



National Gas Innovation Strategy

July 2026



Foreword

Innovation has always been central to how we respond to change, solve complex challenges and prepare our network for the future. Across RIIO-GT3, our role will continue to focus on helping National Gas strengthen resilience, improve efficiency and deliver lasting value for customers, consumers and the wider energy system.

This strategy sets out how we will focus our innovation activity over the next five years. It has been shaped by the priorities of our business, the needs of our stakeholders and the changing external landscape in which we operate. Our refreshed innovation themes: Energy Security & Network Resilience, Low-Carbon Transition, Safety & Integrity, Digital & Data, and Customer & Business provide a clear structure for where we will direct our effort, investment and collaboration.

Throughout RIIO-GT3, we will continue to place great emphasis on value, evidence and implementation.

Innovation is not only about developing new ideas; it is about understanding the problems that matter most, testing solutions, generating robust evidence, and ensuring successful outcomes can be embedded into the business.

Collaboration remains at the heart of our approach. By working closely with colleagues across National Gas, the energy system, supply chain, academia, industry partners, regulators and government, we can identify the right opportunities, avoid duplication and turn innovative thinking into practical outcomes.

I'm excited about the direction set out in this strategy and the opportunity it gives us to build on the strong foundations we established in previous price control periods. As we move through RIIO-GT3, our focus will be on delivering innovation that is more targeted, transparent and clearly linked to the value it creates.



“I’m proud of everything we’ve achieved over the last five years.

Taking into consideration the direction from Government and Ofgem regarding hydrogen, we’ve re-evaluated our strategy and direction for the team.

If this strategy sparks an idea, we’d love to hear from you.”

Katie Petherbridge
Head of Innovation

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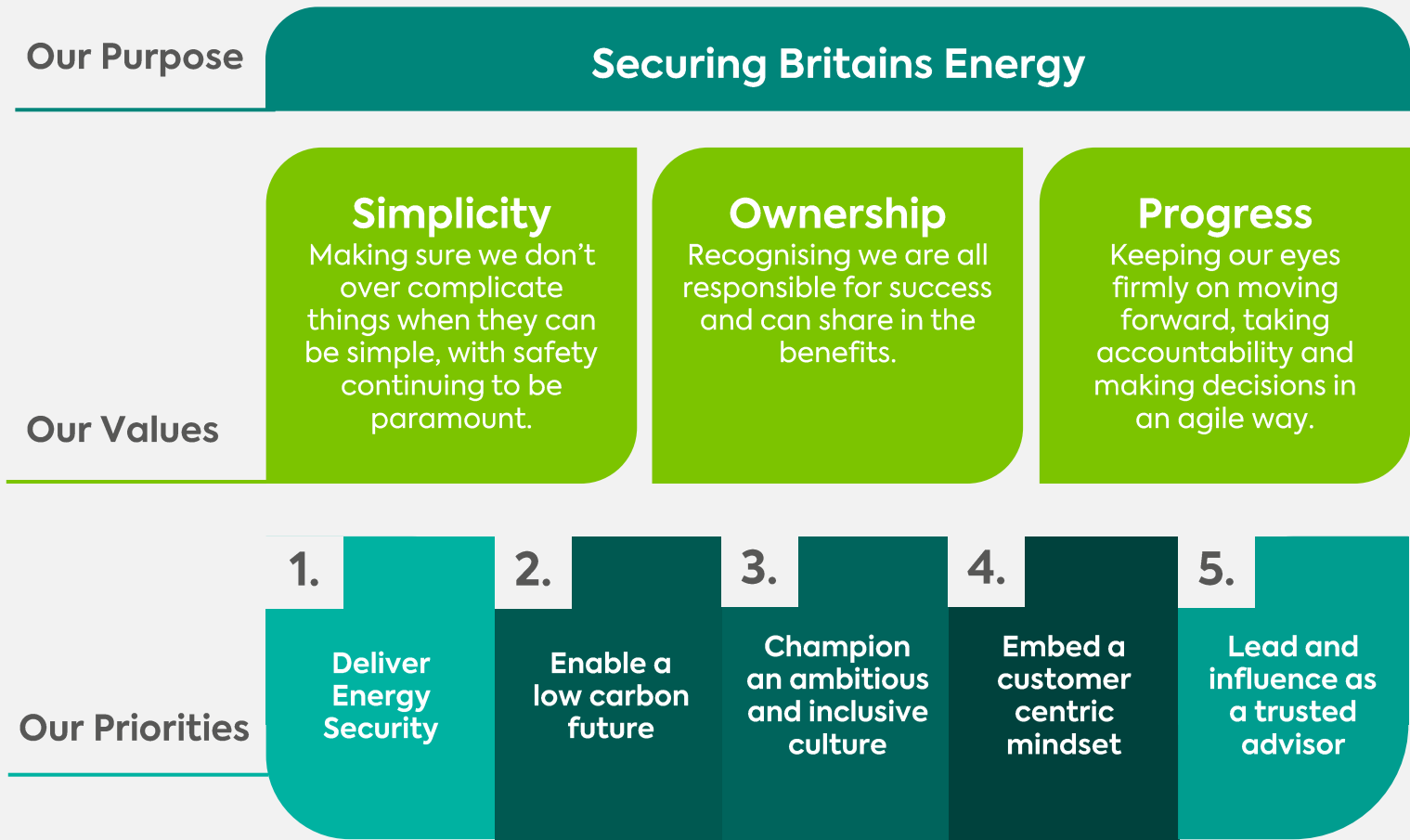
Acronym key

List of acronyms used within the document

Corporate strategy alignment

Our Innovation Strategy strongly aligns with both National Gas’ corporate strategy and the RIIO-GT3 Business Plan. This ensures our efforts directly support both core delivery and future growth.

Internally, we have carried out extensive stakeholder engagement, aligning our innovation focuses with the priorities of the business. This allows us to focus on the most relevant and practical projects with effective business deployment and value creation embedded from the beginning.



Energy landscape

Britain’s energy system is entering a period of profound change.

As the country transitions towards clean power, policymakers and industry face the dual challenge of decarbonising energy supplies while maintaining secure, affordable and reliable energy for consumers and businesses.

Growing geopolitical uncertainty, evolving patterns of energy demand and increasing reliance on a more diverse mix of energy sources have reinforced the importance of energy security as a national priority. In this context, innovation must focus not only on enabling the transition to lower-carbon energy sources, but also on strengthening the resilience, flexibility and reliability of the wider energy system.

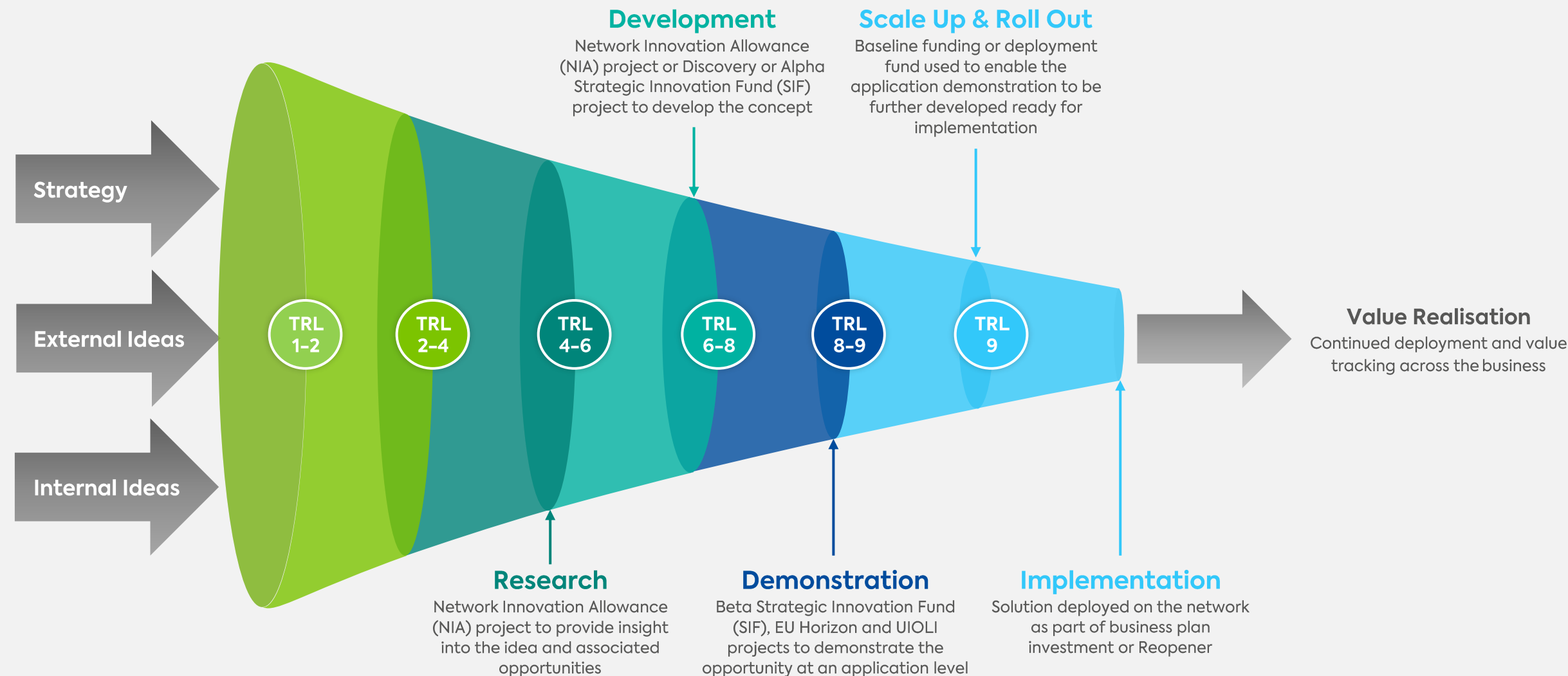
Why there is an increasing focus on energy security:

	Supply diversity is declining, increasing import dependency which is forecast to reach up to 90% on peak days by 2030.
	Annualised demand for gas is forecast to decrease but peak demand remains high. 1-in-20 peak day demand for winter 2024/25 was 8mcm/d higher than the previous winter.
	The value of gas’ role as dispatchable energy supply is increasingly significant and provides security of supply insurance as renewable generation dominates.
	Continued investment in the GB gas network is essential to maintain resilience, enable hydrogen blending and transport, and future-proof the system for net zero.

As a result, our NIA funding for RIIO-GT3 needs to be utilised for projects that focus on emission reduction, resilience, low-carbon technologies and safety of the existing network. Net zero and hydrogen activities should be funded by other means until Government policy decisions are made in the UK.

Our innovation process

From idea to implementation



Innovation ideation

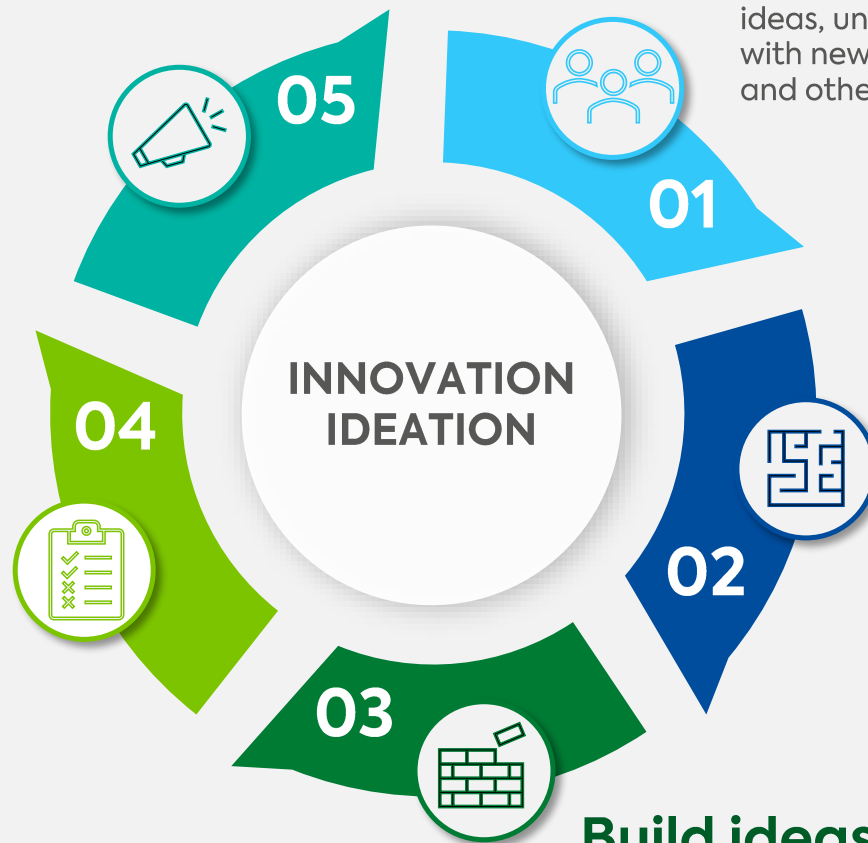
Our process for developing and advancing innovation ideas.

Develop scope

Once an idea is prioritised, we roadmap it across the price control periods and progress the statements of work to enable us to identify project partners and deliver the innovations. For more information, and to see the process for delivering our projects, please see the [Future Energy Networks Innovation Process \(FENIP\)](#) document.

Prioritise ideas

The ideas and concepts are added to our innovation management platform and assessed against the following criteria: maturity, opportunity, cost to deploy, innovation cost, financial savings, safety, environmental, compliance, skills and competencies and future proofing. This provides an early score for each idea, to enable the prioritisation of projects that will provide the greatest benefit to the consumer and reduce risk and uncertainty for our business.



Engage stakeholders

We attend events to seek fresh opportunities, capture ideas, understand market trends and engage directly with new companies across both the energy system and other sectors.

Identify challenges

We host workshops across the business and spend time in the field to understand our business challenges and areas where innovation could support. These challenges are shared with our innovation community through events, our Innovation Strategy and other regular updates.

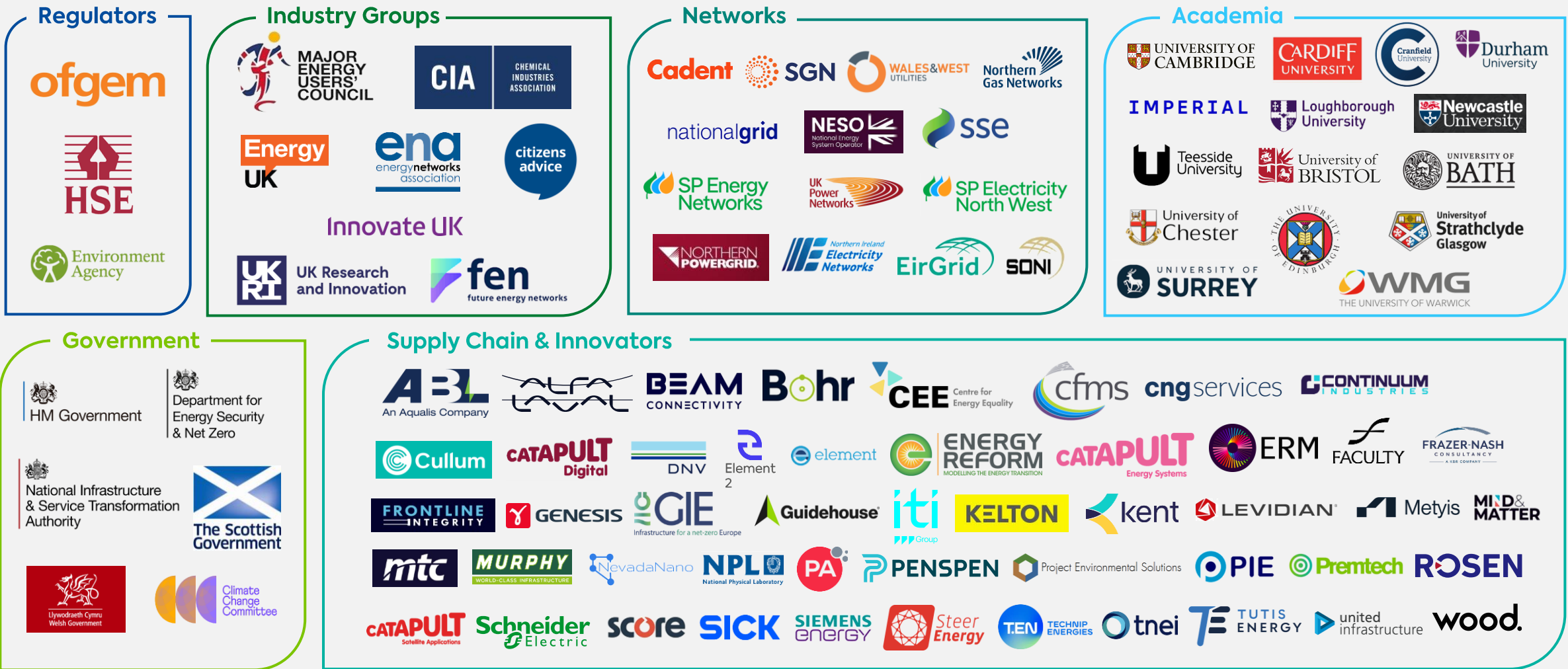
Build ideas

Using our price control themes and the challenges set, we work with our community to develop ideas and concepts that can be considered for innovation funding. We run workshops with our internal teams to review and assess these ideas, undertaking duplication checks across the industry. This helps us in the next stage of our approach.

Our stakeholders

Understanding our current stakeholders and identifying future stakeholders and collaborators is vital to finding potential innovation opportunities for our business. We attend events and regularly seek fresh opportunities by engaging directly with new companies across the energy system and other sectors.

We engage with all the UK Energy networks through innovation projects from whole energy solutions with electricity to focused gas challenges with the other gas distribution networks. Our strategic approach with the other networks allows us to collaborate on shared challenges



Tracking our value

Delivering innovation projects is only part of the story: real value is only unlocked via the implementation of innovation into our network and across the energy system.

We drive the implementation of our projects from each RIIO period into the next and track the value for the following five years. This allows us to understand the impact innovation is having on the network and helps us refine future projects and ways of working.

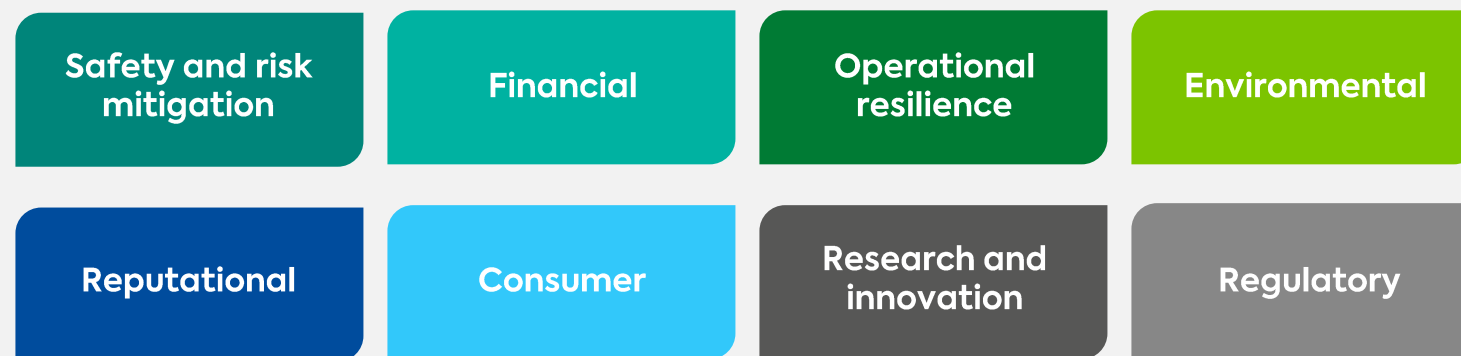
How do we track value?

As part of our project closure activities, a handover plan is created documenting the next steps, be that any additional project phases or implementation. Once the implementation is complete, we monitor its use across the network and assess its value annually.

Value tracking in RIIO-GT3

We ensure a clear and consistent approach to capturing and presenting benefits by defining them earlier and more explicitly. We explore these benefits in greater detail at the project idea stage, using them to inform decision-making and determine which projects progress to the scoping stage.

To align with this, we have refreshed the value tracking categories that our project ideas will be scored against. The new categories are:



This supports strengthening how we evidence the value of a given project and will support with better decision making and stronger regulatory credibility.

These categories will be reviewed and, where required, updated on an ongoing basis to ensure that our projects are delivering real value to the business, wider industry and consumers.

Our innovation themes for RIIO-GT3

Click on each theme to be taken to its respective section

To help focus our efforts over the next five years, we have refreshed our innovation portfolio themes. **The new themes are:**

					
Theme	1. Energy Security & Network Resilience	2. Low-Carbon Transition	3. Safety & Integrity	4. Digital & Data	5. Business & Customer
Description	Focuses on protecting the network and strengthening national resilience to ensure a reliable, secure and future-ready energy system.	Focuses on accelerating the transition to net-zero through methane emission reductions, decarbonisation and the adoption of low-carbon technologies.	Focuses on improving safety, productivity and operational performance through technical excellence, enabling efficient delivery across RIIO-GT3 and beyond.	Focuses on transforming operations through digitalisation and data-driven decision-making, ensuring systems are future-ready and information is optimised.	Focuses on building trust, improving service accessibility and enhancing experiences for customers, partners and communities.

Each theme has its own set of topics and focus areas which will shape which projects we decide to progress.



Strategic objectives

Our strategic objectives will help us prioritise our innovation activity throughout RIIO-GT3 by ensuring that investment is focused on the areas that will deliver the greatest value for customers, stakeholders, and the wider energy system.

Our innovation themes help translate these objectives into targeted areas of focus, creating a clear line of sight across the business priorities, innovation challenges and project delivery.

Through a portfolio of projects aligned to the five themes, we will develop the knowledge, evidence, and solutions needed to address current and future challenges, while supporting National Gas in delivering a safe, reliable, efficient, and sustainable network.

Strategic Objectives	Innovation Themes				
	ES&NR	LCT	S&I	D&D	B&C
1. Enhance network resilience and reliability	●	●	●	●	
2. Enable a safe and sustainable energy future	●	●	●		
3. Optimise operational performance and efficiency	●		●	●	●
4. Maximise asset value and lifecycle performance	●		●	●	
5. Strengthen risk management and decision-making	●	●	●	●	
6. Improve safety, wellbeing and workforce effectiveness			●	●	
7. Accelerate digital and data-driven transformation	●	●	●	●	●
8. Deliver excellent customer and stakeholder outcomes			●	●	●
9. Support growth, innovation and new market opportunities		●		●	●
10. Reduce environmental impact and drive sustainability		●	●		

Key:

●

Energy Security & Network Resilience

●

Low Carbon Transition

●

Safety & Integrity

●

Digital & Data

●

Business & Customer



Theme hierarchy

We have modified how we manage our project portfolio – innovation ideas are now structured through a 4-level hierarchy.

Themes

The strategic themes ensure we are aligned with both the business priorities and stakeholder needs.

Inputs to the themes include:

- Business objectives
- Customer requirements
- External drivers such as Ofgem, Government, HSE

Topics

A series of topics are included within each theme and align specific work with a clear strategy.

Inputs to the topic include:

- RIIO-GT3 allowances and business plans
- Business area priorities
- Asset management strategy

Focus areas

A specific area of focus within a broader topic to help drive business value.

Inputs to the focus areas include:

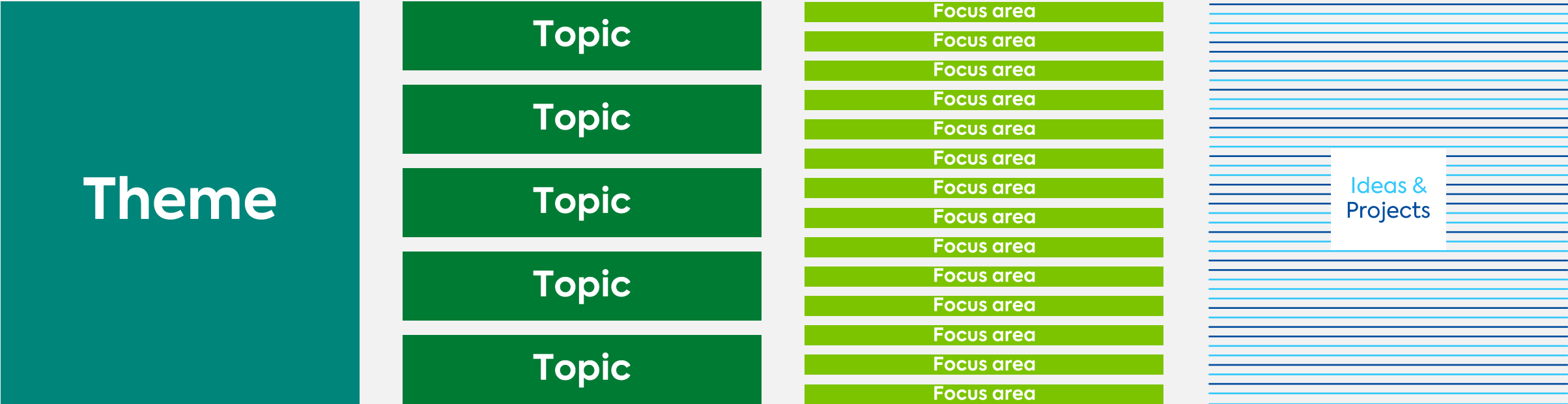
- GIGG joint industry plans
- Internal investment papers
- Business area problem statements

Ideas and projects

Specific innovation ideas are generated for the different focus areas and used to scope projects.

Inputs to the ideas and projects include:

- SME and supplier engagement
- Ideation sessions
- Industry events



Energy Security & Network Resilience



Topics	Description	Focus Areas
	1. System Intelligence Develop network-wide intelligence capabilities to enhance forecasting, modelling and strategic decision-making across the whole system.	- Forecasting - Predictive control room - Multi-gas scenario modelling - Blended gas control room modelling - Network operation / Modelling
	2. System Resilience Enhance system resilience to ensure the safe, reliable, and uninterrupted delivery of gas services.	- Offshore impact - LNG / Storage - High impact points of failure - Import optimisation - Network capability
	3. Protecting the Network Strengthen risk identification, monitoring, and mitigation to protect critical assets and network operations.	- Climate adaption - External factors - Critical asset Management - Security of supply - Surveillance techniques - Asset health / Maintenance
	4. Crisis & Continuity Strengthen preparedness and response capabilities to maintain critical operations during disruptions and emergencies.	- System isolation - Maintenance of supply - Training / Exercises - Business continuity
	5. Whole System Integration Enable greater collaboration across the UK energy sector to support a coordinated, resilient and efficient energy system.	- NESO - Gas distribution - Electricity - Transitional technology

Energy Security & Network Resilience



Topic	System Intelligence	System Resilience	Protecting the Network	Crisis & Continuity	Whole System Integration
Purpose	Leverage advanced technologies to inform strategic decisions and management of the NTS.	Proactively manage risk to maintain network performance and delivery of business objectives.	Protect and enhance critical assets to ensure a safe, resilient, and reliable energy network.	Maintain robust crisis management and business continuity capabilities in the event of major incidents.	Drive collaboration across the energy sector to support integrated and efficient energy delivery.
Current State	Existing modelling and forecasting tools support network planning and operational decision-making. Opportunities remain to strengthen correction mitigations insight quality, improve mitigation planning, and increase understanding of business-wide impacts.	Network resilience is assessed through scenario- modelling and forecast analysis, helping identify potential risks, impacts, and mitigation requirements across the NTS.	Physical asset protection relies on established surveillance activities, including helicopter patrols, line walking, and vantage point inspections. Cyber and other security risks are routinely assessed to safeguard critical infrastructure.	National Gas maintains established crisis management and business continuity arrangements, supported by structured training, governance, and annual network emergency response exercises.	National Gas collaborates with NESO, DESNZ, and other utility sectors as required across Gas Distribution, Water, and Electricity to support coordinated planning, policy development, and cross-sector delivery.
Impact	Innovation can enhance workload delivery through the evaluation and demonstration of emerging technologies, providing evidence-based recommendations and validating the value of new approaches.	Emerging solutions and new ways of working can improve resilience planning, optimise asset management practices, and strengthen decision-making across the business.	New surveillance, security, and assessment technologies could strengthen asset protection, improve operational awareness, and provide enhanced support for decision-making.	Advanced tools and improved data capabilities could enhance crisis preparedness, strengthen information sharing, and support faster, more effective incident response.	Deeper collaboration and greater integrations across energy and utility partners (e.g. NESO, GDN's, Electricity) can improve alignment, unlock operational efficiencies, and enhance customer outcomes.





Energy Security & Network Resilience – priorities

Below are three priority focus areas for the Energy Security and Network Resilience theme for the next six months.

1. Forecasting

Forecasting is used to inform both future business decisions and actions in relation to balancing the supply and demand of UK energy. Existing techniques have been developed and utilised by stakeholders across the business. However, the increasing number of external constraints and the significant impacts of incorrect forecasting make it crucial to enhance this process.

Innovation in this area could range from the data sources and models used to complete forecasting, to improved knowledge of global practises and the overall approach to forecasting for the business.

➤ **Proposed project: Mid-term demand forecasting**

2. Business Continuity

Business continuity relates to an organisation's ability to maintain critical functions in the event of crisis. This includes understanding process dependencies, minimising disruption and ensuring correct resource levels to maintain activities.

Innovation in this area includes working with Business Leads to develop and demonstrate a business continuity approach for National Gas. By mapping National Gas processes, and better understanding critical activities, the business can respond effectively to events whilst maintaining key deliverables or activities.

➤ **Proposed project: Business continuity mapping**

3. Surveillance Techniques

Asset monitoring currently relies on a combination of engineer inspections, surveys, and helicopter patrols to identify issues across our extensive transmission network, but these approaches can be resource-intensive and may not provide continuous visibility.

Innovation in this area could enable more proactive and intelligent surveillance through connected sensors, drones, AI-driven analytics, and integrated data platforms, allowing risks to be detected earlier and resources to be targeted more effectively.

➤ **Proposed project: Surveillance network monitoring**

Challenge Statement: Forecasting

Forecasting and modelling is undertaken to ensure National Gas are informed on all factors affecting supply, demand and operation. This provides supporting information to feed into strategic plans and business decisions and reduce potential impacts to the organisation.

New technology development and data sources that have not been utilised before could enhance these activities. This includes using mid term forecasting to improve capacity charge submissions and new data sources to inform climate adaptation.



Low Carbon Transition



Topics	Description	Focus Areas
 1. Automation	Deploy robotics, control systems and digital tools to reduce manual intervention, improve operational efficiency, and enhance network activities.	▪ Small robotics for inspection & repair ▪ Automated construction processes ▪ Use cases for robotics deployment ▪ Flood monitoring & intervention ▪ Condition based monitoring
 2. Measurement	Develop and implement advanced sensing and analytics technologies to measure material properties, gas flow and composition, emissions and asset conditions.	▪ New gas quality systems ▪ New gas measurements ▪ Non-destructive testing (NDT)
 3. Shrinkage	Identify, quantify and ultimately reduce the three components of shrinkage on the NTS; process emissions, fugitive emissions and unaccounted-for-gas.	▪ Energy recovery ▪ Emissions monitoring and mitigation ▪ Unaccounted-for-gas (UAG) ▪ Leak sealing ▪ Recompression of small volumes
 4. Transition Technologies	Evaluate and deploy technologies that enable the decarbonisation of the network, including hydrogen, carbon dioxide, and other low-emissions processes.	▪ New in-line inspection (ILI) technologies ▪ Fibre optic enablement ▪ Net zero above-ground-installations (AGIs)

Low Carbon Transition



Topic	Automation 	Measurement 	Shrinkage 	Transition Technologies 
Purpose	Identify safe and appropriate opportunities for automation deployment.	Ensure we have reliable data for safe and commercially compliant operations.	Reduce emissions and gas losses through enhanced monitoring and mitigation.	Accelerate the development and deployment of energy transition technologies.
Current State	The NTS is significantly more automated than in the past, with flow control, compressor station operations, and many back-office processes managed through the National Control Centre. Future deployment must balance operational efficiency with security and resilience requirements.	Measurement relies on a combination of sensing technologies and inspection methods that provide reliable data for asset integrity, gas quality, and operational control. However, many systems remain point-based and asset-specific, creating dependence on periodic measurement.	Process emissions are estimated using equipment and operating-time, while some assets continue to vent methane during operation. Fugitive emissions are monitored periodically, limiting visibility between surveys and increasing the risk of unreported losses. UAG makes up over 60% of shrinkage and carries significant reputational risk.	The business is progressing 'Future of Gas' research into BAU opportunities. A structured approach to identifying, trialling, and scaling solutions can deliver immediate operational and environmental benefits, while de-risking future pathways, informing policy, and supporting flexible, low-cost transition pathways.
Impact	Reducing manual intervention can increase efficiency, consistency, and reliability across network activities. Enhanced automation supports faster decision-making, more proactive operations, reduced downtime, and improved environmental performance.	Enhanced measurement capabilities can increase data coverage, accuracy, and timeliness, enabling earlier issue detection, better operational decisions, reduced emissions, and more efficient asset interventions.	Reducing process and fugitive emissions can generate environmental, financial, and reputational value. Continuous monitoring combined with targeted repairs would strengthen compliance, lower gas losses, and improve public confidence.	Scaling technologies with proven near-term value can unlock immediate operational environmental gains while reducing uncertainty in future investment decision. Benefits include emissions reductions, cost savings, increased deployment confidence, and stronger evidence to support strategic investments.





Low Carbon Transition – priorities

Below are three priority focus areas for the Low Carbon Transition theme for the next six months.

1. New Gas Quality Systems

Current gas quality monitoring across the network relies on Gas Chromatographs (GCs) to support billing, regulatory compliance and operational needs. These systems are complex, costly, maintenance intensive, and continuously vent gas, with failure rates expected to rise and significant future investment required to replace ageing assets.

Innovation in this area would focus on implementing simpler, low-cost, real-time measurement technologies that reduce emissions and improve the reliability and measurement capability when handling evolving gas.

➤ **Proposed project:** Prism Signal Processing for Optical Gas Composition Measurement

2. Non-Destructive Testing

Many assets on the NTS, such as buried, clad, supported, or inaccessible pipework, cannot be inspected using conventional methods, requiring costly, disruptive, and carbon-intensive excavation or intrusive investigations, which are inefficient and reactive.

Innovation in this area could include trialling and evaluating a range of NDT technologies that can assess pipe condition without excavation. Developing a comprehensive NDT toolbox can enable condition-based maintenance and targeted interventions while avoiding unnecessary disruption.

➤ **Proposed project:** NDT-BP – Non-destructive testing of defects in buried pipework at AGIs

3. Emissions monitoring and mitigation

All components of shrinkage lead to either physical gas loss and increased carbon emissions, or financial and reputational impacts from metering inaccuracies. For fugitive emissions, current monitoring approaches rely on periodic surveys and estimated emissions factors, providing only partial, time-specific insights rather than actively reducing emissions.

Innovation in this area could provide continuous monitoring and real-time analysis, supporting a multi-layered approach to emissions management that identifies and resolves issues early, reducing emissions and improving network performance and reputation.

➤ **Proposed project:** REMIT – RIIO-GT3 evaluations of methane investigating technologies

Challenge Statement: Non-Destructive Testing

Buried pipework at Above-Ground Installations (AGIs) cannot be effectively inspected using conventional techniques, with many sections that are “unpiggable” and inaccessible without excavation.

This project would trial multiple non-destructive inspection technologies in real AGI environments, deploying each method at the same sites, to enable direct like-for-like comparison in real conditions.

The result would be an evidence-based recommendation on which technologies can be used and under what conditions. This could support a transition from excavation-led inspection to a more targeted, condition-based approach across the network.



Safety & Integrity



Topics	Description	Focus Areas
 1. Safety	Integrate new safety systems and processes to prevent and respond to incidents using enhanced monitoring, automation, and safer, technology-enabled ways of working.	▪ Safety culture and human factors ▪ Venting ▪ Hot works ▪ Inline inspection
 2. Construction	Introduce innovative construction and intervention methods that improve safety, reduce risk and minimise disruption.	▪ Innovative materials for construction ▪ Engineered backfill systems ▪ NDT and welding techniques ▪ Construction productivity and cost reduction ▪ Smart monitoring of pipelines
 3. Materials	Select, install and maintain all materials across the network, including metals, polymers and consumables, ensuring performance, reliability and longevity.	▪ Corrosion & integrity management ▪ Ageing infrastructure ▪ New materials ▪ Welding defects
 4. Asset Management	Optimise asset lifecycle and risk using predictive models, inspection insights and decision tools to enable safer, more efficient maintenance and investment decisions.	▪ Pipeline corrosion ▪ Inline inspection ▪ Environmental changes ▪ Third party interference ▪ Improved inspection & maintenance
 5. Operational Excellence	Advance monitoring, inspection and operations to enable early fault detection, predictive integrity management, and continuous efficiency improvements.	▪ Leak detection ▪ Resilient and adaptive maintenance planning ▪ Utilisation of net zero vehicles and equipment

Safety & Integrity



Topic	Safety 	Construction 	Materials 	Asset Management 	Operational Excellence 
Purpose	Improve the safety of people, assets and operations through innovation.	Enhance the delivery, safety and efficiency of construction activities.	Manage material-related risks to maintain long-term asset integrity.	Optimise asset performance, resilience and whole-life value.	Standardise and simplify workflows while ensuring operations are centred on maximising consumer value.
Current State	Safety is managed through established processes, compliance frameworks and incident response arrangements. Many activities remain reactive, resource-intensive and dependent on manual intervention.	Construction and intervention activities are governed by robust standards and procedures. Though, delivery can be labour-intensive and disruptive, with safety risks, heightened in live operational environments.	Materials selection and integrity assessments are supported by established standards and engineering processes. However, limited legacy data and asset-specific uncertainties can result in conservative decision-making.	Asset management is supported by established frameworks, inspection programmes and maintenance strategies. However, decisions are often informed by historical data, periodic inspections and static assumptions.	Continuous improvement activities are embedded across operations through established procedures and experienced teams. However, many workflows remain manual, reactive and resource-intensive, with limited real-time visibility.
Impact	Advanced monitoring, automation and digital solutions can enable a more proactive approach to safety, reducing incidents and near misses, workforce exposure to risk, and response times, while improving compliance.	Safer and more efficient construction methods can reduce operational disruption, minimise risk in live environments, improve installation quality, and increase productivity, all while lowering project delivery costs.	Advanced materials and innovative inspection techniques can improve asset integrity, reduce material-related failures, minimise network disruption, and support more informed lifecycle management decisions	Predictive and risk-based approaches can optimise maintenance and investment decisions, reducing asset failures and unplanned outages while improve network performance and resilience.	Smarter technologies and streamlined ways of working can improve productivity, reduce operational risk, accelerate decision-making, and enhance the performance and reliability of network operations.

Safety & Integrity – priorities



Below are three priority focus areas for the Safety and Integrity theme for the next six months.

1. Innovative materials for construction

Conventional materials can degrade over time due to corrosion, environmental exposure, mechanical damage, and ageing. This can lead to reduced asset performance, shorter service life, and increased maintenance and lifecycle costs.

Innovation in this area could enable the development and adoption of advanced materials, coatings and composite solutions that improve asset durability, performance, and resilience. This can help extend asset life, reduce maintenance requirements, enhance network efficiency, and deliver long-term value across our asset base.

➤ **Proposed project: Type C Compression Sleeve (Petrosleeve) in place of diversion**

2. Ageing infrastructure

The cumulative effects of pressure cycling can lead to fatigue, crack growth and material degradation in ageing assets. These challenges are often compounded by limited legacy data on materials, construction methods and operating conditions, resulting in conservative asset assessments.

Innovation in this area offers the opportunity to combine advanced inspection technologies with AI-driven asset integrity models to better understand material degradation, predict fatigue and crack growth, and enable more informed, risk-based decisions that extend asset life.

➤ **Proposed project: Stress concentration factor update for sweepolets**

3. Improved inspection & maintenance

Maintaining the integrity of high-pressure gas pipelines is challenging due to corrosion in buried pipework, ageing protective coatings, and limited access for inspection. Traditional inspection and maintenance activities can be costly and disruptive, often requiring excavation and specialist techniques.

Innovation in this area could enable earlier defect detection through advanced inspection and maintenance technologies. This would help reduce the need for intrusive excavations, lower costs, and improve the safety, reliability, and resilience of the pipeline network.

➤ **Proposed project: Pitwall transition changes in section**

Challenge Statement: Surface Preparation

National Gas has a growing number of ageing AGI coatings that are deteriorating and exposing steel to corrosion.

This project would investigate alternative surface preparation methods, including laser cleaning for larger areas and bristle blasting for localised repairs, to remove coatings and corrosion more effectively while minimising damage, waste, and downtime.

The result would be a safer, faster, and more cost-effective way to maintain pipelines, extending asset life, reducing corrosion risk and maintenance costs, improving safety and environmental performance, and lowering the risk of gas leaks.





Topics	Description	Focus Areas
 1. Data Management	Build and govern trusted data foundations, promoting quality, hierarchy and interoperability to facilitate scalable analytics and actionable insight.	▪ Asset data hierarchy ▪ Data accessibility & discovery ▪ Digitising asset archives ▪ Data classification ▪ Advanced analytics
 2. Digital Operations	Embed digital tools, automation and AI-enabled processes into day-to-day operations to improve safety, reliability and efficiency in how the system is run.	▪ Productive maintenance ▪ Digital twin ▪ AR/VR training ▪ Intelligent defect management
 3. Digital Security	Strengthen digital security and resilience to protect the business from evolving threats whilst enabling the embedding of responsible and ethical AI.	▪ Secure innovation ▪ Quantum computing ▪ Trusted AI & governance ▪ Secure digital transformation



Topic			
Purpose	 Data Management Improve the quality of asset management and accelerate the deployment of analytics technologies.	 Digital Operations Apply digital technologies to enhance operational performance and decision-making.	 Digital Security Strengthen digital resilience and security against emerging threats and vulnerabilities.
Current State	Data management is evolving from fragmented, compliance driven processes towards a more integrated and interoperable data ecosystem capable of supporting whole-system operations and future energy transition requirements. At the beginning of RIIO-GT3 National Gas has launched a programme of works to develop and advance a number of key aspects of our IT architecture.	Operational processes remain critical to network delivery but continue to transition from manual and legacy-driven activities towards more automated, data-enabled ways of working. The operational community are committed to develop and use new technology in the field but are conscious this needs to be a trusted source of information and reduce workload overall.	A strong secure-by-design approach governs the introduction of new technologies, forming part of our internal IT governance process (a lengthy process which secures the testing of different technologies). This ensures that risks are managed, while maintaining compliance and resilience requirements.
Impact	Improved data quality, accessibility and governance can accelerate analytics adoptions, enable better decision-making, and support greater value from digital technologies. The use of modern technology such as AI, dashboarding and analytics will only work effectively with a strong source of data.	AI/ML advancements and automation can improve operational performance by enabling more proactive, data-led decision-making, increasing efficiency, and strengthening safety outcomes.	Emerging digital security solutions can strengthen resilience against evolving threats, enable safe technology adoption, and support the responsible and ethical use of AI and digital innovation.

Digital & Data – priorities



Below are two priority focus areas for the Digital and Data theme for the next six months.

1. Data Classification

National Gas has successfully introduced a simplified data classification framework through the ‘Switched-on Data Defence’ programme. Adoption has been strong, and the focus now is to continue embedding these practices across the business.

Innovation in this area could support the use of novel approaches such as AI for faster, clearer, and more effective data classification. This could assist in data dissemination, while also improving the security of our systems. Alongside this, we are also keen to understand ways that we can manage the basic data parameters and reference points across the business, and develop ways this can be intelligently added to, maintained and queried live.

➤ **Proposed project:** Innovative mass data classification tools and techniques

2. Trusted AI & Governance

Within National Gas, Trusted AI and Governance is a strategic RIIO-GT3 focus area, closely linked to data governance, digital security, and Ofgem’s ethical AI guidance. The use of AI within the CNI sector does however come with its limitations, especially around the use or production of live data due to security concerns around AI and where the data is processed or stored.

Innovation in this area could support the adoption of trusted AI across the business, governed by Ofgem’s AI guidance, to improve efficiency and decision-making. As AI capabilities evolve, we must continually assess how they can address real business challenges, with AI expected to play a key role across our innovation portfolio.

➤ **Problem statement:** How can AI and automation assist in how we engage with our supply chain sector for tendering and scoring of work?

Challenge Statement: Trusted AI & Governance

National Gas is looking to improve access to, and usability of, complex datasets for both internal teams and external stakeholders. AI has the potential to simplify how users discover, interpret, and act on data.

As a CNI operator, we must ensure AI is enabled safely, securely, and in compliance with regulatory and governance requirements.

We are interested in solutions that enable intuitive, natural language interaction with data, help dissect complex datasets, support role-based access to relevant information and decision support, enhance AI outputs and models, and support secure deployment in regulated environments.



Business & Customer



Topics	Description	Focus Areas
 1. Biomethane	Enable biomethane connections to the network at pace, and with lower costs, to develop the NGT biomethane market share.	▪ Enabling connections ▪ Certification & digital tracking ▪ Component investigation ▪ Self-lay ▪ Biomethane
 2. Data Centres	Facilitate data centre connections and support overall UK demand in a timely and low carbon fashion.	▪ Geographical asset optimisation ▪ Low carbon fuel supply for sites ▪ Packages with CCS & WHR
 3. Customer Experience	Support both our existing and new customers with their overall engagement and interactions with NGT.	▪ Customer connections ▪ Customer data ▪ Dashboards ▪ Gas quality management ▪ External engagement ▪ Proactive / Predictive Customer engagement ▪ Procurement / Supply chain collaboration
 4. Business Performance	Improve how the business operates through wider industry learning, optimising process efficiency and embedding best practice.	▪ Cross-sector learning ▪ EU opportunities ▪ Operational excellence
 5. Emerging Markets	Prepare National Gas to support and build emerging markets where business development opportunities prevail.	▪ Synthetic fuels ▪ Cross-vector coordination (whole-system) ▪ Hydrogen ▪ Carbon

Business & Customer



Topic	Biomethane	Data Centres	Customer Experience	Business Performance	Emerging Markets
Purpose	Support the growth and integration of biomethane across the gas network.	Develop innovative propositions to meet evolving data centre needs.	Improve customer outcomes, trust and engagements.	Enhance efficiency, productivity and value across business operations.	Explore new market opportunities and future customer needs.
Current State	A defined biomethane programme is supported by an established strategy and governance structure, working groups and technical expertise. This helps shape deployment opportunities across the network.	The business monitors data centre demand and customer requirements, although early-stage opportunities and future capacity needs can be difficult to identify.	Customer improvement activity focuses on stakeholder engagement, standardised connections, simplified processes, and enhanced service delivery.	Continuous improvement initiatives are underway across the business, with increasing focus on value realisation, measurable outcomes and implementation in RIIO-GT3.	National Gas is actively engaging with emerging market sectors, while assessing future customer needs, potential barriers and connection opportunities. However, many of these markets remain immature with high levels of uncertainty.
Impact	Innovation can accelerate biomethane adoption by supporting project delivery, identifying funding opportunities, and enabling more efficient network integration.	Collaboration with electricity networks and customers can improve long-term planning, unlock new connection opportunities, and support the development of innovative commercial solutions.	More seamless, transparent and responsive customer journeys can reduce connection times, improve digital services, increase transparency, improve satisfaction, and deliver operational efficiencies.	Digital tools and new ways of working can streamline processes, improve decision-making, and increase productivity. This could reduce costs, accelerate delivery, and support future investment and regulatory decisions.	Innovation can help identify new opportunities, shape future services, and reduce barriers to market entry. This could also help to accelerate the uptake of low-carbon technologies and support the growth of low-carbon markets.





Business & Customer – priorities

Below are two priority focus areas for the Business and Customer theme for the next six months.

1. Biomethane

Currently there are a small number of biomethane sites connected to the NTS with bespoke connections in different locations. This works in practice but limits the capability to unlock large volumes of green gas supply onto the NTS at pace.

Innovation in this area could explore the development of a biomethane hub model that enables multiple suppliers to connect at a single location and share infrastructure. Building on lessons learned from existing GDN hub-and-spoke approaches, this could help identify the most efficient delivery route and develop standardised infrastructure and commercial models for the NTS. Enabling larger volumes of biomethane in singular locations could reduce infrastructure and connection requirements while supporting biomethane ambitions.

➤ **Proposed project: Biomethane hub and spoke**

2. Customer Experience

National Gas is placing increasing emphasis on delivering a seamless, transparent and responsive customer experience across the end-to-end customer journey. As customer expectations continue to evolve and multi-disciplinary teams progress the connections process, there is a growing need to improve collaboration, communication and visibility throughout interactions and decision points.

Innovation in this area could focus on enhancing customer engagement, improving access to data and insights, and enabling more informed and timely decision-making. This could help create a more proactive and connected customer journey, reducing uncertainty, improving satisfaction and supporting better outcomes for customers and stakeholders

➤ **Have you got an idea on how we could improve customer experience? We'd love to hear from you**

Challenge Statement: Enabling Certification

There is an increasing need to provide customers, regulators and market participants with confidence in the origin, carbon intensity and sustainability credentials of the gases transported through the network.

Existing certification processes are not utilised for low-carbon gases and have some challenges in data transparency and traceability etc.

This project would explore innovative approaches to digital certification, data sharing and assurance mechanisms that support trusted, end-to-end tracking of gas attributes, to reduce barriers to the adoption of low-carbon gases and simplify the certification process.



Our role in Innovation

We're at the beginning of our RIIO-GT3 journey, so we are on the lookout for fresh, forward-thinking ideas that can make a real impact to what we do and how we do it.

We work with both internal teams and trusted partners to develop, trial and scale new solutions that improve network performance, delivers value for customers, and supports the transition to net zero.

We focus on turning ideas into practical outcomes, working closely with suppliers and stakeholders to make innovation happen.



Innovation eligibility

What makes an idea innovative?

Likely to be suitable for Innovation funding

- High uncertainty
- New or unproven solutions
- Generates learning or evidence
- Potential wider system impact

May be suitable (depending on level of value & uncertainty)

- Some uncertainty remains
- Adaptation of existing solutions
- Needs further testing or evidence
- Early-stage or developing ideas

Not innovation (better suited to BAU / standard procurement)

- Proven, low-risk solutions
- Routine delivery or upgrades
- Standard tools and methods
- Focus on outputs, not learning

Delivery expectations



Strong problem-led approach



Structured and disciplined delivery



High-quality technical outputs



Effective collaboration

Projects should clearly define the problem, deliver structured and well-managed work, produce robust and evidence-based outputs, and collaborate effectively to generate value and shared learning.

Governance & accountability



Adherence to Governance Framework



Milestones & planning



Reporting & transparency



Supplier accountability

Projects must follow agreed governance, deliver to clear plans and milestones, report transparently, and take full accountability for outcomes, costs and evidence.

Acronym key

Acronym	Description	Acronym	Description
AGI	Above-Ground-Installation	ISO	International Organisation for Standardisation
AI/ML	Artificial Intelligence/ Machine Learning	LNG	Liquified Natural Gas
AR/VR	Augmented Reality/ Virtual Reality	MCM/D	Million Standard Cubic Metres per Day
BAU	Business As Usual	NESO	National Energy System Operator
CCS	Carbon Capture and Storage	NDT	Non-Destructive Testing
CNI	Critical National Infrastructure	NGT	National Gas Transmission
DESNZ	Department for Energy Security and Net Zero	NIA	Network Innovation Allowance
EU	European Union	NTS	National Transmission System
GB	Great Britain	OT	Operational Technology
GC	Graph Chromatographs	RIIO-GT3	Revenue = Incentives + Innovation + Outputs Gas Transmission 3
GDN	Gas Distribution Network	SIF	Strategic Innovation Fund
GIGG	Gas Innovation Governance Group	SME	Subject Matter Expert
HSE	Health and Safety Executive	UAG	Unaccounted for Gas
ILI	In-Line Inspection	WHR	Waste Heat Recovery



If you have an innovation idea, questions about any of our projects, or you would like more information, please contact the team at:

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The QR code below will take you to our innovation webpage:

