

COMMERCIAL & CONTRACTUAL INNOVATION

Electricity distribution networks have traditionally been predominantly passive in nature, with generation moving from central locations across the transmission system to customers connected to the lower voltage networks. However, with the growth of embedded generation at all voltage levels, and new smart technologies, Distribution Network Operators (DNOs) have the need (and the means) to more actively manage flows on their networks by utilising a range of physical and commercial innovations. By combining flexibility of commercial arrangements in terms of timing, seasonality, or import/export limitation this can also facilitate quicker and more cost effective connection.

Scottish and Southern Energy Power Distribution (SSEPD) have implemented a number of these types of innovations over the last year. Examples of which include:-

Commercial and Community Innovation



Earlier this year Ofgem announced that to facilitate shared ownership of Feed in Tariff projects, it would allow community projects to share a point of connection to the network with a commercial development. SSEPD have since created a number of innovative ways of accomplishing this in order to suit individual projects. The most cost effective method has been to use 'pseudo MPANs' with sub-metering. However, they have also facilitated fully metered circuit breakers and full settlement metering where this is preferred by developers.

SSEPD have also been collaborating with Community Energy Scotland (CES) on novel commercial arrangements, where the developer has received a connection offer which has a delayed connection date due to constraints on the transmission network. In this scenario, SSEPD and CES have worked together to identify who is ahead of the developer in the 'queue' and whether there were any options available for interim, or reduced, access ahead of the transmission constraint being lifted. SSEPD and CES are also currently working with another developer that is adopting a similar approach, but is also including a form of Active Network Management (ANM) to potentially avoid further network reinforcement.



The SSEPD Community Energy Champion can be used as the first point of contact to discuss such options with interested community groups.

(Email – community.energy.champion@sse.com)

Active Network Management

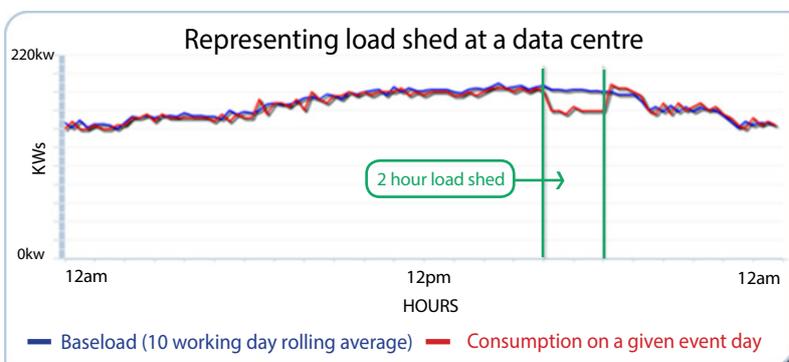
The concept of Active Network Management (ANM) has been interpreted in different ways, but the core principle is that the electricity produced or consumed by network customers is variable, and DNOs can make use of that variability to optimise the usage of network assets. This can speed up connections and reduce costs, primarily for the benefit of those customers who are able to provide flexibility. The earliest ANM schemes in Great Britain have been implemented as part of innovation projects, but SSEPD is beginning to integrate such approaches into their Business as Usual practices.

The most recent implementation is on the Isle of Wight, where the network has now reached a point of 'saturation'. In effect, the status of the intact network is that the amount of generation on the island matches the current minimum load requirements. An inter-trip system extended capacity by allowing for certain fault conditions but any further generation connections, or load reductions, would have a major impact on the network, causing issues such as reverse power flow which could lead to 132kV asset damage. Therefore without extensive and expensive reinforcements, which could prove to be cost-prohibitive for developers, it was not possible to provide further generation connections on the Isle of Wight.



The implementation of ANM on the island changes this. The new ANM system continually monitors all the limits on the network in real-time allowing further generation connections and allocating the maximum amount of capacity available to customers. This optimises our assets and reduces the cost of reinforcements and the impact of associated delays for our connection customers.

Constraint Managed Zones



A Constraint Managed Zone (CMZ) is a geographic region served by an existing network where requirements related to network security (e.g. thermal capacity, voltage, frequency) are met through the use of load variation techniques in order to mitigate peak times of demand on the network and thus reduce the need for reinforcement. It also offers other opportunities for commercial service arrangement with connecting generators. Techniques

utilised as CMZ Services could include Demand Side Response, Energy Storage and stand-by generators.

SSEPD utilise the EU Open Tender process to identify the best CMZ Suppliers of CMZ Services and the first tender is currently underway for both the Yeovil and Standlake areas of their southern network. Those interested in new connections to provide such services should engage with SSEPD at an early stage in order to best define how to proceed through the application process.