



Department
of Energy &
Climate Change



**Regulation 994
Joint Preventive Action Plan
UK and Ireland**

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Acronyms

BGE: Bord Gais Eireann

CER: Commission for Energy Regulation

DCENR: Department of Communication, Energy & Natural Resources (Ireland)

DECC: Department of Energy & Climate Change (Great Britain)

DETI: Department for Enterprise, Trade & Investment (Northern Ireland)

GB: Great Britain

JRA: Joint Risk Assessment

JPAP: Joint Preventive Action Plan

JEP: Joint Emergency Plan

LDM: Large Daily Metered

LNG: Liquefied Natural Gas

Mscm/d: Million Standard Cubic Meters daily

NGET: National Grid Electricity Transmission

NGG: National Grid Gas

NGU: Natural Gas Undertaking

NTS: National Transmission System

PCI: Project of Common Interest

PTL: Premier Transmission Limited

SNIP: Scotland to Northern Ireland Pipeline

SNP: South North Pipeline

SWSOS: South West Scotland Onshore System

TSO: Transmission System Operator

UK: United Kingdom

UREGNI: Utility Regulator for Northern Ireland

1.0 Introduction

Pursuant to the implementation of EU Regulation 994/2010 (“the Regulation”), Member States are required to implement measures to safeguard gas security of supply, including the development of a biennial National Risk Assessment, National Preventive Action Plan and National Emergency Plan.

An integral part of the National Risk Assessment is the ability of the EU Member State to meet the demand for gas in the event of failure of the largest piece of infrastructure supplying the country (i.e. Article 6: Infrastructure Standard). This is to be demonstrated by the application of the N-1 standard. An N-1 value of 100% or greater indicates that the technical capacity of the remaining gas infrastructure is sufficient to satisfy total gas demand if the largest gas infrastructure fails on a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years.

In the event that a Member State cannot fulfil the N-1 standard on a national basis, the Regulation permits the adoption of a regional approach towards meeting the N-1. If the regional approach is adopted, there is an obligation on the Member States involved to produce on a regional basis a Joint Risk Assessment (JRA) and a Joint Preventive Action Plan (JPAP). Where possible and necessary, the Regulation also states that a Joint Emergency Plan (JEP) should be established.¹

As part of its compliance with the Regulation, the Competent Authorities in the UK (i.e. DECC) and Ireland (i.e. CER) submitted their respective national Risk Assessments to the European Commission. While the UK’s Risk Assessment showed that it is able to meet the N-1 standard, Ireland’s Risk Assessment confirmed that it is unable to meet the N-1 standard in 2014.

Following a request from the CER, DECC have agreed to adopt a regional approach between the UK and Ireland towards meeting the N-1 standard, as permitted under the Regulation. A corollary of the agreement between DECC and the CER has been the development of a JRA, which was submitted to the European Commission on the 3rd June 2014. The next stage in the regional approach between the UK and Ireland is the development of a JPAP, which is required to be submitted to the European Commission by the 3rd of December 2014.

This document represents the JPAP between the UK and Ireland. However, from the outset, it should be noted that this JPAP does not intend to supersede the UK’s and Ireland’s National Preventive Action Plans, which have been prepared by DECC and the CER, in accordance with the Regulation. Therefore, the obligations on Natural Gas Undertakings (NGUs) and other relevant bodies as outlined in the National Preventive Action Plans are not altered by this JPAP. Instead, this document focuses on initiatives that have the potential to improve gas security of supply between the UK and Ireland, and ongoing cooperation between the UK and Ireland.

¹ With reference to the JEP, both DECC and the CER have agreed that a JEP is not currently required for the UK and Ireland. The rationale for this decision is due to the extensive emergency arrangements in place between the UK and Irish TSO’s, and the broad alignment of the UK and Ireland’s existing national emergency plans.

1.1 Consultation Process

The implementation of a regional approach under the Regulation has been facilitated through the UK Ireland Emergency Group Forum. This forum meets on a bi-annual basis to discuss matters pertaining to gas and electricity security of supply including the development of this JPAP. The participants attending the UK and Ireland are outlined in Table 1.1.

Table 1.1: UK Ireland Emergency Group Forum Participants

	GB	Northern Ireland	Ireland
Government Department	DECC	DETI	DCENR
Regulator	OFGEM	UREGNI	CER
Gas Transmission System Operator	NGG	PTL BGE (NI)	Gaslink
Electricity Transmission System Operator	NETG	SONI	EirGrid

1.2 Structure of Document

This UK and Ireland JPAP is structured as follows:

- Section Two: outlines gas pipeline connections between the UK and Ireland.
- Section Three: contains the results of the UK and Ireland 2014 JRA, which examined the UK and Ireland's compliance with the Infrastructure Standard and the Supply Standard.
- Section Four: identifies preventive measures that can be applied to enhance gas security of supply between the UK and Ireland.
- Section Five: outlines the UK and Ireland's approach to regional emergency planning.
- Section Six: outlines next steps.

2.0 Overview of UK & Ireland Gas Systems

Subsequent to the signing of the 1993 Intergovernmental Agreement, the UK and Irish gas systems have become increasingly interconnected.² Such connections have been facilitated through significant investment in gas pipeline infrastructure and the development of transportation agreements between the UK and Irish gas Transmission System Operators (TSOs).³

At present, the UK and Irish gas systems connect physically at three points, namely:

- i. **Moffat (Scotland):** Moffat is the primary gas entry/exit point between GB and Ireland, and links GB's and Ireland's gas transmission systems, which are owned by NGG and BGE respectively.
- ii. **Twynholm (Scotland):** Gas is delivered from Moffat to the Northern Ireland's gas system at Twynholm (via BGE's South West Scotland Onshore System). The gas is then delivered to Northern Ireland via the Scotland to Northern Ireland Pipeline (SNIP). The SNIP is owned and operated by PTL, which is a subsidiary of Mutual Energy Limited.
- iii. **Gormanston (Ireland):** The South North Pipeline (SNP) is a gas transmission pipeline (which forms part of Northern Ireland's transmission system) that spans both the Irish and Northern Irish jurisdictions.

With reference to future gas network investment, it is currently not envisaged that UK and Irish gas market participants will require further physical gas connection points between the UK and Irish gas markets. Additionally, in relation to enabling bi-directional capacity at cross-border gas interconnections, both the UK and Irish Competent Authorities have granted exemptions, where appropriate, to the relevant gas TSOs. However, the UK and Irish Competent Authorities will continue to monitor the need for bi-directional capacity at cross-border gas interconnections through the review of the Risk Assessments, which are undertaken on a biennial basis.

² A map of the UK's and Ireland's gas infrastructure is provided in Appendix 1.

³ Transportation Agreements between UK and Irish gas TSOs include the Connected Systems Agreement between NGG and BGE (UK), and the Transportation Agreement between BGE (UK) and PTL.

3.0 Results of Joint UK & Ireland Risk Assessment

The 2014 JRA that was prepared by DECC and the CER focused on the ability of the UK and Ireland to meet the:

- the N-1 Infrastructure Standard (Article 6); and
- the Supply Standard (Article 8).

Additionally, the JRA identified and assessed common risks between the UK and Ireland that may impact on gas security of supply. Consequently, the objective of this section is to provide a summary of the main findings contained within the JRA.

3.1 Infrastructure Standard

Under a regional approach, the JRA confirmed that Ireland can meet the N-1 Infrastructure Standard by adopting a regional approach with the UK. The results of the UK's and Ireland's N-1 calculations, on a national and regional level, are provided in Table 3.1. For clarity, it should be noted that the N-1 is based on the loss of the Felindre Pipeline, which is the single largest infrastructure of common interest.

Table 3.1: UK & Ireland Regional N-1 (2016/17)

Article 6 Infrastructure Standard - N-1 Calculations for UK & Ireland						
N-1 Formula:		$N-1[\%] = \frac{EPm + Pm + Sm + LNGm - Im}{Dmax} \times 100$				
N-1 [%]		(EPm + Pm + Sm + LNGm - Im x 100) / Dmax				
				Ireland's N-1	UK's N-1	Regional N-1 for UK & Ireland
				mscm/d	mscm/d	mscm/d
EPm	E	Technical Capacity of Entry Points		20.92	253.00	253.00
Pm	P	Maximal Technical Production Capability		8.51	131.00	139.51
Sm	S	Maximal Technical Storage Deliverability		2.80	198.00	200.80
LNGm	L	Maximal Technical LNG Facility Capacity		0	162.00	162.00
Im	I	Technical Capacity of Largest Gas Infrastructure		20.92	86.00	86.00
Dmax		Total Daily Demand of the calculated area during a day of exceptionally high gas demand (1 in 20)		27.71	539.00	566.71
N-1%	=			41%	122%	118%

3.2 Supply Standard

Under Article 8 (Supply Standard) of the Regulation, Competent Authorities shall require that the natural gas undertakings⁴ that it identifies take measures to ensure gas supply to the protected customers in the following cases:⁵

- (a) Extreme temperatures during a 7-day peak period occurring with a statistical probability of once in 20 years;
- (b) Any period of at least 30 days of exceptionally high gas demand, occurring with a statistical probability of once in 20 years; and
- (c) For a period of at least 30 days in case of the disruption of the single largest gas infrastructure under average winter conditions.

The JRA confirmed that despite the UK and Ireland adopting a regional approach towards the implementation of the Regulation, both the UK and Ireland are able to fulfil the supply standard on a national basis. Additionally, the JRA confirmed that the obligations imposed on NGUs in the UK and Ireland do not differ under a regional approach.

3.3 Gas Supply Disruption Scenarios

The JRA considered various disruption scenarios including loss of infrastructure that is of relevance to the UK and Ireland including the Felindre Pipeline, the Moffat Entry Point, and other key infrastructure downstream of Moffat. The analysis noted that fulfilling the Infrastructure Standard on a regional basis does not imply that there will be sufficient infrastructure to deliver gas to all gas customers in the UK and Ireland at all times. Specifically, the failure of gas system components (i.e. at Moffat Entry Point or downstream of Moffat in Scotland) can have potentially significant impacts for Ireland, Northern Ireland and Isle of Man gas security of supply, while gas supplies to GB would remain unaffected.

In the event of infrastructure failure downstream of Moffat, the JRA considered the impact on linepack utilisation if a regional approach is applied between the UK and Ireland. This involved assessing how much of Ireland's linepack could be allocated to Northern Ireland from BGE's gas infrastructure (i.e. IC2 and SWSOS), and the impact of adopting a regional approach has on Ireland's gas security of supply.

⁴ Natural Gas Undertaking defined in Directive 2009/73/EC means: "a natural or legal person carrying out at least one of the following functions: production, transmission, distribution, supply, purchase or storage of natural gas, including LNG, which is responsible for the commercial, technical and/or maintenance tasks related to those functions, but shall not include final customers."

⁵ Appendix 2 outlines the UK and Ireland's definition of protected customers.

4.0 Preventive Measures

From the outset, it should be noted that the UK and Ireland have an established relationship in relation to co-operation on gas security of supply issues. This is reflected in the alignment of the gas TSO's gas emergency plans, and the development of a joint protocol between NGG and BGE in the event of load shedding. Specifically, these protocols address the scenarios of a:

- Network Gas Supply Emergency in GB;⁶ and
- gas emergencies downstream of Moffat (e.g. emergency on SWSOS, ICs, SNIP and SNP), which can affect gas supplies to Ireland, Northern Ireland and the Isle of Man.

Additionally, the UK & Ireland Emergency Planning Group has been established to address gas security of supply issues affecting both the UK and Ireland: This group comprises three Government Departments (DECC, DCENR and DETI), the three regulators (OFGEM, CER and UREGNI), and the gas and electricity TSOs. Meetings take place every six months. As part of its work, the group is working towards applying a regional approach to risk analysis, preventive measures and emergency response. This includes the establishment of protocols between the gas TSOs to link emergency plans of each jurisdiction. Emergency exercises are also carried out by the TSOs in GB, Northern Ireland and Ireland on an annual basis and plans are refined on the basis of the learnings from the exercises. Additionally, the forum is used to discuss the implementation of the Regulation and the plans and assessments carried out by each jurisdiction in compliance with the Regulation.

With reference to the improvement of gas security of supply, the UK and Ireland Competent Authorities are considering initiatives such as potential security upgrades at key points within the UK's and Ireland's gas systems. Additionally, the development of Projects of Common Interest (see Table 4.1) have the potential to enhance security of gas supply in the UK and Ireland.⁷

⁶ In the context of a gas supply emergency in GB that could affect the availability of gas to the Moffat interconnection point, it is agreed that a principle of proportionality be applied. Therefore, in a NGSE in GB, any reduction of flows through the Moffat interconnection point will be proportionate with actions being enacted on the GB network (unless specific geographical circumstances occur which require proportionally higher or lower load reduction in the north of GB).

⁷ In October 2013 the European Commission published its first list of EU-wide Projects of Common Interest under Regulation (EU) 347/2013. These projects were assessed on a range of criteria including their impact on diversity of supply, market integration and security of supply. Infrastructure projects with PCI status benefit from faster and more efficient permit granting procedures, improved regulatory treatment and access to financial support under the Connecting Europe Fund.

Table 4.1 – UK-Ireland Projects Granted PCI Status

Project code	Project title	Project Promoter
5.1	<p>Cluster to allow bidirectional flows from Northern Ireland to Great Britain and Ireland and also from Ireland to United Kingdom including the following PCIs:</p> <p>5.1.1. Physical reverse flow at Moffat interconnection point</p> <p>5.1.2. Upgrade of the SNIP (Scotland to Northern Ireland) pipeline to accommodate physical reverse flow between Ballylumford and Twynholm</p> <p>5.1.3. Development of the Islandmagee Underground Gas Storage (UGS) facility at Larne</p>	<p>Gaslink</p> <p>Premier Transmission Limited</p> <p>Islandmagee Storage Limited</p>
5.2	Twinning of Southwest Scotland onshore system between Cluden and Brighthouse Bay	Gaslink
5.3	Shannon LNG Terminal located between Tarbert and Ballylongford	Shannon LNG

5.0 Regional Emergency Planning

As evidenced in the UK and Ireland 2014 Joint Risk Assessment, the existing regional cooperation between the UK and Ireland is mature, and this philosophy is embedded into existing emergency protocols (e.g. NGG and BGE Joint Protocol for Load Shedding). Additionally, regular all party emergency planning stakeholder meetings are held through the UK Ireland Emergency Group forum, which facilitates the alignment of emergency plans, TSO to TSO dialogue and annual emergency planning exercises.

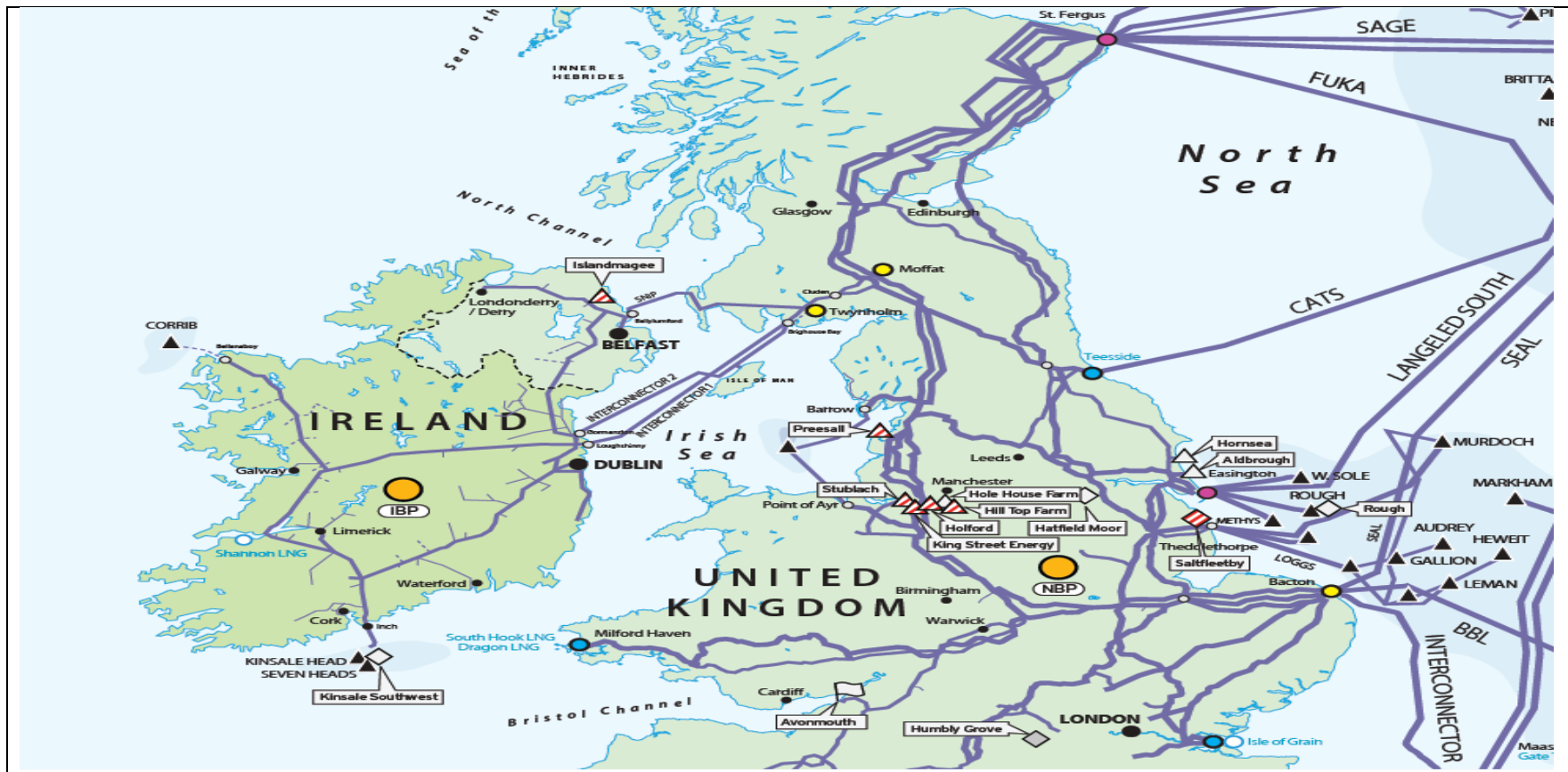
As a consequence, it has been collectively agreed that the existing emergency plans and more detailed established operational protocols (which exist outside of the EU Framework) are satisfactory, and that a JEP is not currently required. However, given the dynamic nature of the gas market, the UK and Irish Competent Authorities will consider how future market developments may impact on emergency arrangements, and identify what amendments/additions to emergency arrangements should be put in place to address changes in the gas market. Such amendments/additions will be progressed through the UK Ireland Emergency Group forum.

6.0 Next Steps

Given that this is the first JPAP between the UK and Ireland, the Competent Authorities will continue to monitor developments regarding the implementation of the Regulation, and examine measures that may enhance gas security of supply on a regional basis.

The UK and Ireland's Competent Authorities also note that in accordance with Article 14 of the Regulation, the EU Commission has issued a report (16.10.2014) on the implementation of the Regulation by EU Member States and its contribution to solidarity and preparedness for gas disruptions in the EU. This feedback from the EU Commission will be taken into account into future Risk Assessments, Preventive Action Plans and Emergency Plans that are prepared by the UK and Ireland's Competent Authorities.

Appendix 1: Map of UK & Ireland's Gas Infrastructure



Appendix 2: Definition of Protected Customers

GB's Definition of Protected Customer	Ireland's Definition of Protected Customer	Northern Ireland's Definition of Protected Customer
<p>Protected demand includes all loads up to 5860MWh non-daily metered, flows to Ireland, Northern Ireland and priority load. Priority load is split into three categories: Category A includes any customer where disruption could lead to loss of life (e.g. hospitals, care homes); Category B includes those that would have been in Category A except that they have signed interruptible contracts (because they have access to alternative generation) and they can continue to use gas during the time it takes for them to switch to the alternative; and Category C, customers where interruption would lead to damage in excess of £50 million.</p>	<p>All NDM sector customers and, in addition, priority customers in the DM sector which are of the following categories:</p> <ul style="list-style-type: none"> • Hospitals and Nursing Homes including retirement homes; • High Security Prisons; and • District Heating Schemes and further categories of essential social services as determined by the CER from time to time. 	<p>All domestic customers, and small and medium industrial and commercial customers whose annual gas demand is below 25,000 therms per annum</p>