Energy Innovation Basecamp 2026
Problem Statement EIP172

River Cross Threat

The following problem statement has been developed by the innovation teams within the UK's Gas and Electricity Networks for the 2026 Energy Innovation Basecamp.

Theme: Maximising Use of Existing Infrastructure

Network Areas: Electricity Distribution, Electricity Transmission, Gas Distribution, Gas Transmission

What is the problem?

Gas pipelines at river and watercourse crossings are increasingly exposed to erosion, scour, flooding and channel migration, driven by climate change, extreme rainfall events and changing river dynamics. These assets are often buried beneath riverbeds or banks, where ground loss or exposure can develop rapidly and invisibly, particularly during storm events.

Inspection of river crossings is infrequent, reactive and heavily constrained by access, weather conditions, environmental permitting and safety risks. As a result, early indicators of movement, exposure or structural vulnerability are often missed, increasing the likelihood of unplanned outages, emergency works, environmental harm and safety incidents.

There is a growing need for earlier, data-driven visibility of river-related threats, enabling networks to intervene before assets become exposed or unstable.

What are we looking for?

We are seeking innovative solutions that allow gas networks to proactively detect, monitor and predict river-related threats to buried pipelines.

Solutions may include (but are not limited to):

- Remote or autonomous monitoring of riverbeds and banks
- Detection of scour, erosion, sediment movement or pipe exposure
- Integration of hydrological, rainfall and environmental data
- Predictive models to forecast risk during extreme weather events
- Decision-support tools to trigger inspections or protective works

Solutions should support a shift from periodic inspection to continuous or risk-based monitoring, improving resilience and response times.

TRL 4–7 solutions are encouraged, with a clear route to operational deployment.

What are the constraints?

Solutions must:

- Be safe to deploy around live gas assets and watercourses
- Operate reliably during extreme weather and flood conditions
- Minimise environmental disturbance and permitting burden
- Integrate with existing asset, GIS and risk management systems

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• Be scalable across multiple river crossings and catchments

• Be cost-effective relative to traditional inspection and repair

Who are the key players?

Gas Distribution Networks: asset integrity and climate resilience teams, Emergency planning and response teams
Innovators: Environmental monitoring and hydrology specialists, Remote sensing and satellite analytics providers, drone, LiDAR and sonar inspection companies, academic institutions with river dynamics expertise

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

This challenge builds on:
• Existing river crossing inspection and maintenance programmes
• Climate resilience strategies across gas networks
• Innovations around surveillance on drones, LiDAR and satellite imagery
• Increased regulatory focus on flood and erosion risk

What else do you need to know?

n/a

Innovator submissions to this problem statement will be open on the Smarter Networks Portal from 4th February to the 13th March, 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 on 4th February 2026. More information on last year's Basecamp programme can be found on the Smarter Networks Portal.