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Technical Assistance for Improvement of Performance-Based Tariff Regulation of EMRA For Turkish Energy Markets Through Introducing an Enhanced Monitoring System

Task 3.4 – Best Practices Regarding Innovation and Recommendations for Gas Distribution and Transmission Companies

Training

26th August 2020, EMRA, Ankara

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Agenda

- Different regulatory approaches on incentivizing innovation efforts
- Selected country practices for regulation of transmission innovation activities
- Comparison of selected regulatory practices

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Different regulatory approaches on incentivizing innovation efforts

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Different regulatory approaches on incentivizing innovation efforts

- Some European countries (e.g. UK, Ireland and France) have been implementing **supportive regulatory framework incentivising innovation and R&D expenditures** for at least one completed regulatory period. Other countries such as Italy are currently developing innovation incentives for gas TSO.
- TSOs of these countries, National Grid Gas (UK) and GRTgaz (France), are **front runners in the application of most innovative solutions** such as biogas integration, CNG network development, power to gas solutions, new O&M techniques, etc.
- Other countries do **not include any incentive mechanism related to R&D**. For example Spanish regulator did not allowed any R&D expenditure in the revenue determination for the next regulatory period (2021-2026).
- It is necessary to mention that EU TSO also invest in innovative solutions even if these are not directly included in the allowed revenue.
- There are **other revenue sources arising from R&D expenditures** that can make these investments profitable without direct incentives. R&D investments may lead to: efficiency gains, leakage reduction, increases in the number of customers and sales or potential intellectual property rights.
- These potential benefits also encourage TSOs to assume the **risk of undertaking R&D investments without related allowed revenues.**

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Selected Country Practices for regulation of transmission innovation activities

United Kingdom
France
Ireland

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Selected country practices
United Kingdom

Great Britain has a long tradition of regulatory enhancement to consider the changes and development of the energy sector.

Current regulatory framework - **RIIO (Revenues = Incentives + Innovation + Outputs),** introduced 2 specific incentive mechanisms for innovation:

- **Network Innovation Allowance** (NIA) allows the regulated network operators a funding opportunity as a % of revenues.
- **Network Innovation Competition** (NIC) funding is awarded through an annual competitive process.

NIA and NIC awarded projects are included as part of the revenue to be recovered via network tariffs.

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Selected country practices
United Kingdom

	Network Innovation Allowance	Network Innovation Competition
Description	Annual allowance that each Network Licensee will receive to fund small-scale innovative projects as part of its price control settlement.	Funding is awarded through an annual competitive process
Funding	0.5-1% of yearly revenue of the TSO	Up to £20 million per annum for NG DSOs and TSO.
Eligible projects	Fund smaller scale projects	Funding larger scale and more complex, innovative projects
Area	Not defined	Solely on innovative Projects with potential low carbon and environmental benefits.

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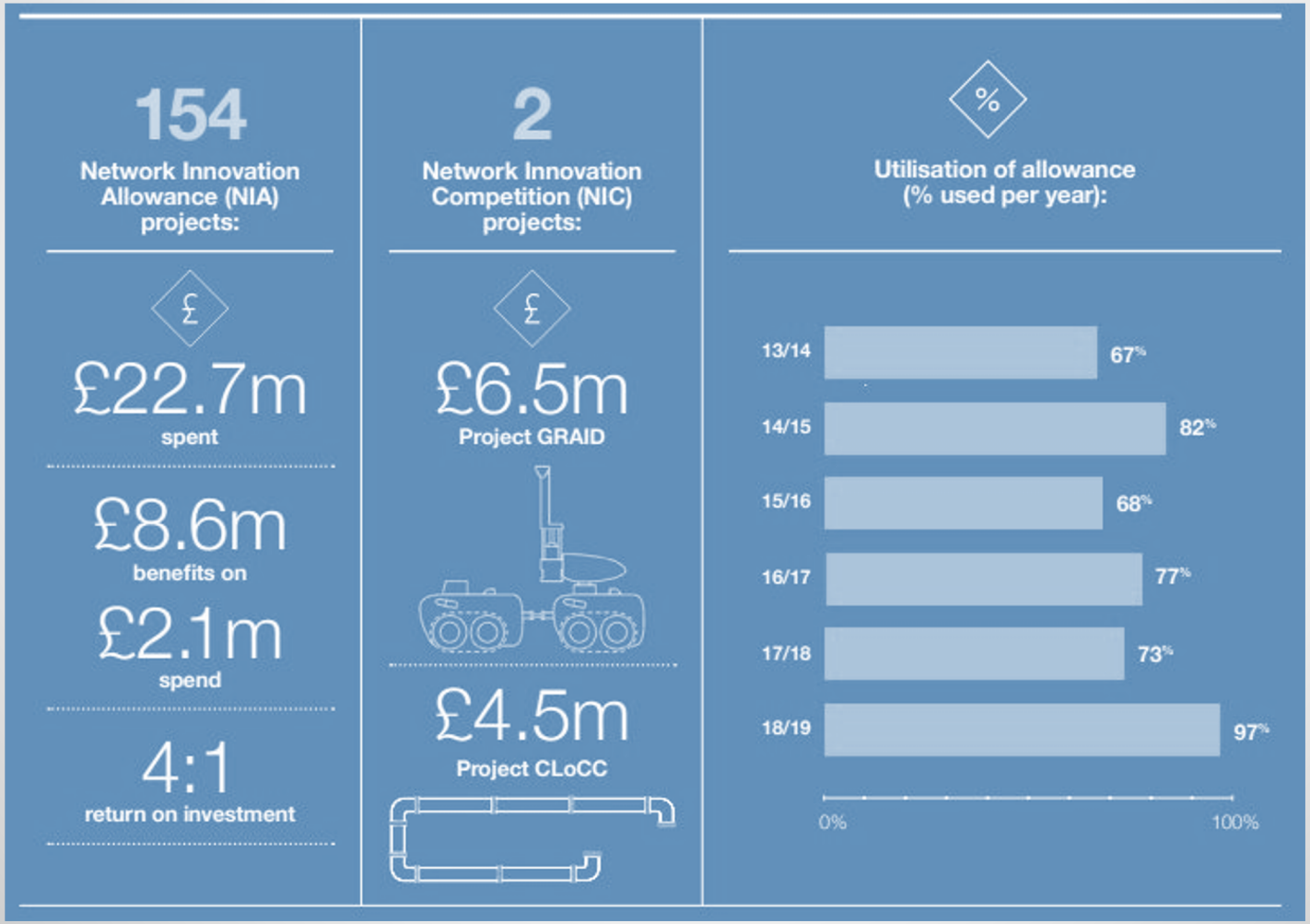
Selected country practices
United Kingdom

The following picture presents all R&D expenditures of National Grid Gas (TSO) under the RIIO innovation support mechanisms:

NIA allowance is 0.7% of yearly allowed revenue



NGG (2019)Network Innovation Allowance Annual Summary 2018/2019

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Selected country practices
United Kingdom

NGG request proposals for innovative projects to compete within the NIC. Projects must include among other things:

- Cost benefit analysis
- Carbon/environmental benefit analysis

And the main topics are:

- The Efficiency Challenge
- Asset Management
- Future of Transmission System
- Safety and Environmental Impact

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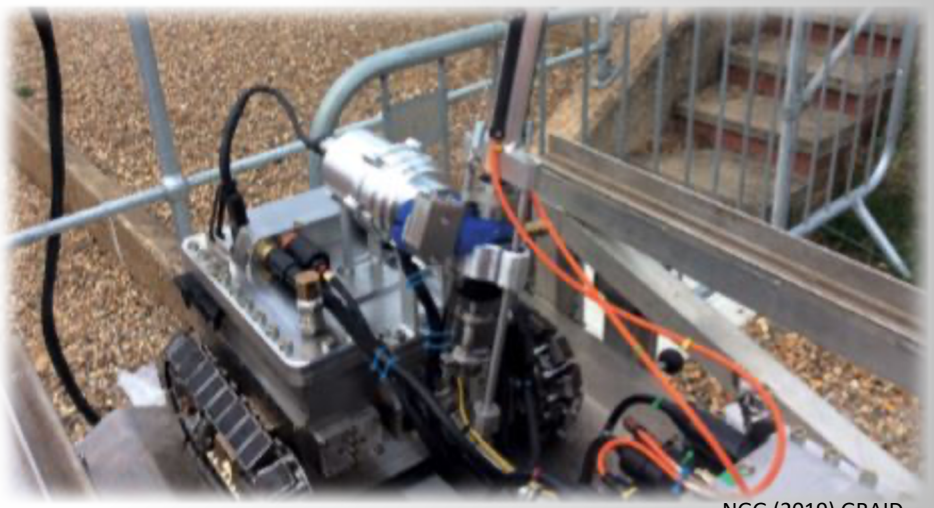
Selected country practices
United Kingdom

Existing projects of NGG under NIC:

- Project CLoCC (**Customer Low Cost Connections**, 2015-2018) £4.5m aims to minimise the cost and time of new gas connections to the transmission system

- Project GRAID (**Gas Robotic Agile Inspection Device**, 2014-2018) £6.5m. Cut **asset maintenance** costs by eliminating unnecessary excavations and providing data to allow asset life extension.



NGG (2019) GRAID

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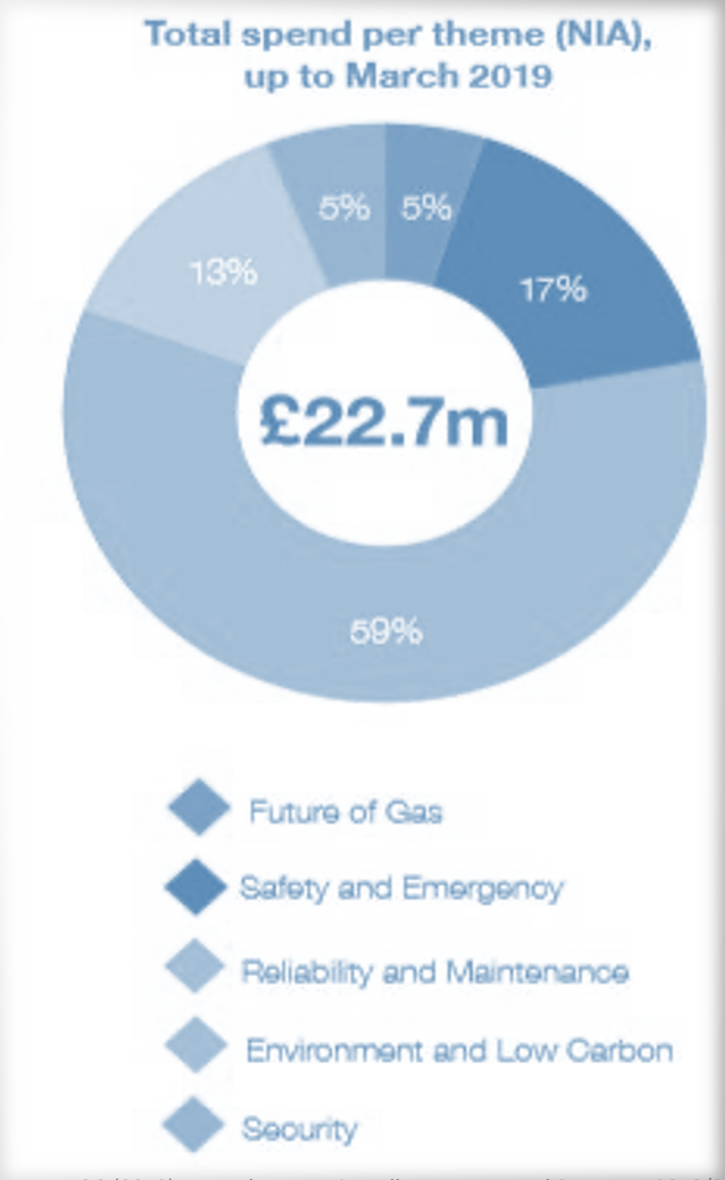
Selected country practices
United Kingdom

Selection of NCG projects (2019) financed under the NIA scheme:

- Hydrogen in the NTS – foundation research and project roadmap.
- Feasibility study into 2% hydrogen blending and H2 pipeline and hub.
- Mobile Condensate Tanks.
- Drones inspection.
- Derivation of a Risk Based Approach to High Pressure Filter & Pig Trap Closure Inspection Frequencies.



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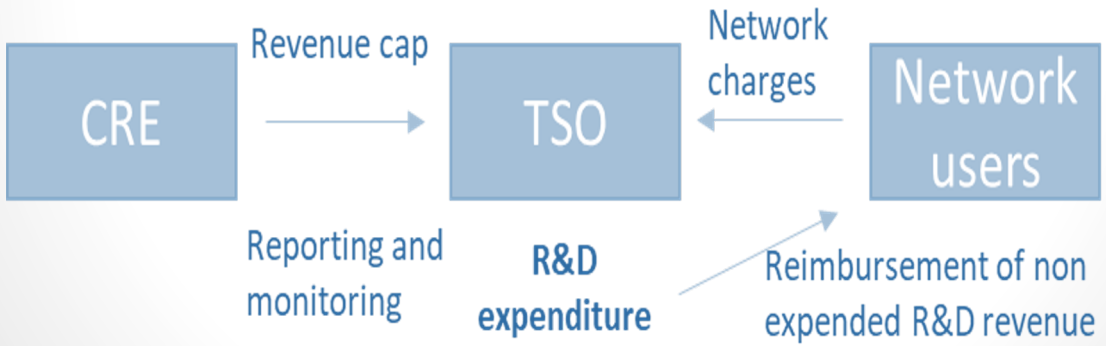
Selected country practices
France

- The French Regulator (**CRE**) introduced in its gas transmission price control (ATRT6) **an incentive scheme for research and development** (R&D) cost.
- The ATRT6 tariff aims to provide the TSOs with all the resources needed to respond to the **challenges of energy transition and changes in the gas market**.
- The mechanisms is based on **revenue allocation, reporting and regulatory monitoring** of current and upcoming R&D projects. Any underspending on the allocated R&D amount is reimbursed back to the network users.



- In order to facilitate decision-making for new investments, the costs to be covered by the tariff include **coverage of stranded costs**. c

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Selected country practices
France

According to CRE tariff deliberation the following areas are included under the R&D incentive mechanism:

- Biomethane
- Power to Gas
- Support for efficient uses in industry
- Leakage reduction H2 transmission
- Direct support to research and innovation in green gas
- Data analysis
- Integrity of facilities

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Selected country practices
France

The following tables present the R&D expenditures allocated to each TSO (GRTgaz and Teréga) under the tariff order in use: ATRT6

GRTgaz, in €m$_{current}$	2017	2018	2019	2020	Average 17-20
R&D "within ATRT6"	12	12	12	12	12
GRTgaz 2020 Project	4	10	10	12	9
ATRT6 total	16	22	22	24	21

Deliberation of the French Energy Regulatory Commission of 15 December 2016 forming a decision on the tariff for the use of GRTgaz and TIGF natural gas transmission networks

- During the last five years, most relevant R&D project carried out by French TSOs was related to power to gas solutions and H2 integration in the transmission network. **The Jupiter 1000 project was launched in 2014 and is the first industrial demonstrator of Power to Gas** with a power rating of 1 Mwe. **French gas TSOs work together with electricity TSO and other technical partners.**

- **Initially the regulator was reluctant** to accept the project in the revenue allowance considering a gas TSO was not the most appropriate party to execute this project due to unbundling restrictions. **Finally, investment was approved by the CRE and budget allocated to R&D expenditures is established in the four-year trajectory**.

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Selected country practices
Ireland

- The Irish regulator (**CRU**) recognises a **yearly amount of R&D investments** to **be included as OPEX** of Gas Networks Ireland (GNI): Transmission + Distribution.
- The adopted treatment of innovation funding as OPEX **avoids complications of small CAPEX projects additions** and was considered more consistent with the focus on innovation funding.
- **Detailed governance arrangements** were developed for GNI's innovation fund and used to determine which projects were funded within the network tariffs

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Selected country practices
Ireland

For the next regulatory period an innovation funding allowance of €17.5m is proposed: **0.9% of allowed revenue**.

The request includes project management, research and a small number of strategic projects funding for:

- biogas purification,
- power-to-gas,
- low carbon heating solutions
- carbon capture and storage projects,
- research and programme management.

Table 4.5: PC4 proposal – Innovation Opex for distribution and transmission (€'000s)

Category	2017/18	2018/19	2019/20	2020/21	2021/22	Total
GNI request	5,000	5,000	5,000	5,000	5,000	25,000
CER proposal	3,500	3,500	3,500	3,500	3,500	17,500

Consultation on October 2017 to September 2022 Transmission Revenue for Gas Networks Ireland

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Comparison of selected regulatory practices

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Comparison of selected regulatory practices

Innovation Regulation	Great Britain	France	Ireland
High level description	• Most developed innovation incentive regulation among EU countries. Since 2010. • Gas TSO develops innovation projects related to O&M new technique, management upgrading, biogas, power to gas, etc.	• Revenue requirement methodology includes an allowed R&D expenditure trajectory for each TSO. Since 2016. • Main TSO is front-runner in power to gas solutions	• Revenue methodology includes a Gas Innovation Fund to finance R&D projects. Since 2012. • Innovation efforts of the TSO in the last years have been focused on the development of CNG facilities.
Regulatory Incentives	• Two funding mechanisms are available: Network Innovation Allowance: 0.5-1% of yearly revenue. Network Innovation Competition.	• R&D expenditure trajectory approved by the NRA is included in the allowed OPEX of the TSO.	• The NRA decides for each regulatory period the amount for the Gas Innovation Fund that is considered as OPEX.
Revenue Allowance	• 7.5 Million £/year (9 M €) • 0.7% of allowed revenue.	• 21 Million €/year, • 2.7% of OPEX, 1.2% of total revenue.	• 3.6 Million €/year • 4.7% of OPEX. 2% of total revenue.

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Comparison of selected regulatory practices

Innovation Regulation	Great Britain	France	Ireland
Overcharging principles	Innovation incentives are included as part of the RIIO revenue and recovered via end-user's transmission tariffs.	R&D scheduled expenditure is included in TSO allowed revenue. Any budget allocated to R&D and not used is restored to users through a revenue balance account.	Gas Innovation Fund is included as part of TSO OPEX to be recovered via end-user's tariffs.
Eligible R&D expenditures/ projects	New equipment, novel application existing equipment, novel operational practice or a specific novel commercial arrangement with: - Environmental benefits - Value for customers - Creation of knowledge	There is no pre-defined eligible R&D expenditures or classification. Allowed operating expenses are calculated based on historical R&D projects and TSOs tariffs requests. Main topics of R&D activities are biogas integration, P2G, energy efficiency, data analysis and leakage reductions.	Projects eligible of the Gas innovation Fund must: - Deliver carbon savings. - Contribute to the transition to a decarbonised economy. - Increased throughput on the gas system. - Obtain measurable value to all gas customers.

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Comparison of selected regulatory practices

Innovation Regulation	Great Britain	France	Ireland
Expenditures approval and evaluation	• All projects must be approved via technical evaluation (eligibility criteria, methodology, etc). • An external expert panel advises the NRA during the evaluation phase. CBA and benchmarks. • Project budget is approved before the implementation.	• TSOs must submit a tariff requests including R&D expenditure trajectory. • Allowed R&D expenditures are approved in general terms and by topic. • The assessment of revenue requests (including R&D) is done with the support of external advisers based on historical costs trajectories.	• Innovation Fund is approved for each five years regulatory period without detailed project by project evaluation. • The innovation fund is administered by TSO in consultation with external experts.
Implementation , monitoring and reporting	• TSO must report yearly the details of allowed R&D expenditure.. • All NIC Projects may be subject to an audit at any time. • Close Down Report (or Halting Report) assessing the results of R&D projects.	• TSOs send an annual report of R&D projects to NRA to be published. • Yearly reports include the list of projects, results, amount spent, R&D budget forecast, staff allocation and external partners/funders.	• For each project TSO must deliver two reports: These reports include project description, budget, funding, results and learnings. • Yearly with an overview of all projects financed by the Innovation Fund.

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Comparison of selected regulatory practices

Innovation Regulation	Great Britain	France	Ireland
Collaboration and partnership	• The regulation incentivizes the participation of independent organisations. • The involvement of several parties (e.g. gas DSO/TSO or electricity operators) is positively assessed during the evaluation.	• Regulation leaves flexibility to the TSOs. Partnership is not explicitly incentivised. • Most important R&D project (Jupiter 1000) was developed with the participation of electricity TSOs and DSOs and external research entities. • TSO looks actively in start-ups, SMEs, mid-caps and laboratories, operational responses to technical issues.	• The Innovation Fund is designed to encourage TSO to award R&D projects to external entities.
Knowledge transfer and intellectual property rights	• To facilitate knowledge, transfer: default treatment for Intellectual Property Rights. • Online learning Portal is available for sharing knowledge of projects.	• R&D projects results are published via yearly reports.	• Project results and R&D research must be published on TSO website. • Benefits derived on intellectual property rights by as a result of the innovation fund, should accrue to the customers.

Thank You / Teşekkürler

26th August 2020, EMRA, Ankara