Energy Innovation Basecamp 2026
Problem Statement EIP173

Gas to Power for Resilient Operations and Industrial Loads

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: Net Zero Transition Impacts

Network Areas Gas Distribution,

What is the problem?

Gas networks operate a large number of critical operational sites including regulator kiosks, telemetry stations, compressors and control assets that rely on grid electricity for safe and reliable operation. Many of these sites are remote or exposed, where grid connections are costly, unreliable, or vulnerable to outages caused by extreme weather and wider system failures.

Current backup solutions such as diesel generators and limited solar installations are carbon-intensive, costly to maintain, and operationally inefficient. Grid outages directly impact telemetry, SCADA visibility, pressure control and safety systems, increasing operational risk during precisely the conditions when resilience is most needed.

In parallel, large industrial and commercial customers are facing growing pressure to decarbonise while maintaining secure, high-load power supplies. There is a gap between electricity network capacity, resilience requirements and the availability of low-carbon on-site generation options at scale.

There is a clear opportunity to demonstrate gas-to-power solutions, including fuel cells, to provide reliable, low-carbon power both for network-owned assets and for large industrial loads.

What are we looking for?

We are seeking innovative gas-to-power solutions that can provide secure, resilient and low-carbon electricity for:

1. SGN-owned operational sites (e.g. kiosks, telemetry stations, SIUs)

2. Large industrial and commercial loads requiring reliable, continuous power

Solutions may include (but are not limited to):

• Fuel cells using natural gas, biomethane or blended hydrogen

• Hybrid systems combining fuel cells, batteries and intelligent load management

• Modular gas-to-power units for remote or constrained locations

• Waste heat recovery to improve system efficiency

• Smart control systems integrating telemetry and demand response

Solutions should demonstrate how gas infrastructure can support both operational resilience and decarbonisation, rather than acting solely as backup.

TRL 4–7 solutions are encouraged, with a clear pathway to deployment and scaling.

What are the constraints?

Solutions must:

• Be safe and compliant for operation near live gas assets

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• Operate reliably in remote and harsh environments

• Integrate with existing SCADA, telemetry and control systems

• Reduce whole-life carbon and operational costs versus diesel

• Be scalable across multiple sites and load profiles

• Support future transition to biomethane and hydrogen where feasible

Who are the key players?

Gas Distribution Networks: E&I and control team, Industrial and commercial energy users

Potential Innovators: Fuel cell technology providers, Gas-to-power system integrators, Energy storage and hybrid system developers, Industrial decarbonisation specialists, Universities and applied research organisations

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

This challenge builds on: innovations exploring gas-powered generators and fuel cells.

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.