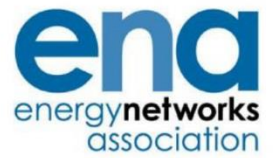


The Voice of the Networks



Energy Networks Association

Open Networks Project

Reliability Standards & Emergency Requirements

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1 Purpose

This workstream product sets out to capture the key learnings and discussion points from a series of workshops undertaken to review the existing planning approaches and standards used in providing demand security on both the transmission and distribution networks. Within this report, any barriers to maximising the utilisation of existing infrastructure to benefit the whole system through increased use of flexibility have been identified and the planning aspects of whole system loss of infeed have been considered.

Recommendations are put forward to remove identified barriers and improve the current processes to maximise the utilisation of the existing network through the increased usage of flexibility.

2 Introduction

SQSS is the deterministic planning standard using for developing transmission networks and ensuring a minimum security of supply for demand. P2 is the equivalent deterministic planning standard for distribution security of supply. P2-6 was published in July 2006, with P2-7 being sent to the regulator for approval in late 2018. Similarly, SQSS v2.2 was published in March 2012 and v2.3 was published in February 2017. Both standards have lengthy review cycles.

The Network Options Assessment (NOA) process is a simplified and non-exhaustive methodology to apply an economic comparison between the investment cost and a theoretical operational cost, based on the equal likelihood of the ESO's Future Energy Scenarios. The NOA process is intended to help deliver compliance with the deterministic planning standards in a manner consistent with the statutory duties of developing and maintaining an efficient and economic network.

3 Balancing Economic Network Operation against Deterministic Planning Standards

P2 and SQSS both ensure a default level of system investment is made to achieve a consistent approach to demand security across the system. Whilst P2-6 has been used to develop the security standards for transmission networks supplying distribution demand under SQSS v2.3, P2-7 makes changes which allows flexibility and demand side response to contribute to demand security. Sections 3 and 4 of the SQSS are being updated to reflect these changes, however, in the interim period, there is no barrier to effective whole system planning.

SQSS assesses network security compliance based on conditions reasonably foreseen over the course of a year. NOA looks at a range of potential scenarios and then recommends the least risky option, based on the equal likelihood of scenarios and economic analysis of the consequential total costs.

Applying a NOA-type process as part of these investment decisions allows networks to be developed economically and efficiently, whilst still maintaining the required level of security. ON2018 WS1 P2 explores other costs benefit analysis methods for whole system planning.

Where the NOA recommends that compliance with the security standards could be most economically met through the provision of services by third parties, this is currently likely to require the regulator to approve a derogation.

In the future, as it is expected that flexibility can provide more economic means of secure network development, the derogation pathway may become more common, so to streamline this, it may be worthwhile embedding the technical and economic quality assurance within the processes of network and system operators. Derogation should continue to be used to highlight the additional risk from non-compliance, and to establish the division and limits of liability, but perhaps without the intervention of the regulator.

This would benefit the existing Connect and Manage derogation process, which enables the accelerated connection of generation by allowing the connection to proceed after enabling works have been completed, but ahead of the wider works being completed. Connect & Manage assumes wider works would be completed, but that these are subject to timings. However, under NOA, it may be recommended that the wider works are not completed and currently both the CUSC and the Transmission Licence do not reflect this possible outcome.

Flexibility, unlike conventional network development using asset based solutions, is very sensitive to variances in demand and generation growth. Future price controls should employ uncertainty mechanisms to ensure system and network operators are sufficiently funded to cover all the investment strategies considered under a NOA or equivalent cost benefit analysis process.

Under the most recent version of SQSS, Chapter 4 sets out requirements which ensure network capacity is available for peak demand conditions and year round conditions, including the associated contingency criteria. However, the ability to use operability solutions to develop networks more economically is only permitted at non-peak times or under non-intact networks and is not as far reaching as P2-7. Additionally, the assessment for security is limited to a few cardinal points across the year and may not fully cover the most onerous conditions present in future energy scenarios.

To develop networks to meet future demand and generation mixes economically and securely, SQSS should give guidance on assessment using a wider range of scenarios and peak conditions to secure against and investment options should be put forward for assessment. Recommendations for investment are determined by following a NOA or equivalent cost benefit analysis process.

4 Recommendations

This report recommends changes needed to current processes to maximise the usage of flexibility across the whole system:

- The regulatory frameworks and investment processes need to allow for the most economic investment solution to be completed, whether that through a more traditional asset based reinforcement or through deploying flexibility.
- The most economical solution should be determined by a NOA or equivalent cost benefit analysis process which covers whole system options and benefits.
- Deterministic standards will still be required to ensure system stability and other operational requirements are retained in situations which cannot be recovered by flexibility.

- The existing Ofgem approved derogation should be supplemented by an additional cost benefit analysis based approach recommending the most economic investment pathway. Derogation through this method should be self-determined.
- Self-derogations should be published and allocated to one of the two categories below:

Doesn't meet P2/SQSS but adequate mitigations available due to flexibility	Doesn't meet P2/SQSS but uneconomic to provide mitigation
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- Multiple security tests should be required across the year against a set of determined representative conditions, rather than purely focussing on winter peak security.
- Better whole system planning co-ordination to offer options to whole system loss of infeed mitigations – i.e. the extent to which these mitigations can be provided to be shared between T-D