Flexible Distributed Generation
FDG-C Walpole East (EPN)  
October 2015
Flexible Distributed Generation

• Following the success of Norwich and March Flexible Distributed Generation (FDG) zones, UK Power Networks are rolling out FDG connections as an extension of the previous area of March Grid to Walpole East (FDG-C), incorporating Kings Lynn and Hempton.

• Starting October 2015 customers will be invited to submit project details as part of the Expression of Interest (EOI) which include:
  • Projects location (site name, postcode, os reference)
  • Technology (e.g. PV, wind)
  • Export Capacity (above 200kW)
  • Planned power on date (Anticipated connection date Q4 2016)
  • Current planning status

• The EOI allows us to best plan and evaluate the levels of demand for flexible DG connections we might see in the area. Please be aware that it is non-binding and does not reserve a place in a capacity queue.
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-C 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.
The **FDG-C Walpole East** zone is defined by the extent of the electrical network within the following geographical area:
FDG-C Flexible Distributed Generation Zone

- UK Power Networks Grid Substations supplied from Walpole Grid Supply Point (GSP) include:
  - Hempton Grid (132/33kV)
  - Swaffham Grid (132/33V)
  - Kings Lynn Grid (132/33kV)
  - Kings Lynn South Grid (132/33kV)
  - Kings Lynn Power Station (132kV)
  - 20+ Primary Substations (33/11kV);
  - The boundary of FDG-C area is defined by the 11kV network;

Diagram from May 2015 Long Term Development Statement
FDG-C  Installed Generation Capacity

- A total of **689MW** of generation (over 1MW) is included in UK Power Networks assessment, of which 88MW expected to be connected shortly;
- A 400MW Gas Generation at Kings Lynn Power Station represent 58% of the total installed capacity with Solar PV at 20% and Onshore Wind 12%.
FDG-C 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 Walpole East area that will be managed by the ANM scheme:
  - Walpole 132kV constraints:
    - 132kV Circuit thermal limits between Walpole GSP and King’s Lynn Power Station;
    - 132kV Circuit thermal limits between King’s Lynn South and Swaffham-Hempton Tee;
    - 132kV Circuit thermal limits between Walpole Grid and Peterborough Power Station.
FDG-C Existing Global Network Constraints

• **Global network constraints** (Continuation):
  • Hempton Grid 33kV constraints:
    • Transformer Reverse Powerflow at Hempton Grid 132/33kV;
    • 33kV Circuit thermal limits on Hempton-Coxford and Hempton-Burnham Thorpe.
  • Swaffham Grid 33kV constraints:
    • Transformer Reverse Powerflow at Swaffham Grid 132/33kV;
    • 33kV Circuit thermal limits on Downham Market-Northwold-Wissington.
  • Kings Lynn Grid 33kV constraints:
    • 132/33kV Grid Transformer tap changer reverse power capability.
• Local network constraints may be identified in the Walpole East FDG area as part of the technical assessment which will be managed by the ANM scheme.
Useful Contacts and Links

• Following the Expression of Interest, 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](#)

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