

Future Energy Scenarios 2016: Frequently Asked Questions

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General

Q: How do I ask questions or seek further information?

A: Please send questions via email to transmission.ukfes@nationalgrid.com
We will answer your questions as soon as we can.

Q: What is the date format in the charts?

A: All gas charts are in calendar years. All electricity charts are in financial years, with the exception of Figure 3.5.3 (Smart Meter Rollout) which is in calendar years.

Q: Where can I find the data published in the FES?

A: We have published as much data as we can: most of the charts are published in the spreadsheet workbook, downloadable with the FES document from our website. These are labelled as they are in the main document e.g. Fig 3.1.1

We have also published many additional datasets, containing data which supports the FES analysis.

CP: Commodity Prices

PD: Power Demand

GD: Gas Demand

PS: Electricity Supply

GS: Gas Supply

Demand

Q: What is the date format in the charts?

A: All gas charts are in calendar years. All electricity charts are in financial years, with the exception of Figure 3.5.3 (Smart Meter Rollout) which is in calendar years.

Q: What are your economic growth scenarios?

A: We used Oxford Economics data to feed into our Industrial and Commercial demand model. Gone Green and Consumer Power share the same higher growth case which is about 2.5 % GDP growth year-on-year out to 2025 and then levelling out to 2.0%. Slow Progression and No Progression share the lower growth case which is 0.5 percentage points lower year-on-year than the higher one. We do not model for a recession during the period.

Q: What definition of electricity demand do you use in FES? How does this differ from other National Grid publications?

A: In FES we consider underlying demand. That is end consumer demand, regardless of where (transmission, distribution or on site) that electricity is generated, plus network losses. Demand is weather-corrected to seasonal normal for annual and average cold spell (ACS) for peak. For clarity it does not include interconnector exports, station demand, pumping station demand or other forms of storage demand.

Q: How does this differ from other National Grid publications?

A: Other National Grid publications: The Electricity Ten Year Statement (ETYS), System Operability Framework (SOF), Network Options Assessment (NOA) and our Outlook documents consider Transmission demand, as they look at future development of the transmission system and year ahead system security of supply.

Demand Technologies

Q: How have you selected low carbon technologies in your scenarios (e.g. heat pumps), and not selected others (e.g. hydrogen)?

A: We carefully assess all potential new technologies that are publically available. We use a number of criteria to test whether any given technology should be included within the FES, this includes; technology maturity, supply chain potential, commercial readiness, support required, together with consumer and political interest. Each year, we reassess the technologies to ensure that we capture innovations and we test this through engagement with stakeholders. Within this year's FES we have introduced spotlights and sign posts to bring addition focus to particular technologies that could have a big impact with future markets.

Q: How does hydrogen feature in your scenarios?

A: Hydrogen features in small quantities in the latter period of our Gone Green scenario, and to a smaller extent and later in Slow Progression. In Gone Green, it is produced from electrolysis of excess renewable generation. In Slow Progression, it is produced in a CCS-enabled process using biomass as a source. In both scenarios it is used to fuel HGVs via fuel cells. Hydrogen is one of the areas of greatest uncertainty, in our scenarios. We have consulted expert 2050 modellers on this topic, who all agree how it is created or used is highly uncertain. What we all agree it has an important future role to play in a low carbon energy system as other energy options become exhausted.

Q: Where can I find your numbers for installations of low carbon heating technologies?

A: In the charts workbook: Tabs GD7, GD8, GD9, GD10 contain installations of the various technology types. GD11 counts the number of homes on district heating.

Q: Do you consider Vehicle to Grid (V2G)?

A: Vehicle to Grid (V2G) is not in the FES2016 Scenarios. We are well aware V2G could be significant in providing demand side response services (Gone Green has 9.7 million electric vehicles by 2040).

We will include it in future scenarios when we can obtain enough data to be confident in any future projections.

National Grid is currently in talks with aggregators and parties in the automotive industry on demand turn-down and demand turn-up services.

Q: Do you have profiles for heat pump and electric vehicle usage?

A: Our profiles are informed by data from “Low Carbon Network” projects, which were funded by Ofgem:

The “Customer Led Network Revolution” project library contains a wealth of information on different innovation project trials.

<http://www.networkrevolution.co.uk/resources/project-library/>

Searching for “Electric Vehicles” or “Heat Pump” will find the following datasets, as well as a number of reports and summaries on trial design and findings. Data is also available for residential solar panels, micro chp and demand side response trials.

CLNR-L078 Dataset TC6: Enhanced Profiling of Domestic Customers with Electric Vehicles

CLNR-L075 Dataset TC3: Enhanced Profiling of Domestic Customers with Air Source Heat Pumps

Additional information is available from the “My Electric Avenue” which trialled over 100 Nissan Leafs for 18 months.

<http://myelectricavenue.info/>

Q: How do you account for demand side response in FES?

A: Because we are interested in the underlying demand, within our FES figures, we only count where the consumer has shifted their usage. We do not include where a consumer has switched to another power source – such as a generator or battery storage. This is not a demand shift as their demand is still the same it is just being sourced differently. This figure would be captured by the power generation team and if we were to include it we would end up double counting the true generation that is available.

In FES we do not include industrial and commercial demand side response within in our definition of peak (our definition is an “unrestricted” one), but we do incorporate residential demand shifts, because of time of use tariffs, as these are considered a behavioural shift rather than economically derived.

Supply

Q: What is the date format in the charts?

A: All gas charts are in calendar years. All electricity charts are in financial years, with the exception of Figure 3.5.3 (Smart Meter Rollout) which is in calendar years.

Q: Where can I find information on your projections for generation capacity?

A: In the spreadsheet workbook downloadable with the main document:

Tabs PS1, PS3, PS5, PS7 contain capacity figures (MW) for transmission connected, distribution connected and <1MW generation (contains micro-generation), as well as totals.

Tabs PS2, PS4, PS6, PS6 contain annual output figures (GWh) by the categories described above, as well as totals.

Q: Are network constraints (such as thermal constraints, or fault current constraints) taken into consideration when calculating the amount of generation that is going to connect to either the transmission or distribution network?

A: Our scenarios are not constrained by network capacities. The impact on the network is assessed in the Electricity Ten year Statement and the System Operability Framework, both documents are published in the Autumn.

Q: Why do you use generic imports for gas supplies?

A: The background and our thinking on the UK's gas supply sources is described on pages 121-126. In summary: We build our gas supply scenarios by assessing the likelihood various supply types to come to GB. For example, UK continental shelf, shale or green gas (biogas or bio synthetic natural gas) land first in GB. Some Norwegian fields are directly connected to GB, and minimum levels of LNG must flow due to boil-off requirements.

This satisfies most GB gas demand, but leaves a proportion of gas demand which could be met by continental interconnectors, or increased LNG. We label this as "Generic Imports." There is sufficient capacity from these sources to meet this demand. The final makeup of supplies will be determined by commercial considerations or events which affect the global gas supply chain.