Flexible Distributed Generation

FDG-E Great Yarmouth (EPN)  December 2016
Flexible Distributed Generation

• Following the success of Flexible Distributed Generation (FDG) zones, UK Power Networks will be rolling out FDG connections in this area;

• Starting January 2017 UK Power Networks will invite customers to apply for a feasibility study for a FDG connection, by submitting an application with project details which shall include:
  • Projects location (site name, postcode, OS reference)
  • Technology (e.g. PV, wind)
  • Export Capacity (above 200kW)
  • Planned power on date (Anticipated connection date e.g. Q4 2018)
  • Current planning status
  • Energy Storage Details (Technology, method of use, import & export profile)

• Once all the relevant project details have been submitted the applications will be placed in a capacity queue for assessment.
Principles of Flexible Distributed Generation

• A **Flexible DG connection** is a technical and commercial agreement where a generator is allowed to connect an amount of capacity above the unconstrained connection limits. When a network operation threshold is breached, UK Power Networks manages the generator output to ensure network voltages and currents are kept within operational limits. This is operated by an **Active Network Management (ANM)** solution;

• FDG-E will be open on the basis of **Last-In, First-Out (LIFO)** principle where each generator is assigned a position within a global priority stack. When new generators apply for a connection in the area, they are given a position at the bottom of the priority stack and which will be curtailed first during a constraint event.
FDG-E Flexible Distributed Generation Zone

- The FDG-E Great Yarmouth zone is defined by the extent of the electrical network within the following geographical area:
FDG-E Flexible Distributed Generation Zone

- UK Power Networks Grid Substations within FDG-E are supplied from **Norwich Main** Grid Supply point (**GSP**) and include:
  - Gorleston Grid (132/33kV)
  - Lowestoft Grid (132/33kV)
  - Gt Yarmouth Grid (132/33kV)
  - Gt Yarmouth Power Station (132/33kV)

- 7 Primary Substations (33/11kV);

- The boundary of **FDG-E** area is **defined by** the 11kV network;

Diagram from May 2016 Long Term Development Statement
FDG-E  Installed Generation Capacity

- A total of **515MW** of generation (over 0.5MW) is included in UK Power Networks assessment (all generation sites already connected);

- The 420MW Combined Cycle Gas Turbine (CCGT) Power Station at Gt Yarmouth represents 82% of the total installed capacity within FDG-E with Solar PV 3% and Offshore Wind 15%.
FDG-E Existing Global Network Constraints

• This is a highly utilised network in respect and new connections would require more substantial customer contribution;
• UK Power Networks continue to work with National Grid in managing potential network constraints at the interface with the transmission system and in improving the Statement of Works process;
• The following Global network constraints have been identified in the Great Yarmouth area that will be managed by the ANM scheme:
  • Gt Yarmouth 132kV constraints:
    • 132kV Circuit thermal limits between Gt Yarmouth power station and Trowse Grid;
    • Reverse power flow through the five Super Grid Transformers (SGT) at Norwich Main.
  • Local network constraints may be identified in the Gt Yarmouth FDG area as part of the technical assessment which will be managed by the ANM scheme.
Useful Contacts and Links

- UK Power Networks will invite customers to apply for a feasibility study for a FDG connection. More information will follow.
- Useful Links:
  - UK Power Networks DG webpages
  - UK Power Networks Flexible Distributed Generation
  - UK Power Networks Online DG Mapping Tool
  - UK Power Networks Innovation Page - FPP
  - ENA Active Network Management Good Practice Guide
- For further details please contact:
  - Kellie Dillon | Distributed Generation Business Analyst
  - Kellie.dillon@ukpowernetworks.co.uk