Wide Area Network Studies (WAN) *For Developers*

ITPEnergised is a specialist grid advisor within the renewable and low carbon sectors covering a broad range of work including electrical studies, design, consenting, procurement, construction, operation, code compliance and code amendment, political and regulatory matters, strategic advice, and commercial negotiations. One of our specialist areas is Wide Area Network Studies (WAN) for developers.

1. The importance of the grid connection

A critical area for the success of new generation assets is the ability to connect the generating asset to a grid connection or private wire, to ensure that generated power can be exported. This element of a project is key to determining the commercial viability of any proposed project. As a leader in all major grid regulatory developments in Great Britain over the last ten years, ITPEnergised is well positioned to advise on this.

2. Wide Area Network Studies

ITPEnergised can perform an analysis of all substations within the chosen area of search which may present viable connection opportunities for projects at a pre-determined scale. We undertake these studies on a DNO by DNO region basis, then undertake a full data-driven GIS analysis of the DNO region.

The analysis process is largely informed by our internal knowledge base and assessment of publicly available documentation. The assessment of each substation's status will be based on known issues/ timeframes from recent work undertaken by ITPE, some further research and possible discussions with National Grid Electricity System Operator (NGESO) and the relevant DNO/TO as applicable. We will endeavour to find robust or electrically firm connections, where available, for new generation/storage sites.

The analysis will present the results in a 'Red-Amber-Green' (RAG) format, and we can carry out this assessment on a number of different criteria, such as the following;

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- **Overload protection scheme (uncompensated)**: An overload protection scheme has a variety of different names dependent on the network operator; they may be known as Active Network Management (ANM) or Load Management Schemes (LMS). These schemes if they are in place would allow the network operator to turndown/turn off generators within a region to counteract certain events; examples of these may be thermal limits being exceeded, voltage level issues or fault level issues occurring. In any case, in these events, the generation site would be uncompensated for their downtime.

- **Generator substation**: Substations that are embedded in the network that have been constructed to support another generation site but may present spare capacity opportunities.

- **Fault level issues**: substations that are identified as having potential fault level issues or may trigger such issues if additional generation of the scale specified is connected.

The deliverable will be a strategic heat map and accompanying data files showing the RAG status of each substation site.

In each case dependent on the area selected we will seek to determine the best connection type for your proposed project scale and identify connections that would best suit this. ITPEnergised can offer an estimate on connection costs. This will be a generic cost, as a £/MW value for connection to a generic substation and will be based on in house data and information provided by the DNO to further aid in developing an area of search.

We are happy to discuss any specific requests you may have in this approach and can adapt our process to suit your needs if required, following discussion. Please contact Peter Lo, Head of Onshore Renewables and Storage at peter.lo@itpenergised.com or Jean Lewis, Head of Technology Services at jean.lewis@itpenergised.com.