

Can we better detect HV pre-faults?

EIP012

28 February 2023

Background

- Research has taken place to understand the feasibility of detecting and locating HV defects before they turn into power cuts [Pre-Fix, DFA, SINE Post].
- There is increasing evidence that online techniques can direct staff to a broadly correct defect location before a protection operation. To operationally exploit this information, a fine-resolution location methodology is required before a repair can be planned.

Enablers and Constraints

Enablers

- Previous projects such as Pre-Fix, DFA and SINE Post.

Constraints

- Because of the intermittent nature of these pre-fault pecks and the variance in the predicted location, use of test-van based techniques might not be the best way to deliver fine location at scale.
- It should be remembered that any proposed techniques will need to be effective on the range of legacy HV cable types, which can include three phase and triplex style cables.
- Because only small proportions of HV/LV substations benefit from being fitted with line connected current transformers (CT's), approaches that promote on-line measurement of the suspect section will face barriers to scale. There is increasing evidence that the nature of the “pecks” that require detection act between phases (rather than phase to earth) and can be as small as +50 Amps (above base load) for less than one cycle before self-extinguishing.

Involvement and Implementation

- **Key Stakeholders** - Operational teams within NGED. All other DNOs and potentially other utilities.
- **Target Market** - Operational teams within NGED. All other DNOs and potentially other utilities.
- **Target Implementation Date** – April 2024.

Energy Innovation Basecamp

28 February 2023
ICC Birmingham

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Participant joining code
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