Zero Missing Phenomenon

Project summary

Industry Partner(s):

Scottish & Southern Electricity Networks (SSEN) and SP Energy Networks (SPEN)

Innovator:

Mott MacDonald

Challenge:

It has been shown through recent studies that a circuit breaker on a circuit with a shunt reactor may have to interrupt fault currents with high and slowly decaying DC components, resulting in the zero-missing phenomenon (ZMP). This means that the current zero crossing is not being realised within the rated time for the circuit breaker to interrupt the fault current.

Approach:

An Innovation Call was launched by the EIC for a thorough investigation of the phenomenon and its impacts, followed by investigation and development of mitigation options.

Outputs:

This project proposes a technical method that will involve engaging consultants to investigate the ZMP and produce conclusions that can impact the future of transmission network design and operation.

Looking forward:

The project is nearing completion, and the next steps will involve the dissemination of learning via webinar to internal project parties.

Impact:

Incremental

Key benefit:

Shared Learning

The learning from the project is likely to have impact not only for other network licensees but also for the entire supply chain.

Additional benefits:

Cross-sector Collaboration

The project involves a collaborative effort to establish a potential solution to a problem that is becoming more prevalent across networks from multiple sectors.