# Innovation Basecamp 2026

4th February 2026 – Park Plaza, London

**EIP165: LV UG Precise Cable Fault Location Surge Generator**

# Who We Are

## SP Energy Networks, part of ScottishPower, owns four regulated electricity network businesses in the UK:

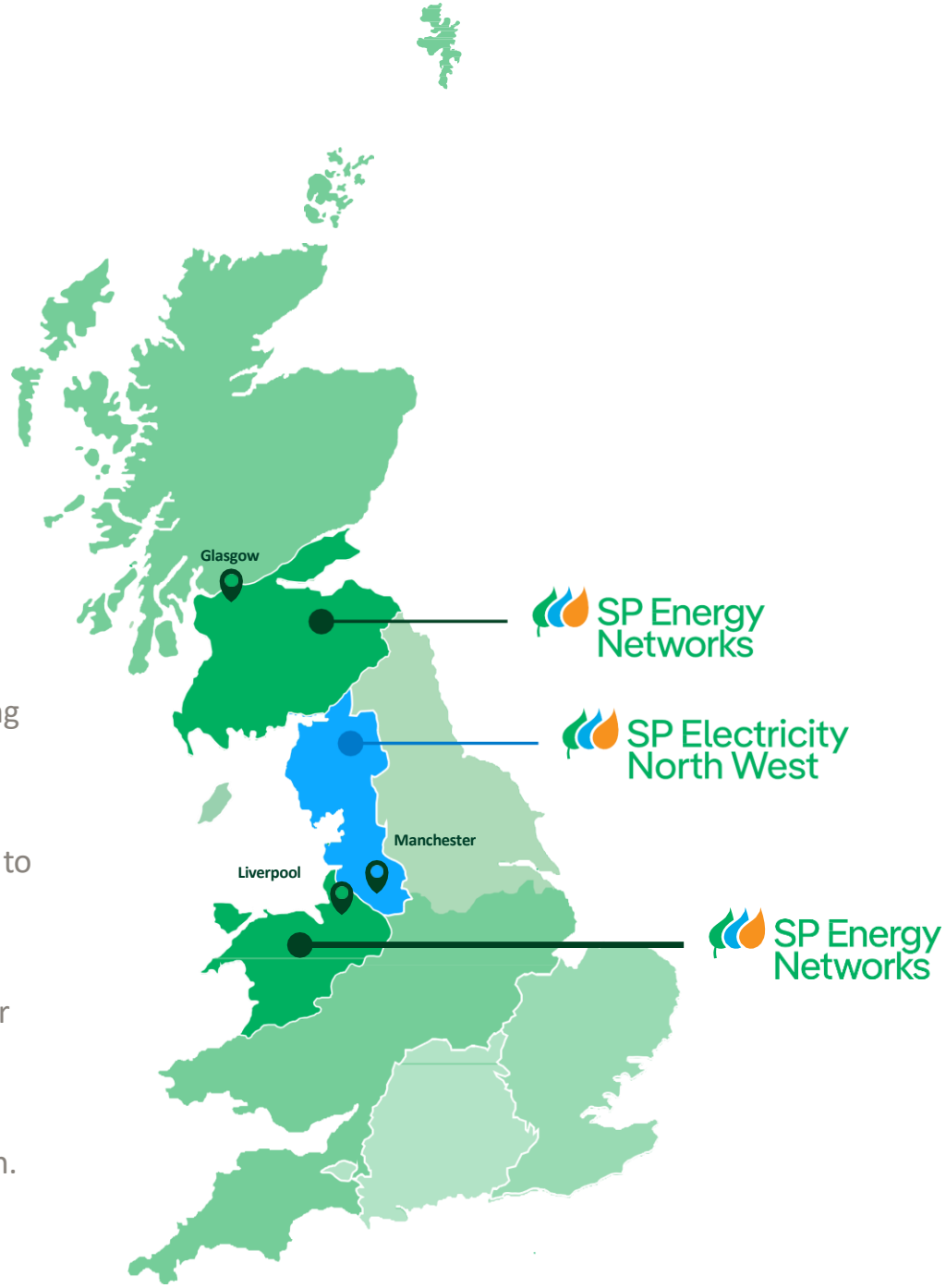
- SP Distribution plc (SPD)
- SP Transmission plc (SPT)
- SP Manweb plc (SPM)
- SP Electricity North West (SP ENW)

Together we keep electricity flowing to over 12 million people across a network spanning more than 172,000 kilometres.

Operating in some of the UKs largest cities as well as significant rural areas. It's our job to move electricity to and from homes and businesses over our network.

Our aim is to deliver a safe and reliable electricity supply 24 hours a day, 365 days a year whilst providing exceptional value for money.

It's a role that puts us right at the heart of the UK's Net Zero carbon emissions ambition.



# Background Information

- SPM and SPD experienced 15,359 LV faults in 2025 (11,070 excluding service faults).
- Even excluding service faults, this is over 100,000 customers interrupted.
- LV monitors and recloser devices that can be used to provide impedances and estimated distance to fault are in use.
- While there is more advanced digitisation on the LV network than ever, LV fault location is not precise.
- HV faults are often precisely located using test vans equipped with surge generators – however, these devices are not suitable for the LV Network.

# What are the Problems?

- Impedance traces narrow down the fault location, but may be imprecise due to:
  - Branching cables providing multiple potential fault locations,
  - Imprecise network plans meaning potential locations are approximate.
- This means a sniffer device is required - however this is slow, imprecise, and requires drilling into the ground to measure for gas emissions.
- Imprecise fault locations can result in extended or multiple excavations being required, at cost to the DNO.
- Additional time taken to find faults results in poor customer experience and cost to the DNO.

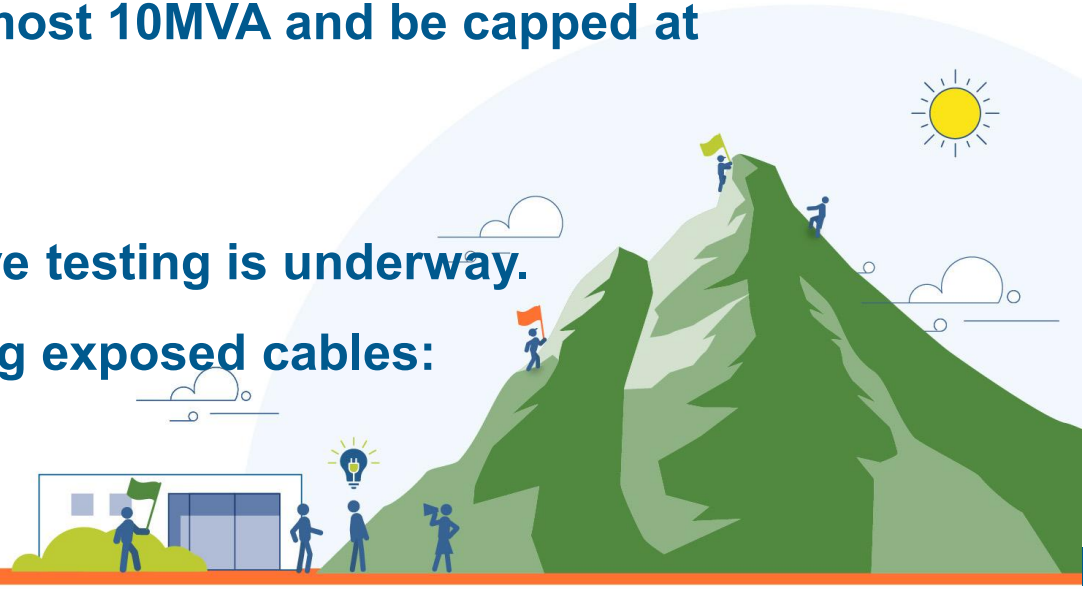
# Our Expectations

## What are we looking for?

- A portable unit that can be used to quickly and precisely locate LV UG Faults.
- This must be capable of connecting to a LV fuse board within a substation, and potentially an LV linkbox. Any connections to the network must be secure and should be lockable.
- This solution may look like:
  - A portable surge generator and receiver device that can be connected to an LV board or linkbox.
  - A portable surge generator and receiver device that can only be used on an LV board.
  - Any solution that allows quick location of LV UG faults once an impedance trace has been run without the need to drill/use a sniffer device (not necessarily using a surge generator/receiver).

## Key Requirements:

- Any solution must be safe to use on LV networks (230/400V) and not pose a risk of damage to customer property (60A customer fuses).
- Any disturbance to customers must be limited (i.e. re-energisation).
- There should be amperage settings to control the surge from the device based on the fault type, network type, and number of connected customers.
  - This must have a reliable setpoint at or below at most 10MVA and be capped at 25MVA.
- Any solution must comply with ESQCR regulations.
- Danger signage will be needed to make clear that live testing is underway.
- Any device must have safeguards against energising exposed cables:
  - Remote deactivation,
  - Built in safeguards.



## Key Requirements

- **If the solution is designed to be installed on an LV Board, it must be adaptable to fit 82mm and 92mm fuse stalks.**
- **The solution must be secure when connected to the network whether on a LV fuse board, linkbox, or other connection points – this connection must be unable to slip (i.e. clips) and should be lockable.**

The images on the right are training examples of an LV linkbox (left) and LV fuse board (right).


# IMPORTANT

**It is important for all innovators to note that we are looking for plans rather than just ideas as solutions.**

## Key Contacts:

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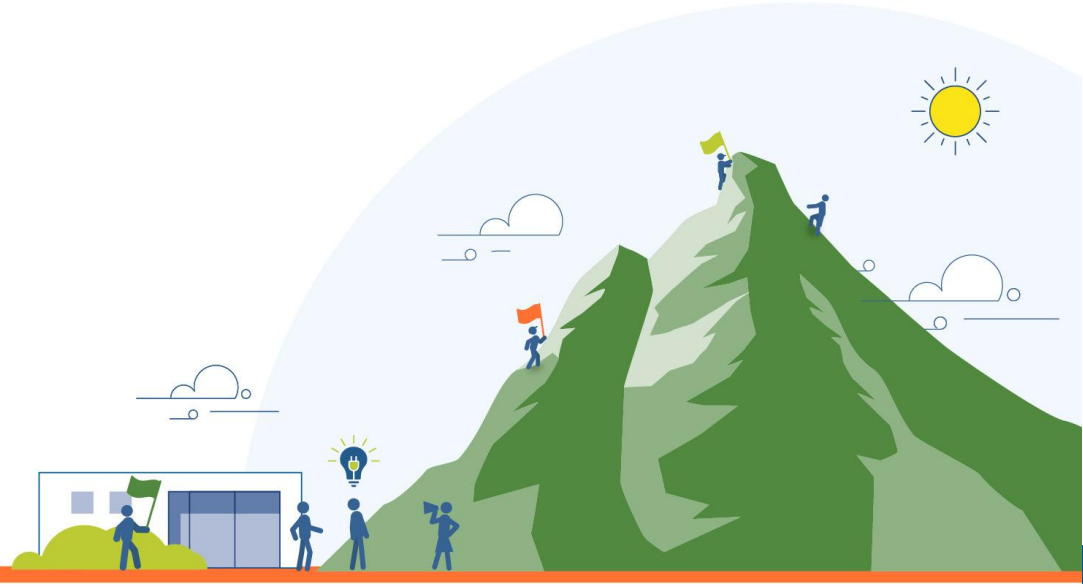
- **ANY QUESTIONS?**



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