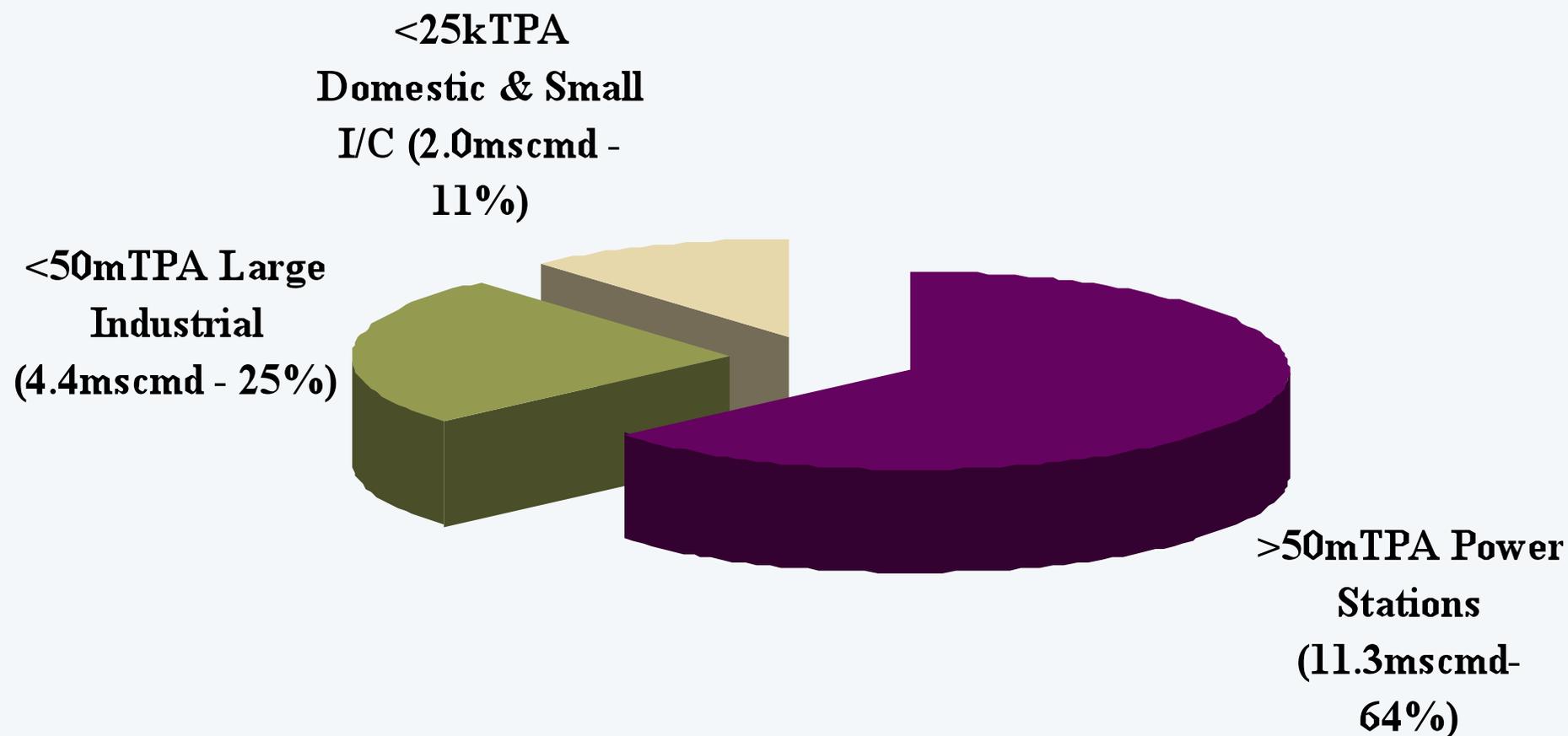
- Network Emergency Coordinator (NEC GB) – simulation of a Network Gas Supply Emergency in the UK, due to a loss of supply at entry points.
- Involve industry participants in RoI, NI and IoM

NEC Objectives:

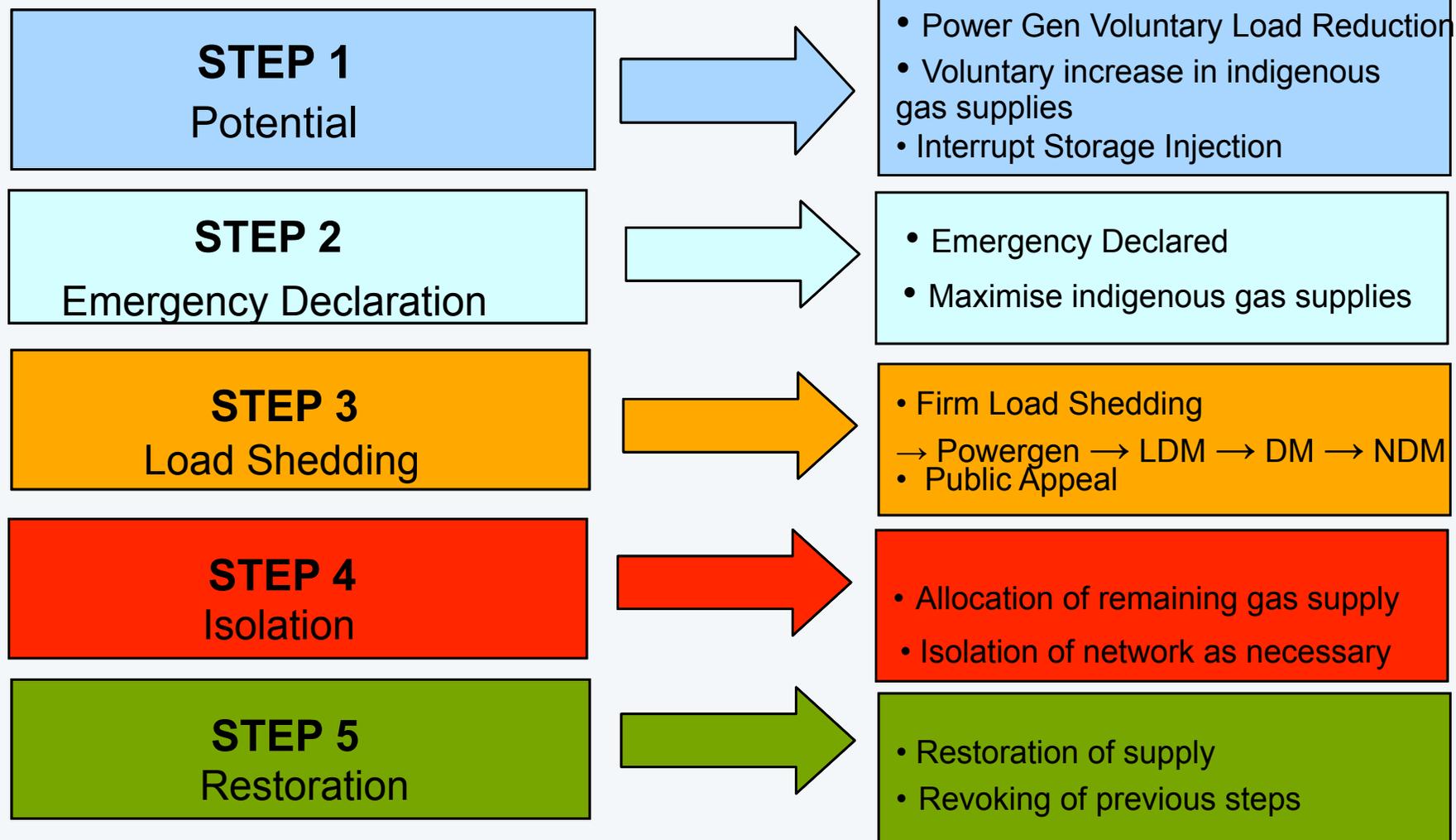
- Test compliance with safety case obligations to the NEC and test emergency plans/processes.
- Test high level communications at government level
- BGN/Gaslink Objectives:
 - Test the effectiveness of the NGEF.
 - Test and operate GTMS NGEM
 - Test and communicate using SITREPS

Moffat Gas Flow on 11th Feb 2010

Avogadro - Load Categories



NGEP Emergency Steps



Emergency Begins

- Notice of potential gas supply emergency received by BGN Grid Control @ 0800 hrs
- BGN internal emergency procedures are initiated.
- NGEM, National Gas Emergency Manager notified
- The National Gas Emergency Plan is invoked (NGEP)

EXERCISE AVOGADRO			
T/PM/GNCC/E/3 – NEC1	nationalgrid		
EXERCISE AVOGADRO			
URGENT COMMUNICATION			
FROM			
NETWORK EMERGENCY CO-ORDINATOR			
NOTICE OF POTENTIAL NETWORK GAS SUPPLY EMERGENCY			
Version Number :	1.1		
<small>NB: Version no. is the day number followed by the number of versions on that day. i.e. 1.2 is Day 1, second version</small>			
This notice is issued at Date:	22 nd February 2011	Time:	08:00hrs
in order to implement the emergency strategy required to re-balance the network under Section 4.3.1 or 4.3.3 of the NEC Safety Case.			
This declaration is issued because:-			
EXERCISE AVOGADRO			
Of unplanned unavailability of production facilities or associated pipeline(s)			
This declaration is for information. National Grid will be contacting you if specific actions are required.			
NEC signature :	<i>A Malins</i>		
National Grid Incident Controller signature:	<i>J Phillips</i>		
If you wish to contact the NEC or NG, please use the numbers allocated to you on the Exercise Avogadro Contact List			
Note: All shippers have an obligation under the Network Code to read all ANS Message. Please ensure your handset is switched on and messages are read.			
<small>The information contained to this fax is confidential and may be privileged. This fax is only for the individual named above. If you are not the intended recipient any review, dissemination or copying of this fax is prohibited. If you have received this fax by accident, please notify the sender immediately by telephone so that we can arrange for return of the original.</small>			
<small>National Grid Gas Plc. Registered in England No. 03106009 Registered Office 1-3 Strand, London WC2N 5EN Incorporated in England and Wales</small>			

Escalation by NEC

- Communication of escalation to Gas Deficit emergency
- BGN reply's with its firm load for that gas day
- NGEM organises the Gas Emergency Response Team (GERT)

UK National Grid To: Moffat Agent Emergen (353214312513) 05:12 06/29/10GMT-04 Pg 01-01

EXERCISE AVOGADRO

T/PM/GNCC/E/3 – NEC1 **nationalgrid**

EXERCISE AVOGADRO

URGENT COMMUNICATION

FROM

NETWORK EMERGENCY CO-ORDINATOR

DECLARATION OF NETWORK GAS SUPPLY EMERGENCY STAGE 2
Classified as a : **Gas Deficit**

*Delete as necessary

Version Number :	1.2
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NB: Version no. is the day number followed by the number of versions on that day, i.e. 1.2 is Day 1, second version

This notice is issued at Date: 22nd February 2011 Time: 10:00hrs

in order to implement the emergency strategy required to re-balance the network under Section 4.3.1 or 4.3.3 of the NEC Safety Case.

This declaration is issued because:-

EXERCISE AVOGADRO

Due to further deterioration in the Gas Supply and Demand balance position resulting from an unplanned Gas Supply loss

This declaration is for information. National Grid will be contacting you if specific actions are required.

NEC signature :	<i>A Malins</i>
National Grid Incident Controller signature:	<i>J Phillips</i>

If you wish to contact the NEC or NG, please use the numbers allocated to you on the Exercise Avogadro Contact List

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BGN Response to NEC

- BGN Responds to NEC with update of Firm Load for actual Gas Day
- Follow on comms to PTL & IOM regarding their revised EODQ's
- Other Shippers were excluded for this exercise

BGE - Firm Load Information nationalgrid

Please complete shaded cells Exercise Y/N ? Y Ex Name: AVOGADRO

Gas National Control Centre Emergency Communication

To:	BGE CSO
cc:	BGE Shipper Agent

We are currently in a potential Network Gas Supply Emergency

Please provide information regarding current Firm Load by completing Part A below, and returning this form ASAP to GNCC

PART A		Assumed CV (MJ/m3)
Firm Load	kWh	
Firm VLDMC (>50 mtpa)	125,281,915	39.94
<50 mtpa - >25,000tpa	43,554,882	
<25,000 tpa	36,963,145	

Please provide information regarding Voluntary Firm Load Reduction by completing Part B below, if applicable, and returning this form to GNCC

PART B	
Are BGE able to offer a Voluntary Firm Load Reduction?	NO
If YES: End of Day Quantity (kWh) or "Details to Follow"	n/a

Notes:
 1. Always complete and return part A to GNCC
 2. Part B may be returned separately to part A - i.e. do not delay the return of Part A in order to determine if Part B is applicable
 3. Any Voluntary Firm Load Reduction made by BGE during this National Gas Supply Emergency will be taken into account should firm load shedding become necessary

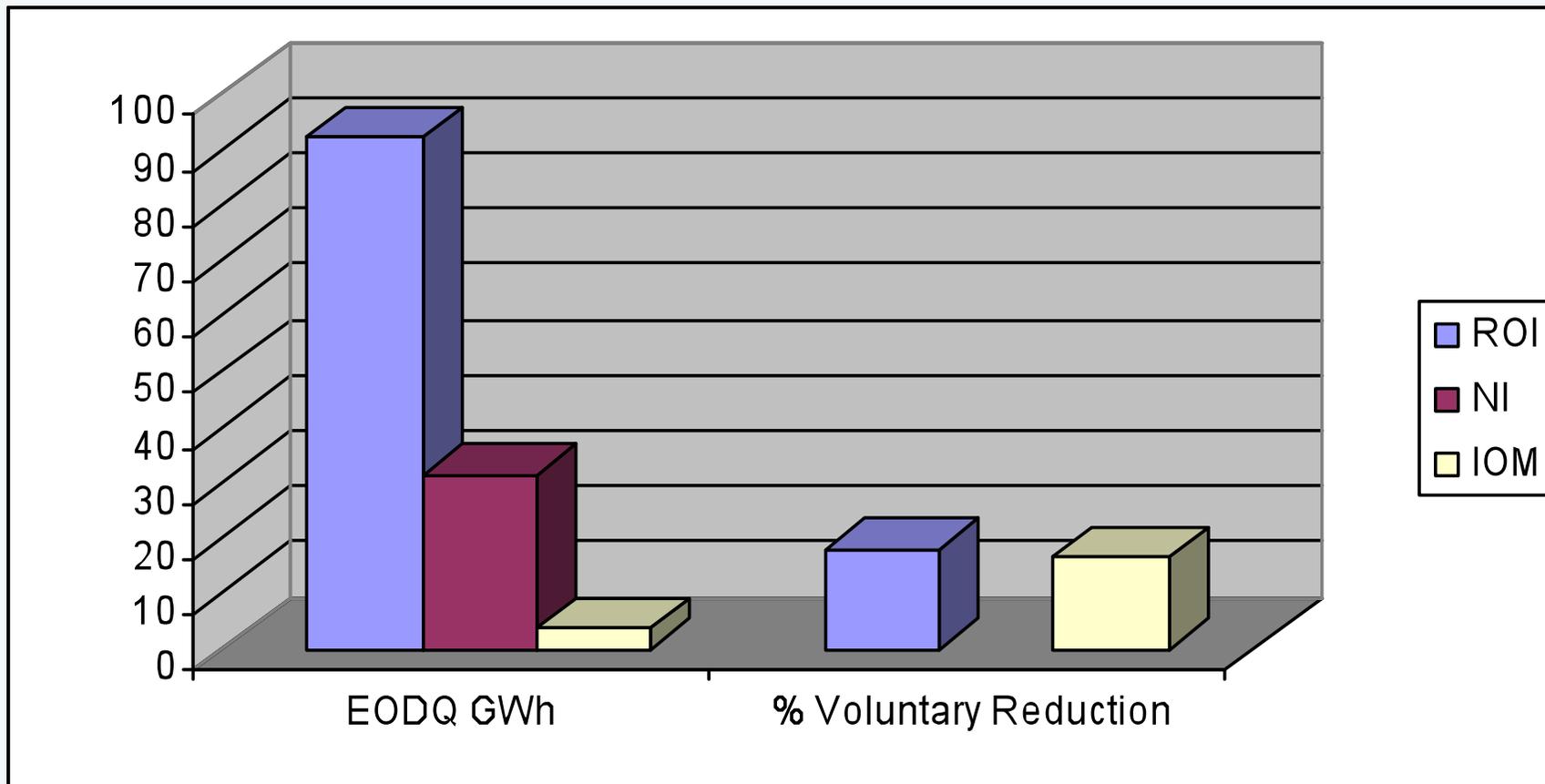
The NEC requires any offered Voluntary Reduction to be implemented. Please reduce your flow rate as soon as possible and submit a revised OPN. **

Date:	22/02/2010
Contact Name:	Maurice Keane
Contact Tel Number:	00353-21-4298917

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Power Generation Voluntary Reduction (Steps 1&2) Avogadro Day 1



Load Shedding Avogadro Day 2

- NEC advise that Moffat Interconnector offtake is not affected.
- NGEM continues Exercise to test scenario where load shedding at Moffat is required.
- Load Shedding of remaining Power Generation load.
 - RoI: BGE/Gaslink/Eirgrid Joint Emergency Procedure (12 Power Plants)
 - NI: BGE (UK)->PTL->SONI (2 Power Plants)
 - IoM: BGE (UK)->Manx Electricity Authority (1 Power Plant)
- Progressive load shedding through LDM and DM sectors.
 - NDM affected by 3rd restriction imposed at Moffat.

Exercise Review +

- Generally positive response from parties involved in exercise
- GERT communicated well
- NECC communicated well
- Good flow of information between parties
- DETINI & DCENR gained knowledge from exercise of how systems interact
- SONI & EIRGRID good interaction

Exercise issues

- Issue regarding EODQ as directed by NEC (not low enough)
- Issue regarding lack of information from UK
- Issue regarding incident timelines (UK, NI & ROI)
- Issue regarding roles and responsibilities of different press officers
- Some stakeholders felt DETI should be more involved
- Requirement to have a clear single message regarding the emergency

Exercise Avogadro - Future Work

Future Work:

- Coordination of Load Shedding, Electricity & Gas
SONI & NIE comms
 - Issue regarding incident timelines (UK, NI & ROI)
 - Press Officer coordination
 - Development of comms templates
 - Possibility of dedicated liaison officers between stakeholders
 - Possibility of rotating/alternating Gas/Electricity outages
-
- Increase Shippers' involvement in future exercises
 - Web server to enable Shippers to Renominate on Trial GTMS in line with Load Shedding requirements during an Exercise.
 - Shipper Representatives - assistance required
 - Plan for next Exercise
 - Separate Load shedding and Emergency Contact Database verification exercises.

BGE Incident Report

- Leaking Insulation Joint Diswellstown AGI Co. Dublin
- MOP of pipeline 70bar
- API 5L X-60 steel pipeline
- 14.27mm wall thickness, 450mm NB pipeline comm 1984.
- Routine AGI leak survey picked up 10 – 20% LEL reading adjacent to a valve riser within AGI.
- Line depressured (68.5 to 20 bar) and ground excavated to expose source of leak
- Insulation Joint found to be leaking confirmed using a soapy water test
- IJ cut out and sent for test
- Post incident testing of IJ found it in good enough condition to retain pressure up to 105 bar

Insulation Joint cut out



Backfilled excavation showing risers



Repair spool in situ



Lessons Learned

- Maintain leak survey schedule
- Pay attention to IJ locations
- Give consideration to bending stresses observed and consider other possible impacts
- Onsite conditions must have given rise to leak