RIGC Romanian International Gas Conference 6th Edition

Redesigning Security of Supply:
The Potential of Emerging Technologies for a Sustainable Energy Transition

MINISTRY OF ENERGY

Distribution Grids: The Energy Transition's Backbone

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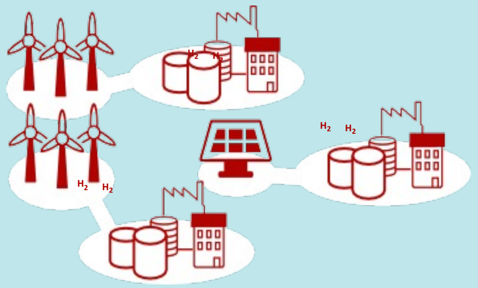
Gas DSOs are best placed to enable decarbonisation by facilitating the integration of H2 and biomethane and, ultimately, alleviate the burden on power grids

Today

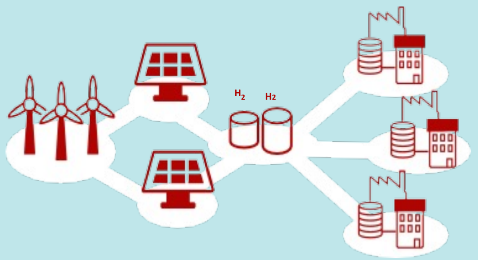
Early movers generate onsite



Small-scale/decentral pilots with focus on hydrogen & biomethane **production close to point of consumption** that are **funded**, but not scalable to meet future H_2 demand

Tomorrow (2025+)

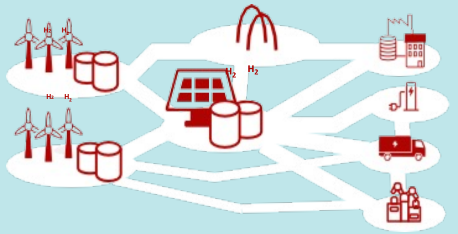
Clusters share benefit and risk



Green gas hubs close to **renewable energy** sources in parallel to **consumption scale-up**

Future (2030+)

Global green gas ecosystem



A **comprehensive infrastructure** connecting electricity production hubs and clusters with **biomethane** & **H_2** as a **commodity product** traded in a liquid market with international supply contracts

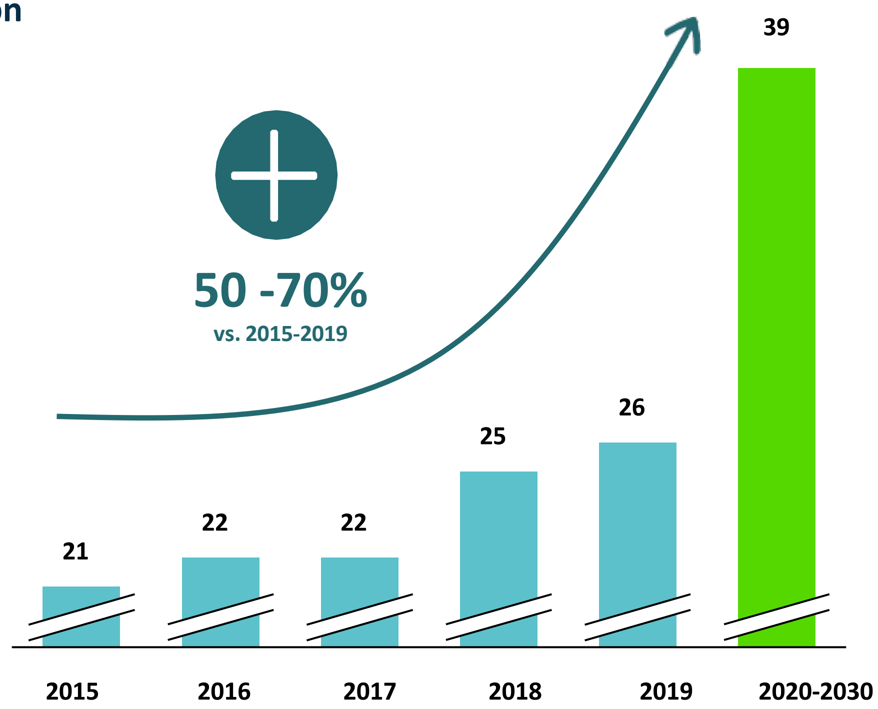
50 projects, e.g. Salzgitter, ThyssenKrupp	**CEO-Alliance e.g. H_2.Ruhr - 20 LOI signed**	**CEO-Alliance + Pan-European H_2 market**

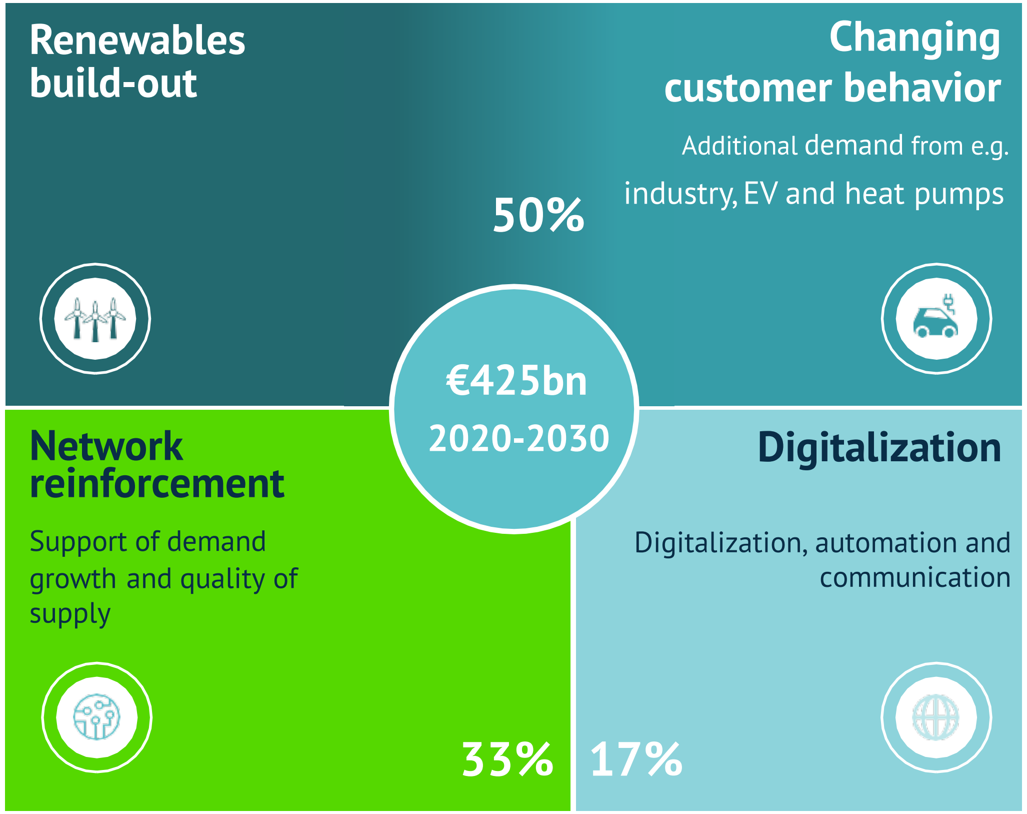
Only a holistic approach towards the two main energy carriers can ensure a pathway towards an **effective, affordable, and deep decarbonisation of the European economy**.

We need a coordinated planning and operation of the energy system *'as a whole'*, across multiple energy carriers, infrastructures, and consumption sectors

Projected annual investment needs in EU power distribution networks only

€bn

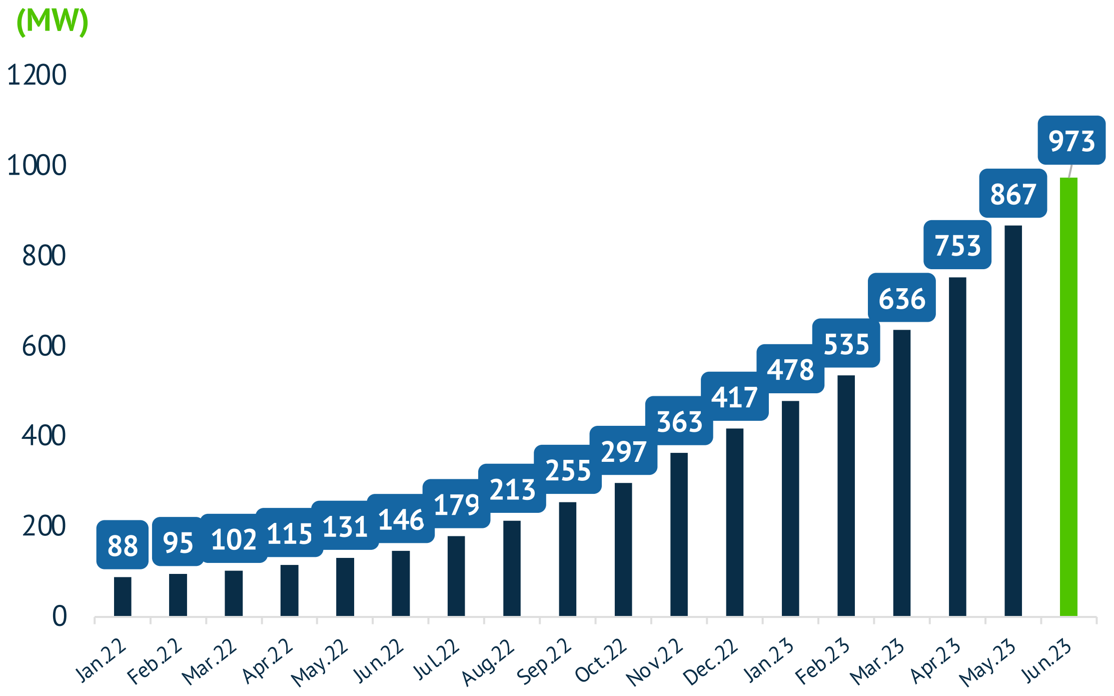




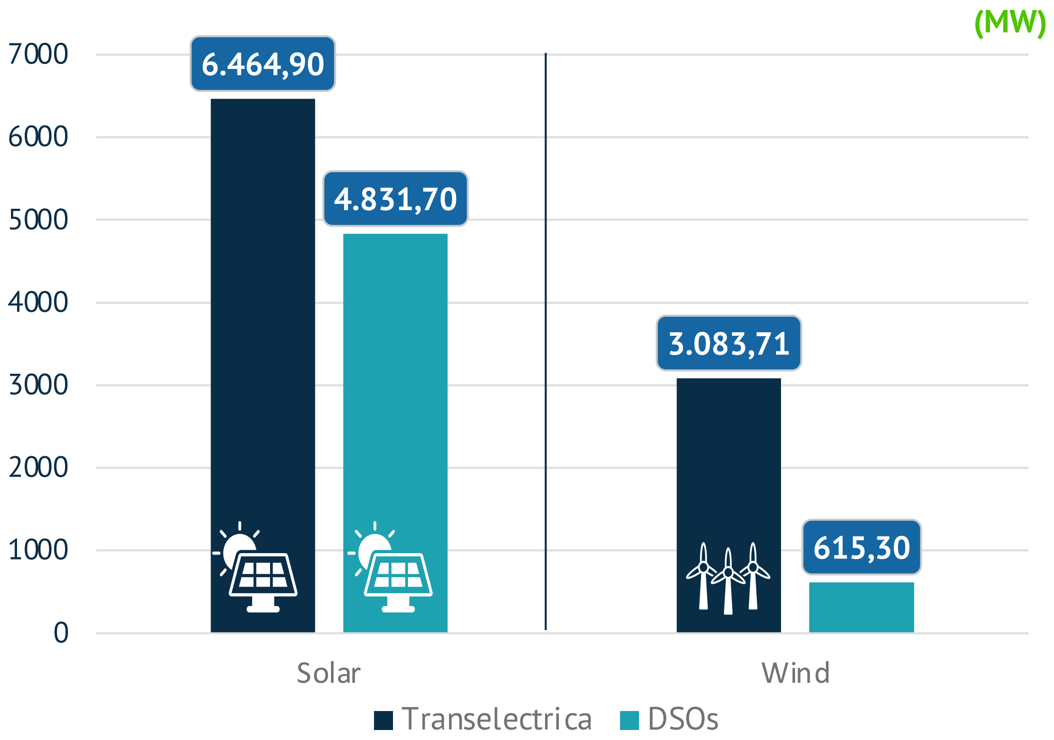
Grids preparedness level is set to become the weak link of the clean energy transition and, unless given the proper attention, we risk jeopardizing the very objective of climate neutrality in 2050.

Romania should develop concrete guidance on anticipatory investments, making sure TSOs and DSOs who invest proactively based on prognosis

Cumulated generation capacity of prosumers at national level



Renewable generation capacities waiting to be connected to power grids at national level

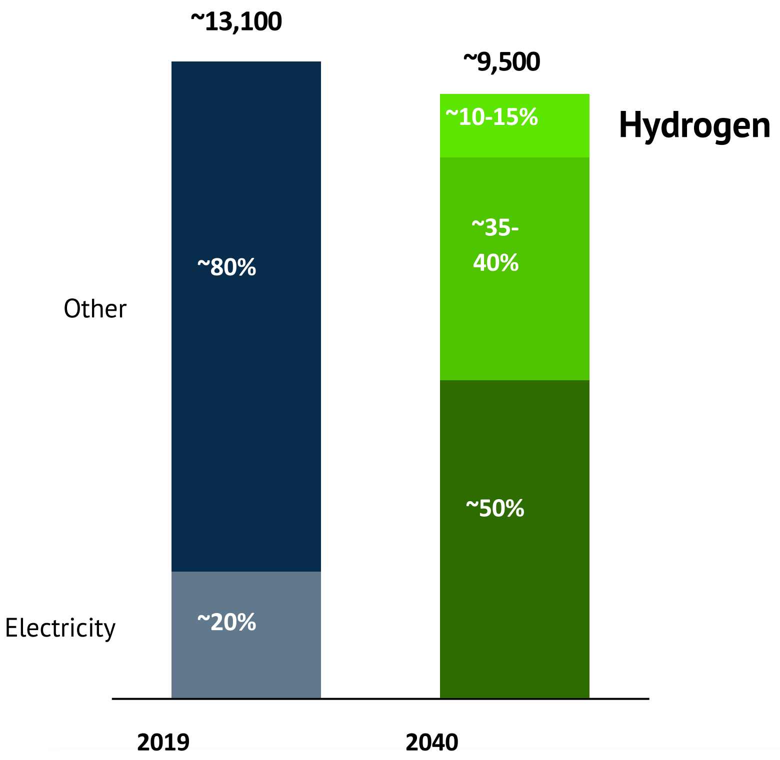


The gas industry can benefit from decentralized green energy production, especially in terms of hydrogen production, by exploiting negative electricity prices and infrastructure bottlenecks

Gas DSOs are best placed to enable decarbonisation by facilitating the integration of H2 and biomethane, also produced in a decentralized manner

Projected EU final energy demand by fuel type

TWh



Projected Hydrogen demand in Europe in 2040

TWh

~300-350

Industry

There are **no alternatives to decarbonize industry** processes where molecules are mandatory

~675-775

Mobility

Weight and energy density/space requirements lead to **use of green gas and liquids** (esp. in transport)

~200-250

Heat

Gas will **partly continue to be pivotal** despite increasing electrification

~25-50

Electricity

Whenever renewables are not available **green hydrogen is the only feasible and storable energy** for reconversion