FES 2017 Spatial Data

Scenarios

There have been some changes to the scenarios from 2016; below is a high level outline of the scenarios for FES2017. ***Please note*** we now have 2 scenarios with high distributed generation, Slow Progression and Consumer Power.

- **Two Degrees:** Our most prosperous world where policy and innovation are both ambitious and effective in reducing greenhouse gas emissions. The scenario is the only one that meets the 2050 carbon reduction target. The focus is on delivering high levels of low carbon energy, primarily at the transmission level.
- **Slow Progression:** A low growth world which limits society's ability to transition as quickly as desired to a low carbon world. A focus on cost-efficient environmental energy policies leads to a mixture of renewable and low carbon technologies, including significant levels of distributed generation.
- **Steady State:** Business as usual prevails and society focuses on the short term, security of supply and affordability above green ambition. Traditional sources of gas and electricity at transmission level dominate, and gas is the preferred choice for generation and heating over low carbon technologies.
- **Consumer Power:** A prosperous, market-driven world which focuses on consumer aspirations over green ambition. This leads to high levels of distributed generation and a mix of generation types at a national level.

For more scenario information please see fes.nationalgrid.com
For spatial data queries please email transmission.etys@nationalgrid.com

Model Overview

- **Data is provided at Minor FLOP zone**. These are defined in Figure A.5 (Appendix A) of the 2016 Electricity Ten Year Statement.
- The main worksheet within the Excel file (MAIN DATA) provides a frontend view of the data.
- **You can adjust the scenario, year and period using the dropdown menus in the top left (yellow cells).**
- The backend worksheets provide an alternative (more database friendly) view of the same data.

Embedded and <1MW Generation

- Each large individual embedded generation site is then mapped to a location (GSP). In many cases this mapping is according to the DNO data, but where gaps existed we mapped to the nearest GSP geographically.
- The forecasts are apportioned according to existing distribution of embedded generation with the exception of solar. Our solar spatial forecast follows last year's procedure to ensure that as solar installed capacity increases it spreads across the country.
- We then aggregate the data to minor FLOP zone level.

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- For sub 1MW (Micro-generation) the relevant Feed-in-Tariff (FiT) and Renewable Obligation (RO) data was mapped to the nearest minor FLOP zone. A percentage is calculated to represent the proportion of Microgeneration that each FLOP Zone accounts for. These percentages are used to break down our aggregated Microgeneration forecasts.
- The summer solar conditions are internally known as "**Average Warm Spell**" and are intended to model system behaviour during times of **high solar PV generation (81% load factor)**

Active Demand Data Treatment

- Demand split around the country using Network Demand Data (NDD) node dataset using 5 year averages.
- FES scenarios overlaid onto Year 1 starting demands
- Storage demand included in all demand definitions (Columns W:Y)
- Indicative DSR (Demand Side Response) at peak but not deducted from the demands (Column Z). As there is no data, it is assumed if a zone as 1% of demand, it has 1% of DSR.

New Technology Treatment

- EVs split around GB using DFT registration data, moderated to remove the impact of fleet vehicle registrations by capping registrations at 100 EVs at the same post code. Future projections assume proportions of EVs will remain the same around the country.
- Storage assumed to be in similar location as renewables. Demand load factors refined using new model. Storage added to Scotland for 2017 datasets.
- New heat technologies spread around the country proportionally to demand e.g. if a zone as 1% of demand, it has 1% of new heat demand.

Reactive Demand Data Treatment

- 5 year Q/P trend calculated by NDD node.
- Aggregated to minor FLOP to produce Q/P trends by minor FLOP
- Overall reactive power export (and import) calibrated to observed National Grid data

Control Notes

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This document: U:\ESP\EM\Forecasting\2017\ETYS_Spatial\ETYS AWS public release\ FES Spatial Summary Published.pdf

Published data: U:\ESP\EM\Forecasting\2017\ETYS_Spatial\ETYS AWS public release\ FES Spatial.xlsb

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