

The Voice of the Networks



Energy Networks Association

Open Networks Project

**Whole System FES - Gas input to
Whole System FES**

Phase 1 report

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Document Control

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Table of Contents

Background	1
Identify and implement tactical improvements GDN/ESO liaison to feed into 2020 FES	2
Tactical changes to be implemented for subsequent FES (FES 2021)	3
Finalise templates and processes for information exchange to support 2020 delivery of Whole Electricity System FES.....	3
Identify and agree licence and code changes required to support data exchange and ongoing FES delivery.....	4
Support delivery of Whole System Electricity FES	5
Relevant Workstreams	5
Conclusions and recommendations	6
Next steps	6
Annex 1: Data already provided.....	7

Background

The work is building on 2019 WS1B Product 2 which has aligned the methodology for representing scenarios across electricity network companies and enabled Electricity DNOs to input more directly to the production of the GB wide Future Energy Scenarios (FES). The 2019 product has introduced common building blocks for use by electricity network companies in the GB FES and in the FES produced by other network companies. The building blocks enable better comparisons between scenarios produced by different network companies and more effective information exchanges. The work has also enhanced the process whereby electricity DNO's contribute to the production of the GB FES.

Description

Phase 1 of this product has defined the scope for streamlining of the Whole System FES process for GDNs. The product is aiming to bring further alignment to the FES process by expanding processes developed in WS1B P2 in 2019 to gas and comparing that with existing GDN processes to look for streamlining opportunities. As part of this, the product team will review ongoing work through other forums in the industry and will consider opportunities to streamline gas distribution input to GB FES.

The aim of this product is to further improve the quality and consistency of network company Future Energy Scenarios (FES) and related publications by involving gas network companies in the processes to develop scenarios.

Outcomes & Benefits

If the gas network companies are able to better input to future scenarios, the benefits can include:

- Better quality information for FES (including the GB FES) around gas use including regional supply and demand.
- Improved gas network company scenarios for investment planning.
- Comparable scenarios across network companies through the alignment of methodologies and processes for data exchange.

Indicative Impact for companies

- Impact: Revised processes for Gas and Electricity network company FES production and for inputs to the annual GB FES.
- Timing: Revised processes and methodologies would be assessed through 2020 and introduced as quickly as practicable. Ideally, gas network companies would benefit through improved information flows during the 2021 FES cycle. Network company (electricity and gas) scenarios being produced from 2021 would take on the agreed changes.
- Cost: Key changes are likely to be new ways of working in network companies and new exchanges of information. Additional resources may be required to support these changes but are not envisaged to be large (<1FTE per company per annum).

Team members

The following participants supported Product 3:

Name	Company
Colin Thomson	SGN
Joe Mitchell	SGN
Rob Nickerson	National Grid Electricity System Operator
Bethan Winter	Wales & West Utilities
Keith Owen	Northern Gas Networks
Sanjeev Loi	Cadent
Lorna Millington	Cadent
David Tuffery	Western Power Distribution

The section below describes sub-deliverables of WS4 P3. These are based on the sub-deliverables already delivered in WS1B P2, which looked at improving DNO involvement in the production of the 2019 FES (and subsequent FES documents).

Identify and implement tactical improvements GDN/ESO liaison to feed into 2020 FES

Identification of current touchpoints with National Grid FES team

GDNs have a later starting point than the DNOs had at the outset of WS1B P2, as there is already significant data sharing ongoing between Gas distribution and the ESO.

FES Engagement cycle

GDNs already take part in developing FES through Regular stakeholder workshops, calls for evidence and bilateral meetings as part of the ongoing FES engagement cycle (right).

Gas Futures Group

National Grid is part of the ENA's Gas Futures Group, which provides another opportunity for GDNs and National Grid to exchange information, improving the FES process.

Xoserve Data

National Grid already has access to Xoserve demand data (large loads).

Uniform Network Code

The Uniform Network Code (UNC) is the hub around which the competitive gas industry revolves, comprising a legal and contractual framework to supply and transport gas. It has a common set of rules which ensure that competition can be facilitated on level terms.

Within the UNC Transportation Principal Document (TPD), there are several sections that require the publication/sharing of data between GDNs and National Grid:

- Section B – System Use and Capacity

This section contains information relating to the use of the System, and to NTS Entry Capacity (different types of Entry Capacity, auctions, availability, allocation, constraint management, curtailment of Interruptible NTS Entry Capacity, surrender, different types of charges, neutrality arrangements); NTS Exit Capacity (registration at different points, different types of charges, surrender, Firm Capacity Application); Supply Point and LDZ Capacity (different types of registration and charges); Capacity Transfer; NTS Offtake Capacity (Statement, registration, charges).

- Section H – Demand Estimation and Demand Forecasting

This section concerns the estimation and forecasting of demand for gas at NDM Supply Point Components. It includes information relating to End User Categories and Demand Models (composite weather variable, seasonal normal demand, NDM sampling), and the determination of Supply Meter Point demand (formulae, annual load profile, weather correction factor, scaling factor, etc.). It also covers NDM Annual Quantities (including the formula), NDM capacity (including formulae), and daily demand forecasting.

- Section O – System Planning

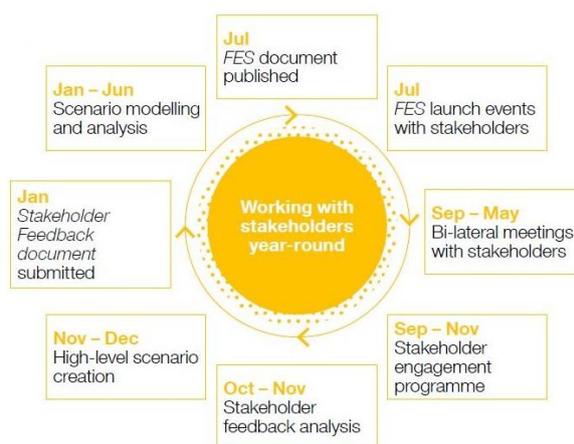


Figure 1 - FES Engagement Cycle

National Grid NTS publishes assumptions and information regarding supply and demand for gas in respect of the Total System and its use. Each Transporter also publishes information regarding supply and demand for gas in respect of the relevant System and its use. This section sets out the requirements for Shippers to provide information to the Transporters to enable publication, and defines the criteria (consultation processes, sources, confidentiality, content, etc.) surrounding the gathering of the information required to produce these documents.

The GDN Long Term Development Statements are published in October every year as part of their licence obligations ([SGN](#), [NGN](#), [Cadent](#), [WWU](#)).

The TO is already involved in the FES process, as the TO produces the [Gas Ten Year Statement](#) (GTYS) (published November), which is linked to the FES process.

Tactical changes to be implemented for subsequent FES (FES 2021)

Provision of additional geospatial data, demand and supply data

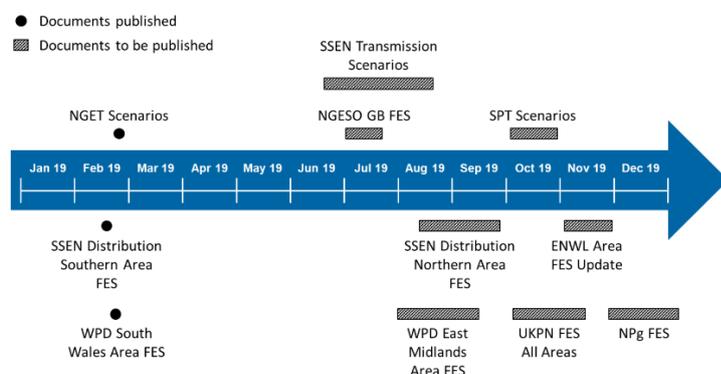
This is to ensure the starting point/disaggregation of forecast at distribution level is more accurate. WWU have shared the boundary for their LDZs (geospatial ESRI Shapefiles) and National Grid have indicated that receiving this information from other GDNs would be useful.

Development of common “building blocks”

More detail provided in information exchange section, below.

1. Scenario production timeline

A document can be produced that outlines the various scenarios being published by each of the network companies and the Electricity System Operator (ESO) during 2020. This already exists in for electricity networks as a result of the work done in WS1B P2 (published [here](#)). This gives stakeholders improved visibility of the various scenario publications being produced during the year.



GDNs don't all publish their own FES as the electricity networks do (e.g. [SPEN FES](#)). However, the below documents could be added to the existing electricity document/timeline:

- [Gas Ten Year Statement](#)
- Long Term Development Statements ([SGN](#), [NGN](#), [Cadent](#), [WWU](#))

Finalise templates and processes for information exchange to support 2020 delivery of Whole Electricity System FES

The objective of this sub-deliverable is to develop and agree templates and processes for the exchange of network information related to the development of Future Energy Scenarios.

1. Information exchange process development

The data exchange process is designed as a method to ensure that the GB FES and regional forecasts are aligned within the starting year, and that the most up to date thinking regarding forecast

years is shared. An example of where this approach may be of benefit is in forecasting trends of Low Carbon Technologies uptake. One issue we may encounter is a different amount of modelling that has been carried out from region to region (e.g. WWU's regional FES), so GDNs will not be able to provide the same data to National Grid.

2. *Building Blocks development*

The buildings blocks are proposed as a collection of data gathering points from which a forecast can be derived. The building blocks are designed to take account of different factors which have a gross effect upon gas/electricity demand/supply.

Demand

A significant amount of data relating to demand is already being shared through the UNC (e.g. annual, 1-in-20 peak, flat and flex offtake capacity). A suggested improvement has been the development of a common template for sharing data relating to some specific sources of demand. These include:

- District heating infrastructure (Type, location, capacity, primary and back up energy source, Supplying new demand or existing)
- Peaking plant (Type, location, capacity).
- Gas-fuelled transport infrastructure
 - Hydrogen or CNG public service vehicles planned each year
 - Location
 - Type e.g. Bus, Rail, Refuse collection, gritters
 - Capacity
 - Constraints

Most of this information is already shared between GDNs and National Grid, however, this varies between GDNs, and a common template for providing this would streamline the process of relaying it to the FES team.

The information above falls within the scope of the data to be collected as part of WS4 P5, which is looking at coordinating the gathering of data from local authorities and regional bodies.

Biomethane

Data on biomethane site locations and capacities is already publicly available or provided by GDNs.

Hydrogen

Several building blocks relating to the development of hydrogen technologies have been proposed, however, it was thought there is currently insufficient data across each of the GDNs to develop an accurate forecast of these technologies' development.

As policy develops around the future of hydrogen and pilot projects start to gain traction, there may be scope to provide common templates for hydrogen technology data (e.g. injection/blending sites, industrial users, domestic supply, transport). This can be kept under review for future FES cycles.

3. *Assumptions/Exceptions*

A common data sharing process doesn't specify that each GDN use a specific format for their own scenario production (or even that they must produce scenarios), it just allows for information sharing between parties.

Identify and agree licence and code changes required to support data exchange and ongoing FES delivery

1. *Determining the need for licence and code changes*

- a. GDNs have a later starting point than the DNOs at the outset of WS1B P2, as there is already a significant amount of codified data sharing ongoing between Gas distribution and the ESO (See current touchpoints section, above).

- b. Following launch in July 2020, the FES team will carry out a session on lessons learned from WS1B P2 and decide whether licence or code changes would be required. This work product can take learnings from electricity distribution process and see if they are applicable to gas distribution.

Support delivery of Whole System Electricity FES

1. On-going support of Whole Electricity System FES
 - i. GDNs already attending events/meetings to help shape the whole system FES approach (e.g. Shaping FES 2020 event, FES network group, bilaterals)
2. Continued support for whole electricity System FES through 2020
 - a. As far as practicable, the Building Blocks developed will be used to share information between network companies. Each of the GDNs can commit to using the Building Blocks going forward.

Relevant Workstreams

- WS1B P2 (2019) (Final report available here).
- WS4 P5: Coordinated Gathering Regional Data. Activities include:
 - Agree scope for service including generic basic data, and data provision/sharing mechanism.
 - Agree mechanism to coordinate gathering of regional data e.g. procurement of service provider or agreed common data framework.
 - Present a high-level cost benefit analysis alongside potential delivery implications and timescales in order to assess and agree next steps.
- WS4 P6: Current Network Resource Data Analysis. Activities include:
 - Consider, identify and document what data currently exists for published network resources or other resources that already exist and could be published, as well as an initial view of priority data gaps.

Coordination with other workstreams will continue so that learnings can be shared and there is no duplication of effort

Conclusions and recommendations

Conclusions

A significant amount of demand forecasting and capacity data is already being shared between GDNs and National Grid through existing codified processes. However, there is scope to streamline the information exchange process. This includes:

- Geospatial data (Shapefiles)
- Scenario/forecast production timelines
- Data sharing templates for some specific sources of demand.

Proposed phase 2 work-plan

Phase two will progress:

- Sharing of geospatial data between National Grid and GDNs.
- Updating the scenario/forecast production timeline
- Development of common templates for sharing GDN data with National Grid (District heating infrastructure, Peaking plant, gas fuelled transport infrastructure), aligning with work ongoing in WS4 P5 with local authorities and WS1B P2.

It is envisaged that this work would be completed by the end of August 2020, and signed-off in October 2020, but this would be kept under regular review. Monthly updates would be provided to WS4.

Resourcing

Key changes are likely to be new ways of working in network companies and new exchanges of information. Additional resources may be required to support these changes but are not envisaged to be large (<1FTE per company per annum).

Next steps

A summary of the next steps is given below.

Date	Stakeholder	Purpose
8 April 2020	ENA Open Networks WS4 meeting	Consideration of report. recommendation to Steering Group and Gas Futures Group for sign-off
Mid-April	Steering Group and Gas Futures Group	Sign-off. Approval to start phase 2.

Table 1 – Summary of next steps

Annex 1: Data already provided

- 10-year annual demands for each LDZ by customer load band type
 - NDM firm
 - Total NDM consumption
 - Total consumption
 - Total LDZ consumption
 - Shrinkage
- 10-year 1-in-20 peak demands by LDZ by load band:
 - NDM Firm
 - DM Firm Consumption
 - Total Consumption
 - Total LDZ Demand
 - Shrinkage
- Historic demand including weather corrected and reconciliations.
- Count of current domestic and non-domestic connections.
- Count of new loads (domestic and non-domestic) during last year.
- DS8: Annual gas requirements of large loads over the next 10 years.
- Commentary on large loads (varies by GDN)
- Starting to share some gas peaking plant data although not aligned on how this is shared.

Type of capacity invitation/ invitation date/notification	Time information to be published following allocation	Total bid/offer/application volume	Total successful bid/offer/application volume	Highest successful bid/offer (price and volume)	Lowest successful bid/offer (price and volume)	Total number of Users who submitted bid/offer or application	Total number of successful Users who submitted bid/offer or application	Unsold capacity	Weighted average bid/offer price	Incremental quantity allocated	Reductions
Enduring Annual NTS Exit (Flat) Capacity - July	Within 24 hours	Y	Y	N	N	Y	Y	N	N	Y	Y
Enduring Annual NTS Exit (Flat) Capacity – October to June	Within 10 days	N	N	N	N	N	N	N	N	Y	N
Annual NTS Exit (Flat) Capacity - July	Within 24 hours	Y	Y	N	N	Y	Y	Y	N	N	N
Daily NTS Exit (Flat) Capacity	Within 1 hour	N	Y	Y	Y	Y	Y	Y	Y	N	N
Daily Off-peak NTS Exit (Flat) Capacity	Within 1 Hour	Y	Y	Y	Y	Y	Y	N	Y	N	N
Capacity Surrender and Offtake Reduction Invitations	Within 1 hour	N	Y	Y	N	N	N	N	N	N	N

Table 2 - Information published in respect of capacity invitations and applications