Flood Alarm Systems

The following problem statement has been developed by the innovation teams within the UK's Gas and Electricity Networks for the 2024 Energy Innovation Basecamp.

Theme: Maximising Use of Existing Infrastructure

Network Areas: Electricity Distribution

What is the problem?

Substations susceptive to flooding have been identified following ETR138 review and flood defences installed as a flood protection measure. During a flood event it can be too dangerous for field staff to access a site to monitor rising flood levels and in some cases flood defences can be breached leading to uncontrolled shutdowns resulting in supply interruptions and lengthy restoration times. Often switching operations in surrounding to restore supplies are difficult due to flood waters covering the local area.

If water levels could safely be monitored remotely the risk of uncontrolled shutdowns and risks to field staff would be eliminated. Rising water and high water alarms would allow automatic disconnection / sequence switching schemes to be utilised to reduce equipment damage and supply interruptions. These schemes would consider local areas and remote switching point's vulnerabilities to rising flood water and identify restoration plans prior to a flood event.

What are we looking for?

Means to monitor water levels in electricity distribution substations during flooding events remotely and alarms for automatic disconnection/sequence switching.

What are the constraints?

- Risk analysis for automatic switching to take place
- Integration with current SCADA systems
- Current flood response policy

Who are the key players?

DNOs, Environment Agency, Electricity transmission networks

Does this problem statement build on existing or anticipated infrastructure, policy decisions, or previous innovation projects?

Relatively simple alarms systems have been used before for flood indication but further advances to technology are required.

Innovator submissions to this problem statement will be open here during March and April, but we encourage you to submit your response as early as possible, as networks will be able to review submissions as soon as they come in.

You can also use the virtual Q&A on the Smarter Networks Portal to ask for more information about this problem statement. Questions may be answered online or at the ENA Problem Statement Launch in March 2024. More information on last year's Basecamp programme can be found here.