EIP119: Substation Flood Alarm Systems

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The Problem
Flood risk assessment undertaken, flood defences installed

Flood defence measures include:

- Elevating equipment
- Purpose designed flood walls to surround existing buildings
- Use of higher transformer bunds (must be coupled with suitable pumping arrangements to avoid rain water build up)
- Use of higher structures
- “Tanking” and duct sealing of buildings together with provision of pumps
- Permanent site perimeter protection walls / barriers, together with provision of sufficient portable pumps
- Relocation of site in very exceptional circumstances
EIP119: Problem

- The severity and frequency of extreme flood events are projected to increase due to climate change.
- UKCP18 projects increases in daily and hourly rainfall.
- Future rain events will lead to increased pluvial (surface water) and fluvial (river) flooding.
EIP119: Problem

- Existing flood defences can be breached due to increased flood levels leading to uncontrolled shutdowns - resulting in Customer Interruptions and unnecessary Customer Minutes Lost.

- Site access and monitoring rising flood levels can be dangerous for field staff.

- Switching operations can be difficult due to flood waters covering the local area and required switching points.

- Uncontrolled shutdowns (fault trips) can cause equipment damage with high repair costs.
02

Expectations
EIP119: Solution Expectations

The solution must;

• Remotely monitor water levels in electricity distribution substations during flooding events
• Have a functionality for multiple stages to trigger automatic disconnection/sequence switching
• Have communications link with control for visibility/being able to integrate with current SCADA systems
• Physical configuration of the device can be easily adoptable to specific conditions of the substations
• Risk analysis for automatic switching is expected to be included in the scope of the project
• Knowledge of the current flood response policies is essential (national and NGED specific)
EIP119: Similar innovation projects

Automated Weather Alerts Tool – NGET Asset Resilience

NGET are looking to install water level sensors for real time data.

The NGED idea is for a more advanced system with more interaction with control systems and operational capabilities.
## Contacts

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<th>New Connections</th>
<th>Climate Change Adaptation Policy Engineer</th>
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