

Coolkeeragh Interbus Transformer capacity

Needs Report

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SUMMARY

In some scenarios the existing interbus transformers at Coolkeeragh can be overloaded for the loss of one of the two transformers. This is one of a number of potential overloads in the North West of Northern Ireland which will impact on renewables targets and lead to increased constraints. There is a need to increase the transformer capacity between 275kV and 110kV at Coolkeeragh.

This report sets out the case of need for increasing the interbus capacity at Coolkeeragh.

1. INTRODUCTION

High wind scenarios have the potential to overload the existing interbus transformers (IBTX) at Coolkeeragh during the loss of one of the two transformers, driving the need for increased interbus transformer capacity.

2. DESCRIPTION OF NEED

There are currently two 275/110kV IBTXs at Coolkeeragh, each with a nominal primary and secondary winding rating of 240MVA.

Analysis conducted has shown potential overloads on one of the Coolkeeragh IBTXs for loss of the other transformer by 2028 during high wind scenarios. In Summer Peak the overload was assessed to be up to 130% and up to 104% of nameplate rating in Summer Valley. These overloads occurred in a scenario which included the 700 MW of renewable generation currently in the Planning process in Northern Ireland and which is expected to connect by 2028.

Since the overload on the Coolkeeragh IBTXs is driven by high volumes of wind which does not have a cyclic pattern, a cyclic overload rating for the transformers could not be used. In any case the 130% loading would be far in excess of any summer cyclic rating.

The loading of the Coolkeeragh IBTXs, along with the rest of the network in high wind, is managed by pre-fault constraints. An additional IBTX is expected to be required by 2028 to address this constraint.

3. CONCLUSION

In high wind scenarios studies show that under a single circuit outage a Coolkeeragh Interbus transformer could become overload. In the absence of a third transformer being installed this would be managed by wind constraint.