

SQSS Review Panel
REVIEW OF THE NORMAL INFEED LOSS

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Summary

This paper proposes a change in the treatment of the Normal Infeed Loss Risk in the SQSS.

The change would remove the need to contain a loss of up to 1,320MW to the normal infeed loss criteria of -0.5Hz in operational timescales from 1st April 2014 onwards, without restricting new connection activity. The change would therefore avoid an increase in costs incurred to procure additional frequency response.

If the change is not made, these costs will be incurred in the absence of any actual change in the risk of frequency deviation below 49.5Hz.

Users Impacted

None

Description & Background

The Normal and Infrequent Infeed Loss Risk definitions in the SQSS were modified by GSR007, increasing them to 1,320MW and 1,800MW respectively from 1st April 2014. The change was made because the increased operational costs of catering for larger losses were outweighed by the benefits of facilitating access to the transmission system.

A Normal Infeed Loss Risk is defined as :

"That level of loss of power infeed risk which is covered over long periods operationally by frequency response to avoid a deviation of system frequency by more than 0.5Hz. Until 31st March 2014, this is 1000MW. From April 1st 2014, this is 1320MW"

An Infrequent Infeed Loss Risk is defined as:

"That level of loss of power infeed risk which is covered over long periods operationally by frequency response to avoid a deviation of system frequency outside the range 49.5Hz to 50.5Hz for more than 60 seconds. Until 31st March 2014, this is 1320MW. From April 1st 2014, this is 1800MW."

The Infrequent Loss Risk limit is considered in the design of Onshore Generation

Connections (SQSS Chapter 2). Both Infrequent and Normal Infeed Loss Risks are considered in the design of Offshore Generation Connections (SQSS Chapter 7).

In operational timescales, Chapter 5 (Onshore) and Chapter 9 (Offshore) stipulate that unacceptable frequency conditions must not occur for a secured event, which includes infeed loss risks.

Unacceptable frequency conditions are defined as:

" These are conditions where:

- i) the steady state frequency falls outside the statutory limits of 49.5Hz to 50.5Hz; or*
- ii) a transient frequency deviation on the MITS persists outside the above statutory limits and does not recover to within 49.5Hz to 50.5Hz within 60 seconds.*

Transient frequency deviations outside the limits of 49.5Hz and 50.5Hz shall only occur at intervals which ought reasonably be considered as infrequent. It is not possible to be prescriptive with regard to the type of secured event which could lead to transient deviations since this will depend on the extant frequency response characteristics of the system which NGET shall adjust from time to time to meet the security and quality requirements of this Standard."

Chapter 5 and Chapter 9 do not make an explicit distinction between normal and infrequent loss risks. However, the definition of a normal infeed loss risk suggests that a limit of -0.5Hz should be applied for losses in this category.

The rate of development of connections which trigger a larger infeed loss risk has been lower than anticipated at the time GSR007 was approved. Occurrences of Infrequent Infeed loss risks of greater than the pre-2014 limit of 1,320MW will start from 2015 onwards for limited periods of the year. There is unlikely to be a requirement to contain an infeed loss risk of greater than 1,320MW regularly until 2017 at the earliest.

The effect of the current drafting is that additional frequency response will be procured to manage infeed risks which have existed since prior to GSR007. In the absence of a significant number of new infeed risks in the range 1,000MW to 1,320MW this cost will be incurred but with no beneficial effect.

Proposed Solution

There are a number of ways in which the proposed change could be implemented.

The simplest way would be to change the normal infeed loss definition such that a change 'goes-live' at a later date. However, this could have the unwanted effect of restricting planned development on the Offshore Transmission System where the normal infeed loss criteria apply (either in practice or in perception).

An alternative is to modify the definition to more closely align with Chapter 5 and Chapter 9. This could be achieved by adding the words "where necessary" to the definition:

*"That level of loss of power infeed risk which is covered **where necessary** over long periods operationally by frequency response to avoid a deviation of system*

frequency by more than 0.5Hz. Until 31st March 2014, this is 1000MW. From April 1st 2014, this is 1320MW”

A more complex solution would be to add provisions to Chapter 5 and Chapter 9 to the effect that the normal infeed loss criteria should be applied in the event that a significant number of new risks in this category actually arise. However, previous SQSS workgroups have rejected this option due to complexity.

It should be noted that frequency performance criteria are currently under consideration in the LFCR (Load Frequency Control Reserves) European Code which is likely to impact on frequency performance criteria for Great Britain.

Impact & Assessment

Impact on the National Electricity Transmission System (NETS)

Reduced Operational Costs

Impact on Greenhouse Gas Emissions

Reduced due to reduced frequency response holding

Impact on core industry documents

None

Impact on other industry documents

None

Supporting Documentation

Have you attached any supporting documentation [YES/NO]

If Yes, please provide the title of the attachment: INSERT TITLE

Recommendation

The SQSS Review Panel is invited to:

Either:

- a) Progress this issue to Consultation
- or
- b) Consider alternative options