

### Madrid Forum – June 5, 2019: ENTSOG Roadmap for Gas Grids

### Making grids ready for transition

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## **EU Energy Policy Dimensions**

Technical dimension	Market dimension	Climate dimension		
Deliver security of supply in the most efficient way	Creating framework for European gas markets	Support gas infrastructure's contribution to decarbonisation	Dynamic incentives,	
			stability,	
Safe operations, digitalisation and gas quality management	Tradability of gases within European Internal Market	Enable certificates and guarantees of origin system	business models & R&D	
Investing in robust infrastructure for now & for the future	Create incentives for cross- border and cross-sectoral cooperation by balancing short-term & long-term market signals	Allocate costs of climate change mitigation		

GOAL

TOOLKIT

Multiple studies, perspectives, interests to address in the neutral way

## Several Pathways for Making Gas Grids ready for Transition

Increasingly F Decarbo and Low Carbo	Renewable, nized on Methane	Blending Me Hydro	thane and gen	Pure Hydrogen
	z	$\langle \mathfrak{S} \rangle$		
Biogas	Synthetic methane	Hydrogen - SMR and Pyrolysis	Power to Gas	Hydrogen
Biogas via anaerobic decomposition of organic matter. Upgrading offers flexibility and possibly negative emissions.	Range of feedstock, from waste/biomass gasification to processes based on hydrogen and methanation.	H2 can be produced via Steam Methane Reforming – and $CO_2$ to be stored. Pyrolysis converts methane to H2 and solid carbon	Power-to-gas converting electricity to hydrogen	Pure hydrogen, produced from renewable sources or natural gas distributed via converted parts of gas system or dedicated systems

#### **Common Enablers**:

Research & Development + scalability, Carbon Capture, Utilisation and Storage, Gas Quality Management Services and possibly Regional Diversity

## **Elements of the Roadmap**

Increasingly Renewable, Decarbonized and Low Carbon Methane	Blending methane and hydro	ogen Pure Hydrogen	
Research & Development Scalability and Economics Infrastructure technology neutral investment incentives		Policy choices: EU level National level	
		Geographical patterns	
Market understanding what do we tra biomethane/hydrogen certificat	nde on: energy, tes or flexibility?	MS have different focus: <u>switch to natural gas</u> <u>from more polluting fuels up to hydrogen</u> <u>economy</u>	
<b>Regulation</b> all enablers and how to optimize the gr	ids usage and planning?	Digitalization	

All pathways have their respective consequences in Madrid Forum workstreams. Coordination of the work of all parts of value chain and institutions is needed.

## **The Hybrid Energy System**



Sector coupling offers strategies to maximize integration of renewables for heating, mobility, industry and needs to start now. 5

## Hybrid Energy System – in the longer run: building on increasingly decarbonized electricity and gas.



The Hybrid Energy System builds on both electricity and gas grids – realising synergies between them and allowing EU economy to obtain flexibility, storage, international transportation capacity and security od supply

# **Gas Grids can be ready for transition if:**

- EU member states to support concept of the Hybrid Energy System and decide on energy mix, how much methane/biogas/hydrogen
- Gas suppliers, mid-streamers, traders, TSOs, DSOs, consumers have a shared responsibility for the energy transition and for developing feasible solutions
- Clear investment frameworks for technologies/business models is in place using all financing tools to support level playing field for market players, TSOs and DSOs
- Markets understand how to value and trade energy (kWh), climate value of hydrogen/biogas/methane as well as flexibility and other services
- EU-wide and trustworthy Guarantees of Origin and Certification system to be established
- Sound technological understanding and feasibility is developed on EU level R&D and Standardisation policy to support relevant technologies, including digitalization
- Energy Conversion and Gas Quality Products and Services innovation progresses to ensure interoperability and cross border flows

### These and other questions to be addressed in an upcoming Gas Package

# **Approach for ENTSOG 2050 Roadmap for Gas Grids**

### • To develop Roadmap 2050 for gas grids:

- Building on parallel pathways for making gas grids ready for transition based on various technologies and combinations of efficient usage of the electricity and gas grids
- Addressing issues related to technical, regulatory, market, consumption and climate aspects.
- Keep the options open for increased natural gas usage in place of high-carbon intensive fuels, especially in 2020-2030s and continued focus on a well-functioning gas market
- To facilitate extensive dialogues with stakeholders, EC and ACER/regulators
  - Engage full value chain producers, TSOs, DSOs, mid-streamers, traders and consumers
  - Support an open and fact-based approach
- **To support that all relevant technologies** and combinations hereof can contribute to the most efficient transition of the energy sector both on costs and time.





# Thank you for your attention

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