

Maintenance Programme 2016/17 Review

National Grid Gas Transmission

30 May 2017

Introduction

This report provides a summary of the maintenance and investment activities that took place during the 2016/17 formula year and details any changes that were made to the maintenance plan as published on 1 April 2016. This report is published in line with our obligations in Special Condition 8G (Maintenance and Operational Planning) in our gas transporters license in respect of the National Transmission System (NTS).

To ensure a high level of safety and reliability in operation, it is essential that a system of inspection and maintenance exists for assets associated with the transmission of natural gas. Effective maintenance is essential to minimise the potential safety and environmental risks caused by failure of pipelines and plant.

In order to facilitate work on the NTS, it is sometimes necessary to require network outages or impose operating restrictions (e.g. where steady gas flows may be required). This may affect one or more parties connected to the NTS including:

- Gas fired power stations and large industrial consumers
- Gas Storage Facilities
- Gas Entry facilities
- Distribution Networks
- Interconnectors

This report covers work scheduled including maintenance activities on the NTS from 1 April 2016 to 30 October 2017. It does not include maintenance carried out upstream of the NTS by Delivery Facility Operators (DFOs) and Producers or downstream of the NTS by Distribution Networks Operators or large connected users.

We work closely with our customers to ensure any impacts due to our maintenance activities are kept to a minimum and endeavour to meet our firm Exit Capacity obligations. The Uniform Network Code (UNC) enables National Grid to inform NTS Users of intended “Maintenance Days” where maintenance activities will have an impact on a specific site connected to the NTS. These Maintenance Days are notified in advance of the work to provide NTS Users with an opportunity to discuss the timing and impact and for us to respond to any industry requests for further information.

Where possible National Grid always endeavours to align its NTS maintenance activities with our customers own outages to minimise any potential disruption to gas supplies. Where this is possible National Grid will issue the customer an “Advice Notice”, notifying them of our planned work, aligned with their own outage.

If you have any queries, questions or feedback regarding the information contained within this document, please contact us via e-mail on NTSAccessPlanning@Nationalgrid.com

The most common types of maintenance activities undertaken on the National Transmission System are summarised below:

In-line inspection (ILI) of pipelines

National Grid is required to carry out In-line inspections of our pipelines periodically in order to maintain their integrity by ensuring that they comply with the Pressure Systems Safety Regulations (PSSR) 2000.

The In-line inspection process requires a number of Pipeline Inspection Gauges (PIGs) to travel through the pipeline in order to complete a full inspection.

In order for the PIG to record accurate information we need to ensure that a steady gas flow through the pipeline section is maintained. Steady gas flows are provided through network configuration and where necessary, management of the demands within the section of pipeline and also downstream of the section of pipeline being inspected.

Planned Feature Inspection

The results from an In-line Inspection may require a “Feature Inspection” to investigate features found during the In-Line Inspection. This involves a visual inspection, and where required a repair of any identified defect. The severity of the defect will determine the pressure reduction required and this may result in the pipeline being isolated (shutdown). Any sites within the isolated section of the pipeline will normally need to be on full cessation for the duration of the works. It may be possible to maintain a small supply to an offtake point by continuously topping up the isolated section whilst maintaining the reduced pressure, however, this is dependent on the individual job requirements.

Remote Valve Operation (RVO) Maintenance

Valves form an integral part of the National Gas Transmission System (NTS). They are used to control the flow of gas on the system and to isolate pipelines in an emergency. Valves can be either controlled remotely from the Gas National Control Centre or need to be operated locally on site.

To ensure the safe continual operation of these valves, National Grid has a policy to maintain key valves on an annual basis. In addition to this annual maintenance there may be a requirement to prove remote operation of the remote valves following faults, upgrades to software, etc.

Telemetry Equipment Works

National Grid Gas National Control Centre (GNCC) controls and monitors remote sites using telemetry systems made up of local computers and communication equipment. Upgrades to National Grid’s telemetry system are ongoing in order to keep our systems up to date and functioning correctly. There is also routine maintenance that must be carried out on telemetry stations to make sure they are in good working order.

Compressor Maintenance

Compressors are vital in running the National Transmission System. They move gas from terminals to where it is required to meet demand. To ensure these compressors are running as safely and efficiently as possible routine maintenance to the compressor and its auxiliary systems is conducted on a regular basis.

Gas Quality Equipment Works

In line with Gas Safety (Management) Regulations (GSMR) National Grid monitors the quality of gas at various points. This is to make sure that legal limits of certain characteristics are not breached on the NTS. To monitor the gas effectively gas quality equipment requires calibration and maintenance to ensure National Grid can meet its obligation.

Metering Equipment Works

Metering equipment is used to measure the flow of gas. Metering equipment may be upgraded or replaced to suit current operating conditions to keep our measuring devices up to the latest standards, ensuring accurate readings and replace out dated assets.

Pipeline Maintenance

Our pipeline network is vital to transporting gas to all UK customers. We continuously monitor the needs of our customers as well as the health and flexibility of our network and carry out work on our pipe whenever required.

Network investment such as new pipelines, plant, connections and pipeline diversions can impact the existing transmission network. These investments are vital to the ongoing provision of gas to UK consumers and National Grid take great care in maintaining security of supply and customer obligations in all investment cases.

Maintenance Work in 2016/17

Primarily the maintenance activities that can impact our customers are as a result of routine maintenance, asset replacement, pipeline inspections and faults as well as work to facilitate investment in the NTS which may be as a result of a new connection or capacity requirement.

During the 2016/17 maintenance programme a wide range of maintenance activities were carried out which had the potential to impact our customers. Through careful planning and regular customer liaison we aim to minimise these impacts however this is not always possible and Maintenance Day notifications will be issued in these circumstances to allow the maintenance to be completed safely.

As shown below, the majority of maintenance activities were carried out without the use of Maintenance Days and therefore no impact on our customers. This may be because the activity did not have any direct impact on a customer due to the geographic location, strategic network configurations were employed or because the activity was aligned directly with our customer's outages, mitigating any potential impact. The majority of the maintenance activities carried out in 2016/17 were managed without the need for calling Maintenance Days, mainly due to an increased focus on customer impacts.

Overview of NTS maintenance activities undertaken in 2016/17 impacting customers and requiring Maintenance Days

Maintenance Activity	Completed Maintenance Activities	Potentially Impacting Activities	Impacting Activities	Maintenance Days Called
In Line Inspections (ILI)	11	0	1	5 (1 ILIs)
Compressor Jobs	127	0	0	0
Defect Inspections	16	0	1	12
Enhanced Gas Monitoring Programme (EGMP2) works	1	0	0	0
Flow Weighted Average Calorific Value (FWACV) Works	9	0	0	0
Gas Quality, Metering & UPS	8	1	0	0
Remote Telemetry Unit (IRIS) Replacement	11	0	0	0
New NTS Connections	0	0	0	0
Pipeline/AGI	105	4	1	1
Gas Remote Site Communications (GRSC)	215	0	0	0
Remote Valve Operations (RVO)	859	34	1	1

Note: All maintenance activities listed under the "Potentially Impacting" column that did not result in Maintenance Days being called were either managed through alignment of works or by other engineering and strategic processes.

Overview of changes made to NTS maintenance activities in 2016/17

Maintenance Activity	Planned jobs	Completed to plan	Completed with amendments	Replanned	Cancelled
In Line Inspections	14	11	0	0	3
Compressor Jobs	177	109	18	18	32
Defect Inspections	18	9	7	1	1
Enhanced Gas Monitoring Programme (EGMP2) works	1	0	1	0	0
Flow Weighted Average Calorific Value (FWACV) Works	14	7	2	5	0
Gas Quality, Metering & UPS	11	8	0	3	0
Remote Telemetry Unit (IRIS) Replacement	16	6	5	5	0
New NTS Connections	1	0	0	0	1
Pipeline/AGI	128	87	18	13	10
Gas Remote Site Communications (GRSC)	240	183	35	14	8
Total	620	420	86	59	55

Note: The above table excludes RVO's which are completed in full each year.

Length of Short and Long Line In-Line Inspections (ILIs)

Date	Type of ILI undertaken (Long/Short) ¹	Length of Run (Km)	Time taken to complete (Days)
25/04/16	Long	105.7	5
02/05/16	Long	32.45	4
09/05/16	Long	60.21	4
06/06/16	Long	74.56	4
15/08/16	Long	43.85	4
03/10/16	Long	29.88	4
16/10/16	Long	42.48	4
26/11/16	Long	58.57	5

The number of days taken to complete each run is broadly in line with previous years. The main factor that impacts time taken to complete is tool availability.

¹ Long In-Line inspection is longer than 10 km

Changes to the Maintenance Programme in 2016/17

National Grid always aims to minimise the impact of planned maintenance on customers through a transparent and flexible approach, endeavouring to align all maintenance activities with customer outages where feasible and practical.

Each year we ask when our customer's outages are to enable alignment of works. If customer outages or other operational plans change at any time we request to be notified as soon as possible so that we can consider whether we also can realign our planned maintenance activities.

There may be occasions when either National Grid or our customers ask for work to be rearranged or altered in some way. In 2016/17, our initial draft plan was published in January, to enable customer feedback prior to publishing the final plan by 1 April.

There were no changes initiated by National Grid during the maintenance period for 2016/17 but we facilitated a number of change requests initiated by our customers; many of which were last minute or customers not notifying us of changes to their plan. This was primarily delivered by significantly improving our planning processes and placing customer impacts at the forefront of our decision making.

To enable these changes we reviewed how we co-ordinated our field resources, and were able to improve our internal collaborative working as well as with our customers to ensure that all other maintenance activities were completed within the maintenance period. We received and responded to 26 customer driven changes during the summer maintenance period (April to October) at customer request, demonstrating our commitment to be flexible to customers' requirements.

Enabling Flexibility

Sometimes standard maintenance approaches may not be optimal for our customers. Where this is the case, a bilateral contract (known as the Minor Works Agreement) can be utilised to enable parties to agree a different, one-off way of completing specific maintenance. This enables customers to pay the incremental costs of working flexibly outside normal working practices pending our ability to accommodate such a request. For example:

(a) Customer-initiated requests for us to change our planned maintenance to a non-standard arrangement; such as requesting planned maintenance during non-standard hours (e.g. weekend or bank holiday).

(b) Customer-initiated requests for National Grid work e.g. the isolation of the customer's supply using NGG plant to facilitate the customer's own works

If you would like to talk to us about these potential options, please contact us on:

box.GTAM.Contracts@nationalgrid.com