Asset replacement

DNOA Decision
Reinforce

Scheme description

The replacement of a significant number of assets on NGED's network is driven by the condition of the equipment rather than increased peak demand and/or generation.

The condition of assets cannot be improved by procuring flexibility services, and as such flexibility is not suitable for deferring asset replacement projects. This is discussed further in Appendix A. Asset replacement carried out by NGED on the EHV and 132 kV networks generally falls into the following categories:

- 132 kV circuit works
- 132 kV transformer/switchgear replacement
- EHV circuit works
- Primary transformer/switchgear replacement

Fault level

DNOA Decision
Reinforce

Scheme description

Fault level driven reinforcement is carried out by NGED to keep fault levels below the ratings of assets on the network (including circuit breakers and busbars).

These reinforcement schemes ensure generation customers can continue to connect on that part of the network, and allow for more secure running arrangements to be utilised to improve security of supply.

Flexibility is not suitable to mitigate fault level constraints, and therefore cannot be used to defer fault level reinforcement.

The following fault level schemes are planned on the EHV and 132 kV networks in NGED's four licence areas:

East Midlands

Bourne BSP
Coventry 132 kV
Cox Street Primary
Hazelwood Primary
Ketton Cement Primary
Rugby BSP
Staveley 11 kV
Willington 132 kV

South Wales

Cardiff East
Rassau

West Midlands

Bustleholm GSP
Feckenham
Kitwell 132 kV
Roushill Primary
Ryeford BSP
Strensham
Wolverampton 33 kV

South West

Exeter Main GSP
Haven Road 11 kV
Indian Queens GSP
Melksham GSP
Sowton BSP
Weston BSP

Generation

DNOA Decision
Reinforce

Scheme description

Across NGED's four licence areas significant growth in distributed generation is projected, which can lead to constraints on the distribution network.

These constraints were not deemed technically suitable for mitigation using Demand Turn Up / Generation Turn Down services.

The following generation reinforcement schemes are planned on the EHV and 132 kV networks in NGED's four licence areas:

West Midlands

Hereford to Ludlow Mesh

Evesham to Strensham

Feckenham to Evesham

South Wales

Margam BSP

Swansea North/Upper Boat

East Midlands

Alfreton to Ravensdale Park
Ashby/Willesley
Bicker Fen GSP
Harbury Network
Mansfield to Skegby Lane T1
Staythorpe GSP
Whitwell BSP
Worthington Primary

South West

A Route
B Route
Callington to Landulph
Exeter City to Makro
Exeter Main GSP
Fraddon BSP
Haven Road 11kV
Indian Queens GSP
Landulph BSP
Melksham GSP
Plympton to Torycombe
Polzeath to Wadebridge
Pyworthy BSP
Radstock to Evercreech
Rame BSP
Sowton BSP
St Austell BSP
St Germans BSP
St Tudy BSP
Watchfield Ring
Weston BSP

Voltage

DNOA Decision
Reinforce

Scheme description

Many of the constraints identified on the network across NGED's four licence areas are related to voltages dropping below statutory limits.

Managing voltage constraints using flexibility services is possible. However, for more severe voltage constraints the fact that only real power (MW) is procured becomes a limiting factor. This is due to the fact that procuring real power without reactive power (MVar) leads to a reduction in power quality (the power factor for the network drops).

The following voltage constraints have been identified which are not suitable for mitigation with flexibility under NGED's current processes:

East Midlands

Alfreton to Ravensdale Park

South Holland to Long Sutton and Holbeach

South Wales

Llandrindod to Rhayader

Pembroke to Broadfield

Abergavenny to Glasbury

West Midlands

Feckenham to Evesham and Strensham

Hinksford to Wribbenhall

Ironbridge to Star Aluminium

South West

Barnstaple to South Molton

Camborne Holmans

Feeder Road

Hayle BSP

Lapford and Tinkers Cross

St Tudy to Davidstow