Energy Innovation Basecamp 2025
Problem Statement EIP136

Excavation Process: How do we make the excavation process zero emission?

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: Decarbonising Network Operations

Network Areas: Electricity Distribution, Gas Distribution

What is the problem?

Excavation Process: How do we make the excavation process zero emission?

As networks, to ensure we maintain a safe and reliable network, we need to maintain, repair and/or replace our below ground assets. To do this, we generally have to break ground and excavate to carry out our activities, depending on the activity, this could be single/multiple excavations and/or trenches.

These excavation activities generally require tools and techniques using mechanical excavation equipment that runs on diesel generators or from on board power in diesel or petrol vans.

What are we looking for?

Repair techniques

As networks we already use robotics to enable repairs such as CISBOT and STASS, but we are always looking for alternatives that drive cost efficiencies and reduction to disruption. (Gas only)

Tools & Equipment

We already look to use tools & equipment that reduce our carbon footprint but again we are always looking for alternatives that do this, as well as being safe and effective for our teams to use. (Elect & Gas)

What are the constraints?

Any new plant, tools and equipment introduced into our networks must meet all the relevant safety and engineering requirements for the relevant activity. Ease and speed of use is also important to ensure training burdens can be mitigated. For gas networks, any potential solutions need to meet future requirements and consider Methane, Hydrogen, Blended Hydrogen/Methane and Biomethane as gases within our networks. As with all Streetworks related activities, there are a number of requirements under NRSWA, TMA, SROH, Red Book etc that need to be considered.

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Who are the key players?

This is mainly aimed at the distribution networks due to the nature and volume of excavations & reinstatements carried out in the public highways & footpaths but could apply to transmission.

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

There have been many previous areas of work on robotic repairs, low carbon tools and equipment but generally driven by cost efficiencies, productivity and reducing disruption rather than being to decarbonise our operations.

What else do you need to know?

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.