

## Role of a DSO

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# Background

- Last Autumn's WS6 report touched on the potential future role for DNOs as a distribution system operator (DSO)
- The report posed a set of questions:
  - What are the incremental steps to a full DSO role?
  - What are the trigger points for each step?
  - Which parties need to be aware of these trigger points being met?
  - Which party is responsible for monitoring these trigger points?
  - What actions may a DNO have to take and how may its processes have to change to fill a DSO role?
  - What are the lead times for taking on a DSO role?
- These slides will discuss the potential stages of a DSO role – once these are defined, the questions above can be answered.

## 1. Enhanced monitoring and planning

- a) DNO uses smart metering data, monitoring or other assumptions to build a more granular network model of constraints for planning investment.
- b) Trials: Flexible Networks (SP), LV Templates (WPD), NTVV (SSE), FALCON (WPD)

## 2. Real time reconfiguration of the network

- a) DNO reconfigures network to release capacity in real time to manage constraints.
- b) Trials: Low Carbon Hub (WPD), Flexible Networks (SP)

## 3. Commercial arrangements to manage faults

- a) DNO uses new commercial arrangements and new tools to monitor and manage network under fault conditions.
- b) Trials: C2C (ENWL), FlexDGrid (WPD)

## 4. Active voltage management on specific areas of the network

- a) In the same way as the SO manages system frequency, DNO uses customer response and network assets to keep voltage within statutory limits.
- b) Trials: CLASS (ENWL), Flexible Networks (SP)

## 5. Permanent Active Network Management in specific areas of the network

### *i. Active Network Management on HV/EHV*

- a) DNO uses new commercial arrangements, DSR and new tools to monitor and manage network constraints on specific branches of the network.

### *ii. Demand/generation balancing at premises to avoid LV feeder constraint*

- a) Customer's demand is managed using its own micro-generation and/or storage to avoid constraints on feeder and to provide DSR
- b) Trials: ARC (SP), Orkney RPZ (SSE), SNS (UKPN), Flexible Plug and Play (UKPN), BRISTOL (WPD), I<sup>2</sup>EV(SSE), NTVV (SSE), Low Carbon London (UKPN), CLNR (NPg)

## 6. Distribution system balancing

- a) DNO centrally balances generation and demand across the whole network through use of new commercial agreements with generators, DSR and storage. Aim is to balance whole DNO system using embedded generation.
- b) Trials: NINES (SSE)

# Questions

- What is the need for a DNO to have a DSO role – ie under what network conditions would a DSO role be the most cost effective way of maintaining security of supply and reliability?
- Are there barriers to DNOs taking on a DSO role under current regulatory framework?
- Are new regulatory or commercial arrangements and responsibilities required take on a DSO role?
- Should the move to a DSO role be gradual and incremental or a co-ordinated ‘big bang’?

## Next steps

- The aim of this work is to draft a paper on role of the DSO
  - Under **Stage 2** of the WS6 ToRs, we aim to cover:
    - Definition of a DSO
    - Stages to a DSO role
    - Roles and responsibilities of industry parties in each stage
  - Under **Stage 3** of the WS6 ToRs, we aim to cover:
    - Transparency and commercial arrangements to support DSO role
  - Under **Stage 4** of the WS6 ToRs, we aim to cover:
    - Commercial and regulatory barriers, and what changes could be made to enable a DSO role.
    - Trigger points to move to each stage

Note that WS7 – ‘2030 distribution system’ – is examining how a future network may operate. We will need to align with this work to ensure that technical and commercial arrangements complement each other

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