

Strategic Innovation Fund Round 1 Discovery Phase: innovation projects approved for funding

1. Energy networks with projects approved

Network type	Lead project partner	No of approved projects
Electricity transmission	Scottish Hydro Electric (SHE) Transmission Plc	3
	SP Energy Networks (SPT)	9
	National Grid Electricity Transmission Plc (NGET)	3
Electricity system operator	National Grid Electricity System Operator (NGESO)	2
Gas transmission	National Grid Gas Transmission (NGGT)	10
Gas distribution	Scotland Gas Networks and Southern Gas Networks (SGN)	6
	Northern Gas Networks Limited (NGN)	5
	Cadent Gas Limited (Cadent)	1
	Wales & West Utilities Limited (WWU)	1

2. Summary of projects approved

Network type	Project number, title and description	Lead applicant	Initial net funding required
Challenge area: Whole System Integration			
Electricity transmission	INCENTIVE - Innovative Control and Energy Storage for Ancillary Services in Offshore Wind Exploring the opportunity to stabilise the grid through voltage, current and frequency control technologies for offshore wind	SHE	£121,002
	Network-DC	SHE	£142,288

	Developing and testing DC circuit breakers for the direct connection of renewable generation onto a DC network in coastal communities to reduce cost and impact		
	Fast Flex Exploring methods for distributed energy assets to participate in flexibility services	SPT	£112,221
	Asset Reuse and Recovery Collaboration (ARRC) Applying circular economy principles to managing high value network assets	SPT	£75,963
	SCADENT - SuperConductor Applications for Dense Energy Transmission Understanding the impact and benefits of using High Temperature Superconductor cables	NGET	£148,440
	SEGIL - Sustainable Electrical Gas Insulated Lines Evaluation of long-distance Gas Insulated Lines to reduce cost and impact of new overhead line installations	NGET	£133,814
Electricity system operator	Crowdflex: Discovery Exploring consumer characteristics and parameters to participate in flexibility services	NGESO	£70,057
Gas transmission	HyNTS Compression Exploring if current assets and methods of working are suitable for hydrogen compression	NGGT	£146,659
	Green Hydrogen Injection into the NTS Establishing a framework for green hydrogen injection into the gas grid	NGGT	£114,652
	Nuclear Net-Zero Opportunities (N-NZO) Defining a set of end-user scenarios for low carbon hydrogen demand alongside nuclear generation	NGGT	£107,494
Gas distribution	Excess gas turbine energy generation Exploring if energy generated from gas losses can be used to generate energy for storage or feeding back into the network	NGN	£134,161
Challenge area: Data and Digitalisation			
Electricity transmission	NIMBUS - Network Innovation and Meteorology to BUild for Sustainability Investigating the use of weather data to model and predict the impacts of weather and climate change across the whole life of a network asset	SHE	£148,476
	EN-twin-e Development of a digital twin of the electricity distribution system to aid in decision making when managing and balancing assets	SPT	£143,480

	Predict4Resilience Using weather data and AI to produce forecasts of specific network faults and risks from extreme weather events	SPT	£109,401
	Digi-GIFT Designing a holistic data connector for real-time monitoring and analysis of assets	SPT	£136,236
	Eye in the Sky - Utilising satellite data to improve grid resilience in emergency Investigating remote sensing satellite data analytics to inform and predict asset management, network faults and impacts of extreme weather events	NGET	£119,105
Electricity system operator	Virtual Energy System Development of a common framework to enable interoperability of a wide range of digital twins using open data	NGESO	£149,921
Gas transmission	Gas Analyser Systems for Hydrogen Blends Investigating the feasibility of a fuel cell-based gas sensor for controlling different blends of hydrogen for the gas network	NGGT	£113,414
	Hydrogen Metering Investigation different metering solutions for hydrogen adoption	NGGT	£86,378
	HyNTS Pipeline DataSet Developing the tools and processes to determine the state and capability of gas transmission pipelines carry hydrogen	NGGT	£95,571
	Gas Networks Interoperable Digital Twin Investigation into the requirements for interoperability between different approaches to digital twins	NGGT	£78,779
Gas distribution	Predictive Safety Interventions Data integration with AI to predict and prevent safety incidents	SGN	£58,729
	Digital Twin - Exploring the societal, operational, and cross industry whole system benefits on the Gas Distribution Network Development of a digital twin to support strategic decision making to optimise operations under different scenarios	SGN	£119,127
	Intelligent Gas Grid Using weather data and AI to autonomously and intelligently monitor and control network gas pressure	SGN	£116,401
	Digital Twins: Exploring the commercial, societal, and operational benefits on green hydrogen projects Exploring the benefits that could be derived from the deployment of a digital twin on a green hydrogen use case	SGN	£124,265

	Thermal imagery analysis - Condition assessment fluid and pressure Thermal imagery to identify gas losses and leakages to improve safety for hydrogen usage	NGN	£71,182
	Digital Platform for Leakage Analytics Exploring new methods to capture and analyse data to reduce gas network leakages	Cadent	£114,576
	CEV: Critical factors for the adoption of smart homes for energy efficiency and implications for consumers and providers Investigating the enablers and barriers to adoption, and network impacts and benefits of smart home technology	NGN	£55,395
Challenge area: Heat			
Electricity transmission	Flexible Heat Assessing thermal storage technologies with smart control for domestic flexibility	SPT	£137,858
	HEAT BALANCE Understanding the role large scale thermal storage can provide for heat pump flexibility	SPT	£125,695
Gas transmission	Ch4rge - Emissions Capture Investigating a viable solution for compressor machinery train to capture gas losses from hydrogen for reinjection into the network	NGGT	£144,782
	Hydrogen Barrier Coatings for Gas Network Assets Evaluating coating for pipes to prevent accelerated wear and tear from hydrogen transmission	NGGT	£74,706
Gas distribution	Velocity Design with Hydrogen Assessing different techniques to improve impacts of hydrogen pressure on the pipe network	SGN	£55,542
Challenge area: Zero Emission Transport			
Electricity transmission	A Holistic Hydrogen Approach to Heavy Duty Transport (H2H) Exploring energy options for decarbonisation of the rail system	SPT	£108,238
	Resilient and Flexible Railway Multi-Energy Hub Networks for Integrated Green Mobility Exploring decarbonised rail as a source of flexibility through integration	SPT	£118,780
Gas transmission	HyNTS Deblending Exploring options for different hydrogen blends to allow for refuelling stations directly on the network	NGGT	£148,141

Gas distribution	NAVIGATION Developing a multi-disciplinary solution for EV charging hubs which could be supported by gas networks	SGN	£149,724
	Rail Decarbonisation Planning Development of an overarching implementation strategy and a methodology to decarbonise rail	NGN	£113,594
	Multimodal Hydrogen Transport Refuelling Study Evaluation of the potential for using hydrogen for heavy duty vehicles	NGN	£89,445
	HyPark Development of an intelligent EV charging hub supported by the gas network for constrained urban areas	WWU	£150,000