



## Project UN:LOCK

# Assessment Tool Supporting Documentation

The Discovery phase of Project UN:LOCK explored ways to reliably increase demand on the Isle of Wight (IoW) at the appropriate times to create additional capacity on the network. It looked at six non-network solutions to maximise network capacity, to enable the accelerated connection of new generation ahead of the proposed network reinforcement/additional subsea cable investment.

The UN:LOCK project team developed a tool that compares the interactions and impacts of the non-network options based on the study carried out on the IoW. The aim of the tool is to support other areas facing similar network constraints to identify viable non-network solutions ahead of traditional reinforcement. This first version of the tool is an early-stage demonstrator with potential for further development.

The tool enables users to understand the key stages and data requirements for an UN:LOCK project elsewhere in Great Britain. This has been achieved through a process diagram linking to detailed descriptions of what information is needed from which stakeholders and at what stage. This process map is not an exact representation of work conducted over the IoW study; it is an idealised process taking learnings from the Discovery phase. A worked example is also provided to aid the user in populating parts of the tool. See below for a step-by-step guide.

The process presented in this tool is replicable in any area facing generation constraints. It is highlighted that the IoW Discovery phase benefitted from having a relatively easily defined assessment area. In more 'enmeshed' areas, the definition of the boundaries becomes a more involved task that has not been explored in detail within the tool. While advice is provided within the tool, additional development could seek to define the area selection process in more detail.

The tool provides a framework to compare the interactions and impacts of the options considered within the UN:LOCK process. The population of this framework is reliant on the user conducting desktop research and stakeholder engagement for the specific area of investigation. The tool directs the user to the appropriate stakeholders and provides key questions; it also directs to the appropriate Distribution Future Energy Scenario (DFES) data. Further development of the tool will seek to integrate various open data platforms to remove much of the time, effort and potential for user error from the data-gathering process.

There is a rating and ranking functionality within this version of the tool, where the user is prompted to rate each of the assessment criteria within each option as red, amber or green.

The tool includes a model that can estimate the potential for domestic flexibility within a specific area. This has used results from previous innovation projects and current domestic flexibility schemes to inform assumptions behind the analysis and guide the user through what input data is required and where to find it. It also highlights some key use cases, for instance, schemes delivering ad-hoc flexibility vs. daily demand flexibility, or schemes targeting electric vehicle (EV) owners. With this understanding of the potential for domestic flexibility, the user could create a targeted scheme to alleviate a local constraint and enable additional generation. With additional development, the tool could develop modelling of demand flexibility potential from small and medium sized enterprises (SMEs) and industrial customers. It could also seek to integrate cost modelling, a key function of options appraisal, which, in the current version, is reliant on Distribution Network Operator (DNO) input.



Scottish & Southern  
Electricity Networks





## How to use this tool

These step-by-step instructions are intended to guide the user on how to use the tool:

1. Read carefully through the 'COVER and CONTENTS' sheet provided within this tool. This will aid in understanding the process diagram.
2. Read the 'Process Diagram' sheet to understand how to undertake an assessment of flexibility solutions for network-based generation constraints to unlock additional generation on the network.
  - a. Steps 1-4 of the process diagram help the project team define the research area, required partners, key stakeholders and the basis for an options shortlist.
  - b. During step 5, defining an options shortlist, a user may use the example 'flexibility options' provided or input a new option that could be considered, e.g. considering large-scale storage solutions to shift load on the network.
  - c. Once a shortlist of options relevant to the case study area has been agreed upon by the project team, analysis, modelling and stakeholder engagement should be carried out to inform the feasibility assessment. This tool includes some example modelling tools for the user to replicate and adapt as necessary (see the domestic flex model sheets) and template questions targeted towards specific stakeholders (see stakeholder engagement "SE" sheets).
  - d. Once the necessary research has been completed, each option should be assessed by a set of feasibility assessment criteria as displayed in the process diagram. It is recommended that the user makes a copy of this sheet and fills in each criteria box under the corresponding option they wish to assess (see 'Example populated process' sheet). The user will then colour each "Rating" box in the bottom left corner of the feasibility assessment criteria boxes with red, yellow or green. Once all criteria boxes are filled in, the project team should come together to discuss all factors relating to each option and make an overall assessment of its viability to be taken forward.