

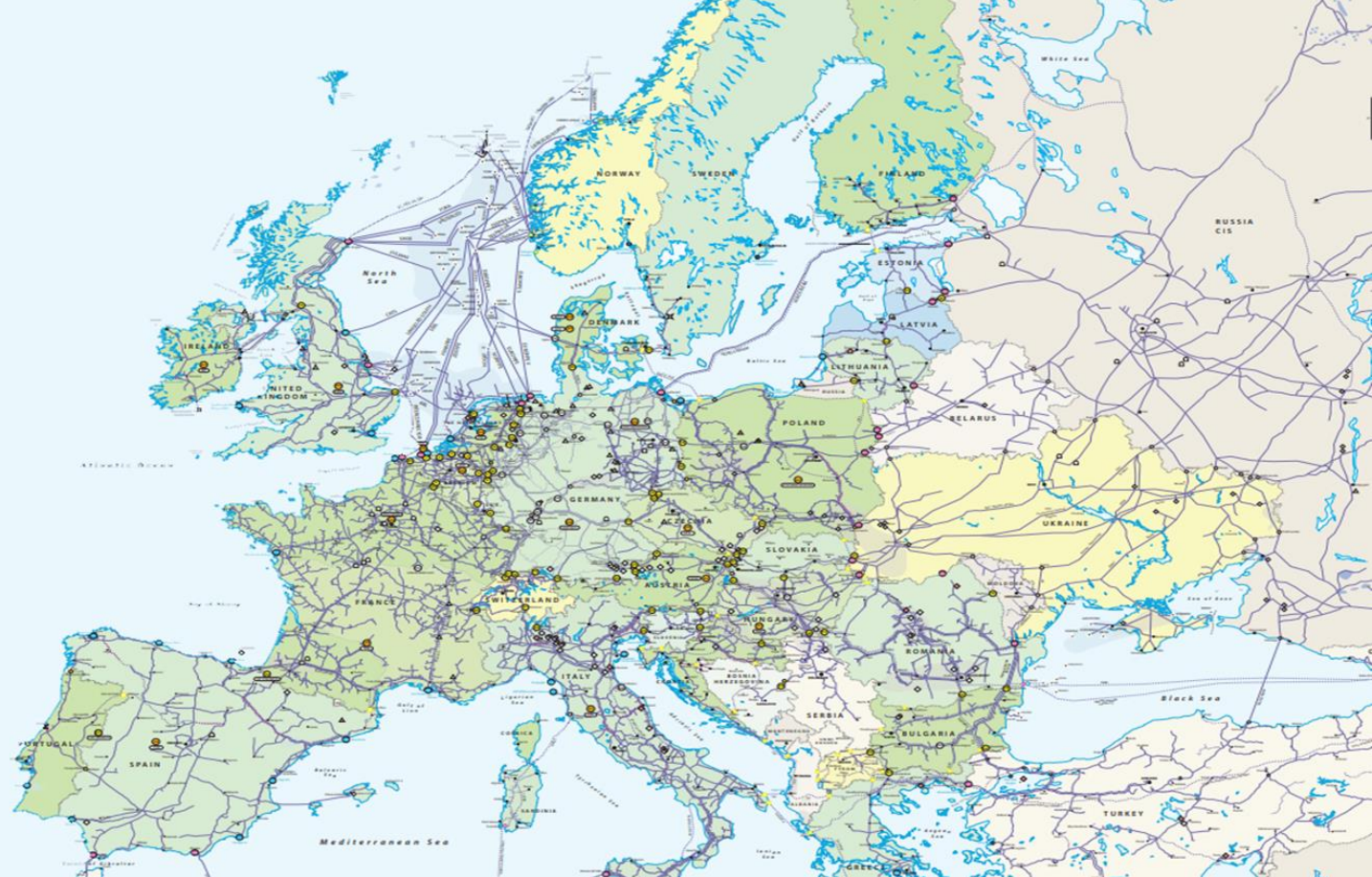
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'Making gas grids ready for transition'



EEF Dinner-Debate “10 Years of Achievements after the Third Energy Package: Perspectives on the #FutureEnergySystem”

Jan Ingwersen, ENTSG General Manager



17 September 2019, Strasbourg



Who we are

ENTSOG: Achieving European Union energy goals by facilitating cooperation between the Transmission System Operators and with EU institutions and stakeholders.

Gas provides 23% of EU's energy through a well-functioning market.

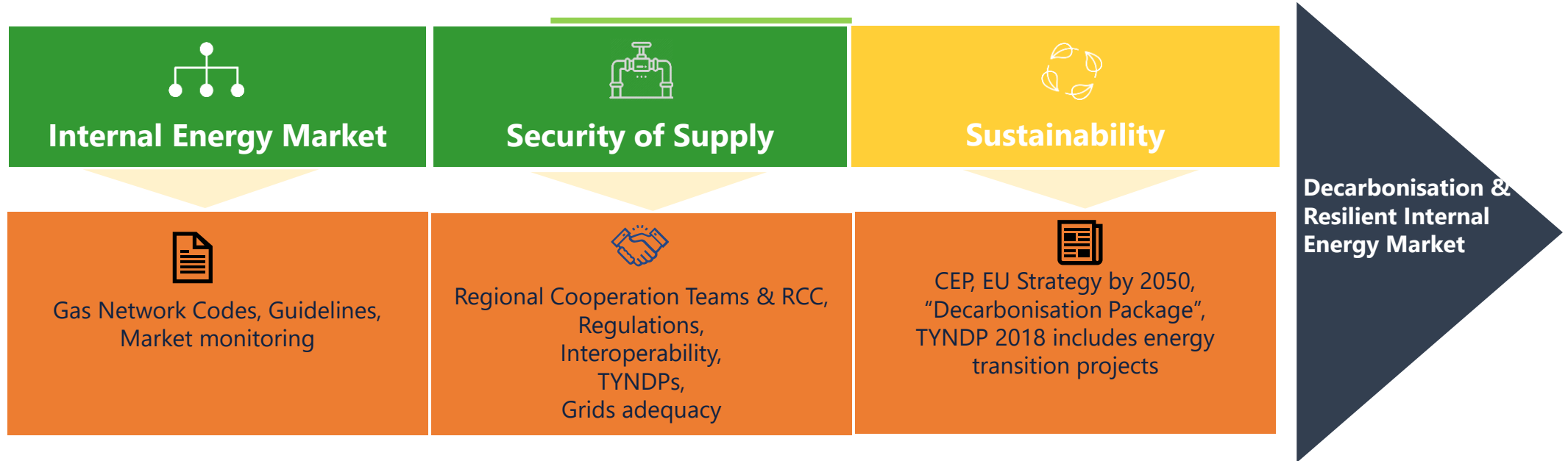
44 TSO Members, 3 Associated Partners and 8 Observers

Our key deliverables include:

- Network Codes development and Monitoring
- Ten Year Network Development Plan (TYNDP)
- Winter and Summer Supply Outlooks
- Coordinating our Members' regional investment plans (GRIPs)
- Transparency Platform
- Functionality Platform
- Innovative Projects Platform

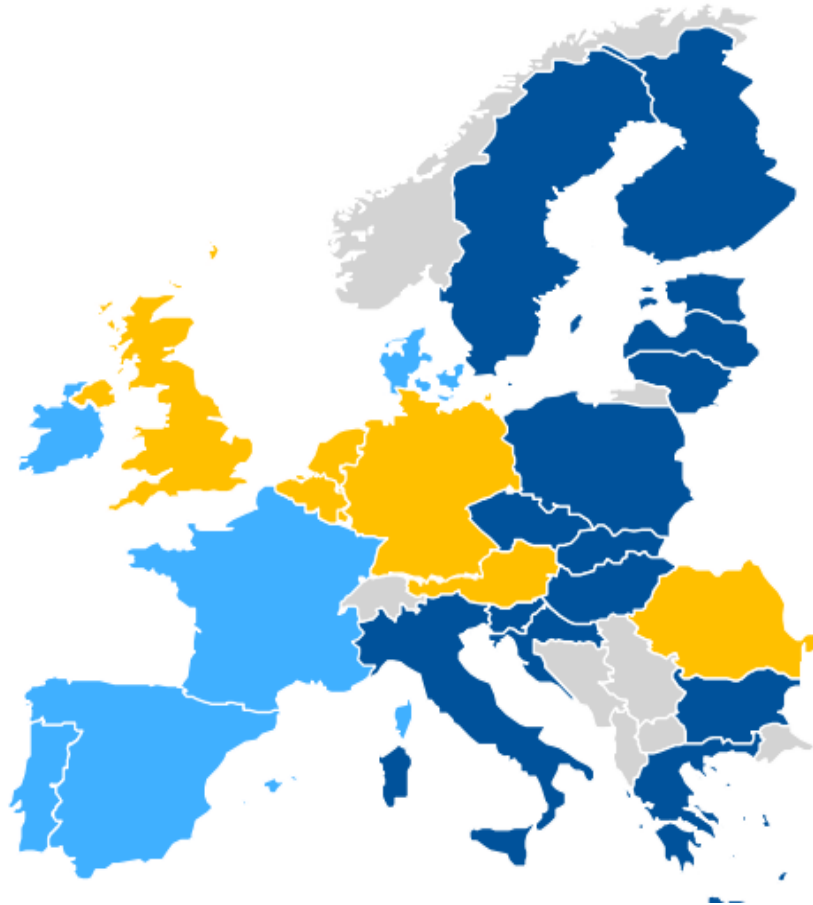
10 Years of Achievements

Main Achievements

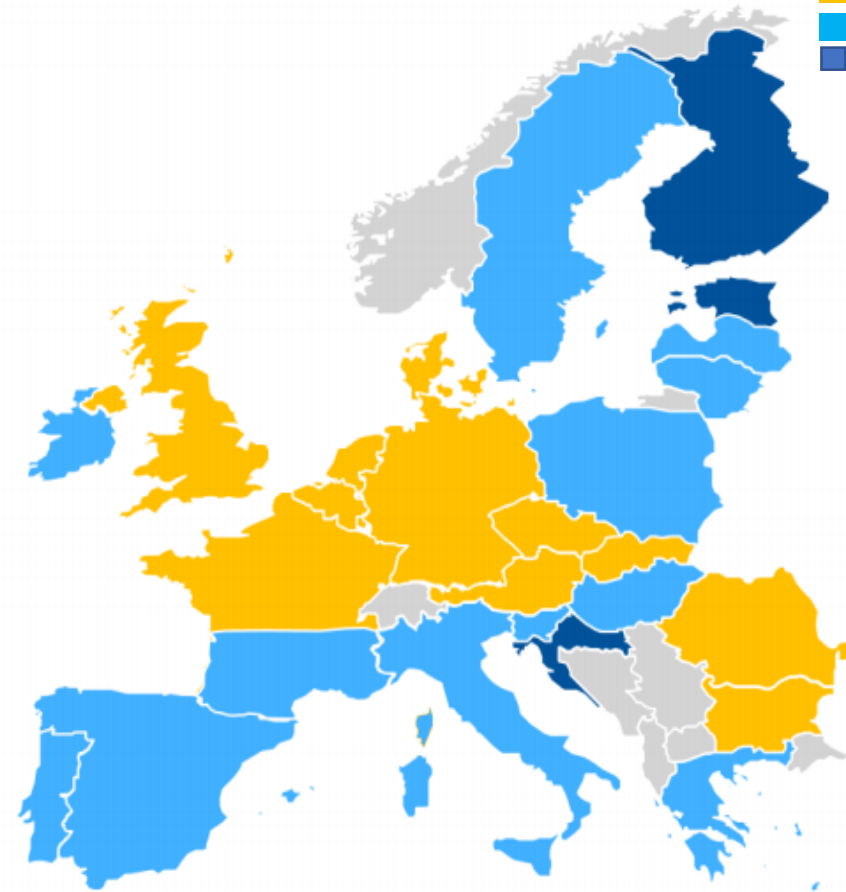


Market Integration

2012: TTF = 25.7 €/MWh



2017: TTF = 17.0 €/MWh



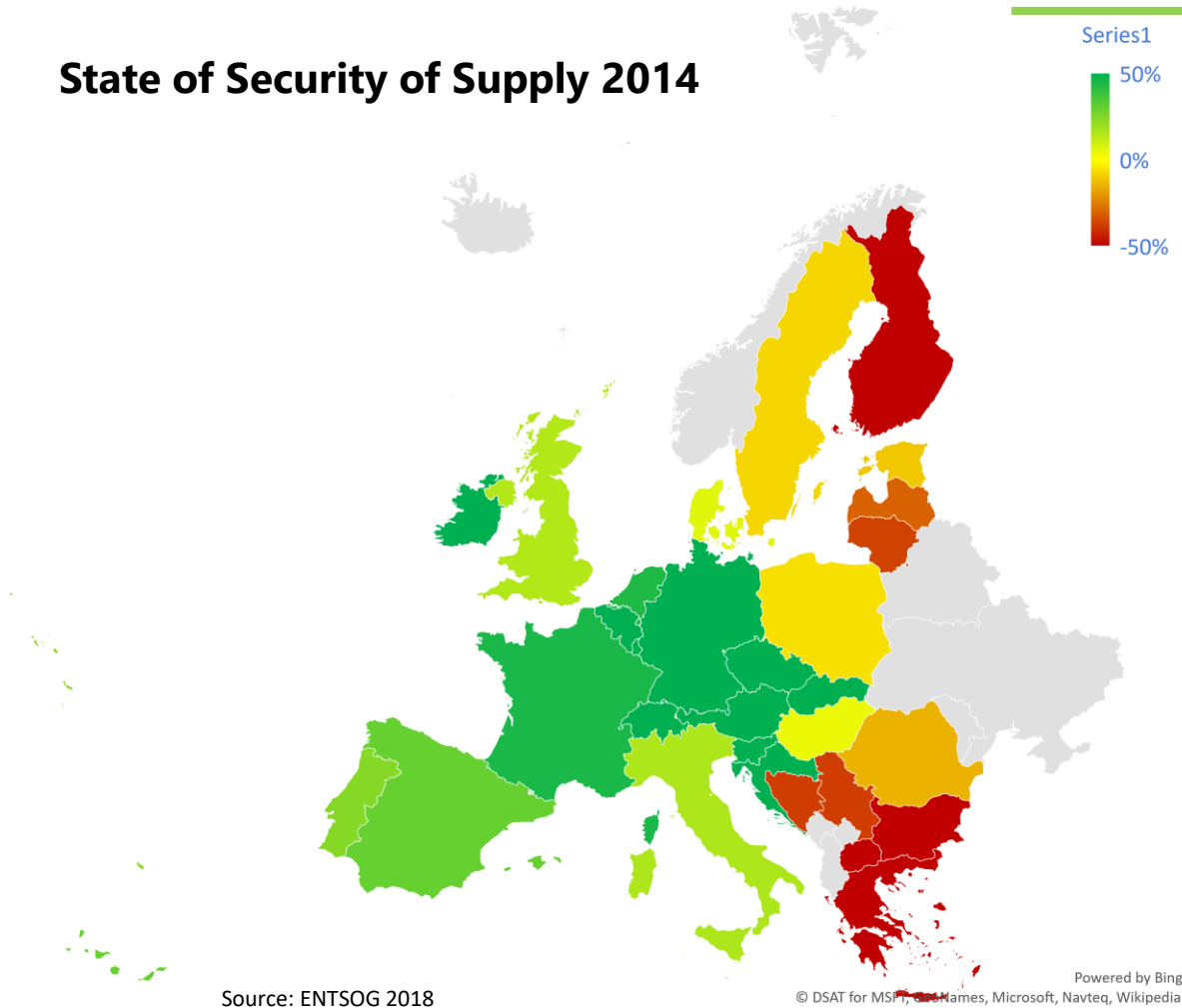
≤ 1 euro/MWh
1-3 euro/MWh
> 3 euro/MWh

Source: ACER 2017 Market Monitoring Report, Gas Wholesale Volume based on NRA input, Eurostat Comext, BAFA, Platts

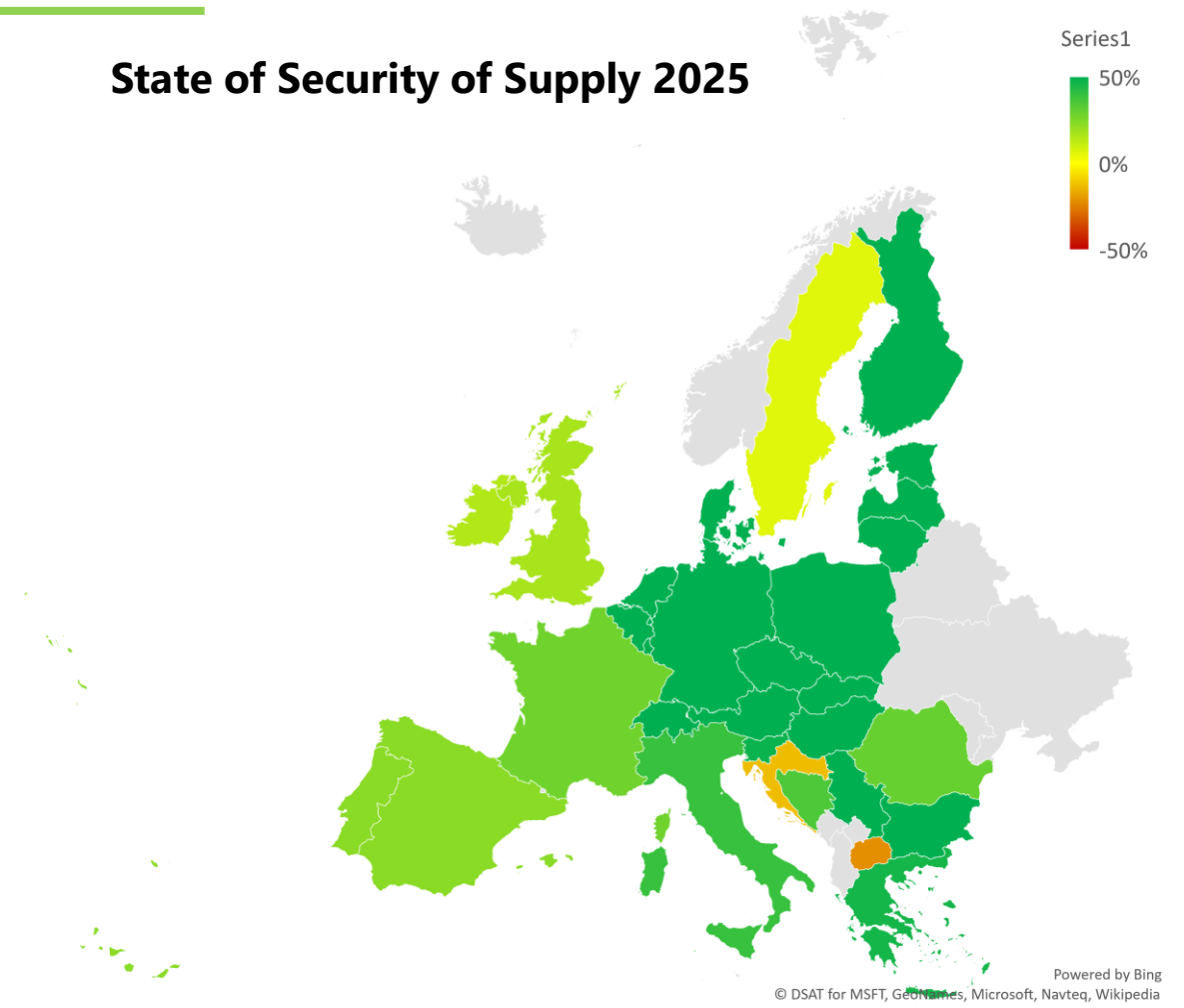
Price convergence indicates well-functioning and competitive EU gas markets

Security of Supply

State of Security of Supply 2014



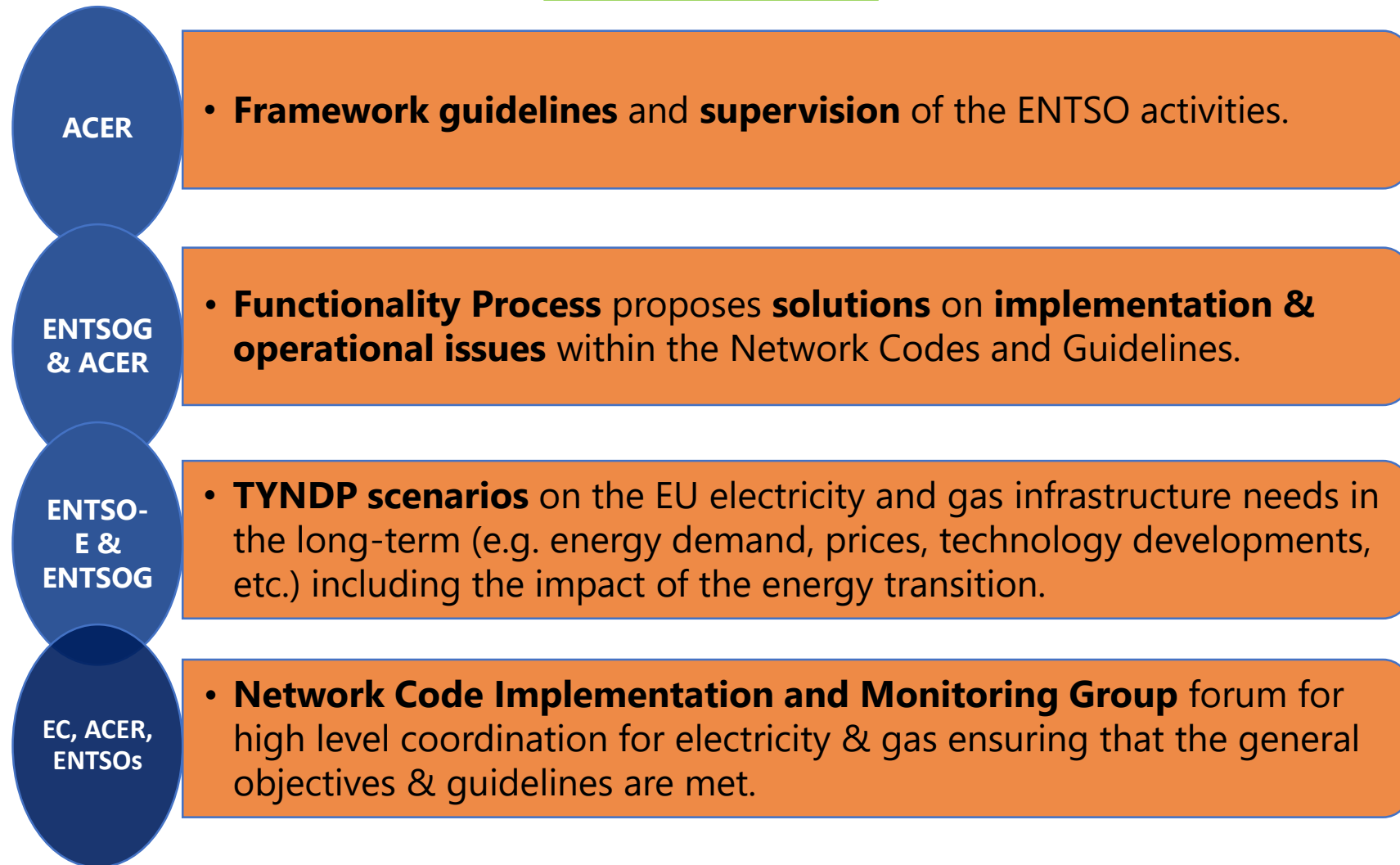
State of Security of Supply 2025



Legend: 0% = supply equals demand; +50% = 50% flexibility (the demand could be 50% higher); -50% = country is exposed to 50% of demand curtailment.

Security of gas supply across Europe has **improved** substantially.

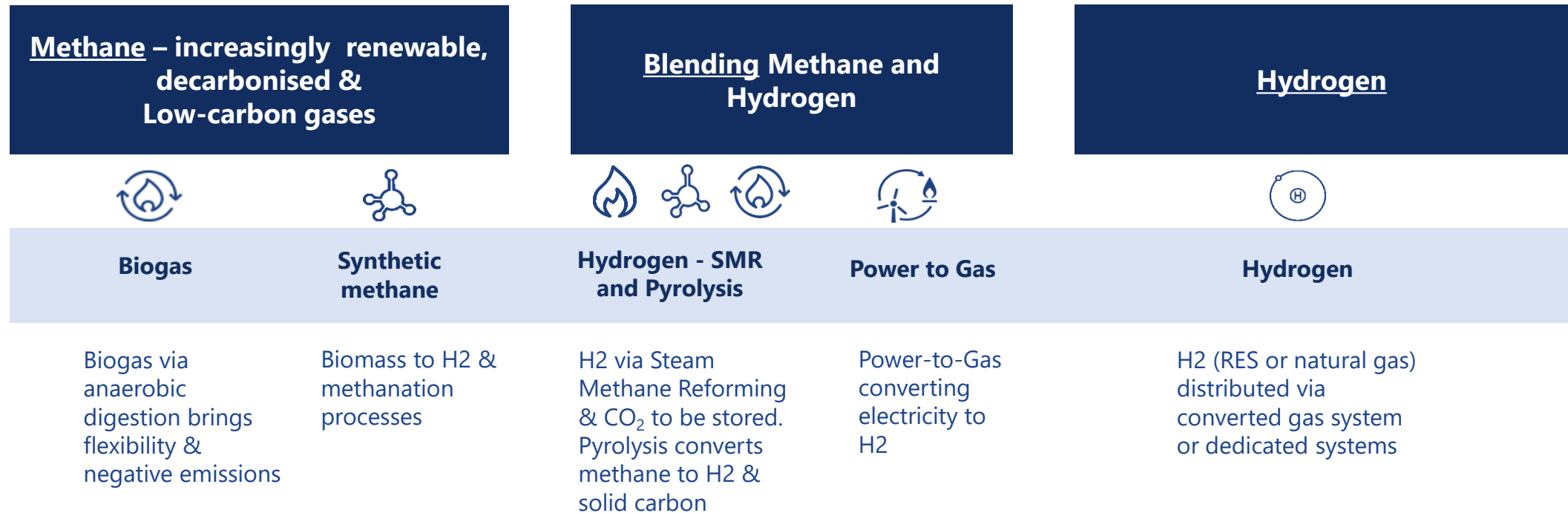
Cooperation with ACER & ENTSO-E



#FutureEnergySystem

ENTSOG Roadmap 2050

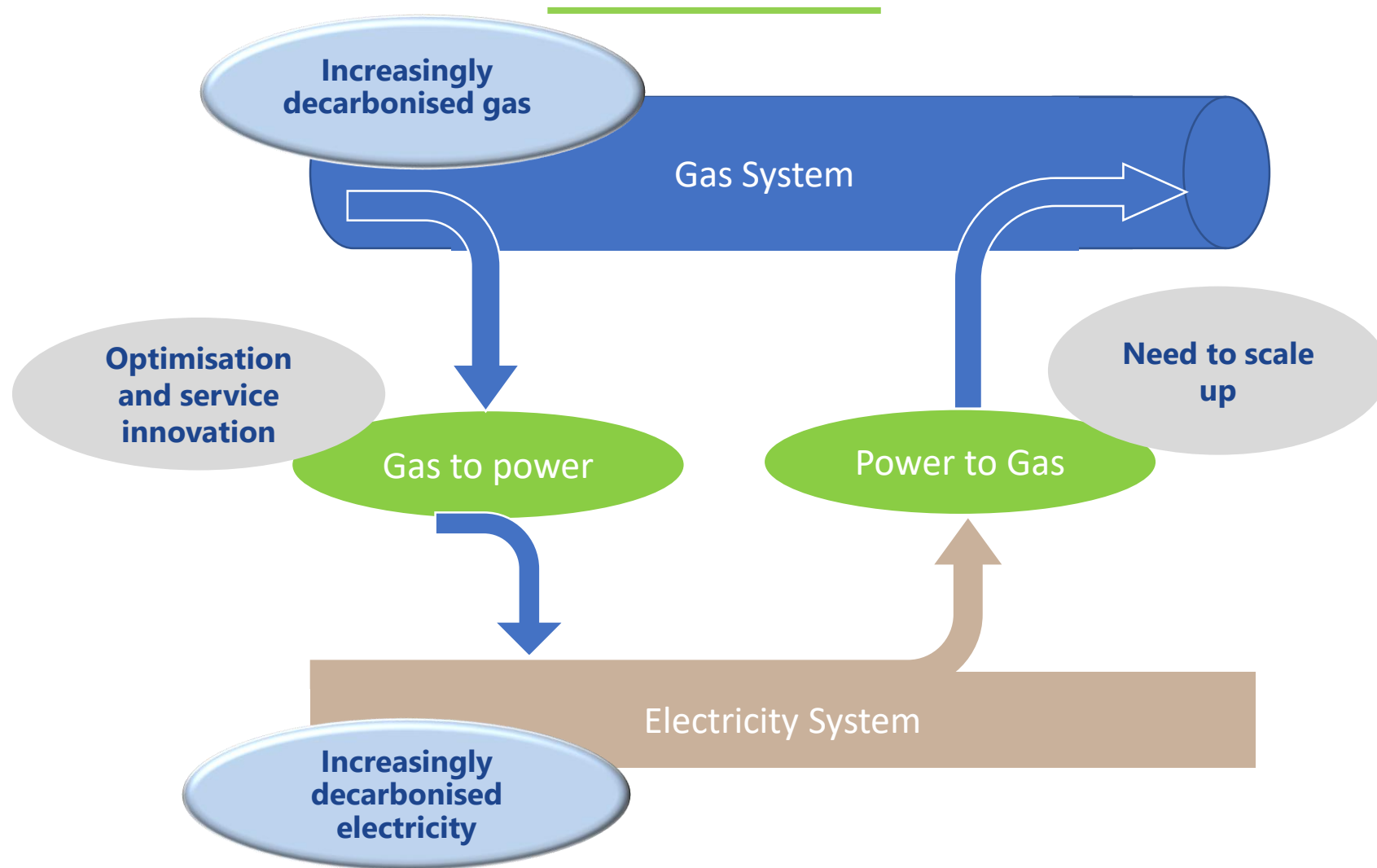
Pathways for Decarbonisation of Gas Grids



Common Enablers:

R&D + scalability, CCUS, Gas Quality Handling Services and combining different solutions between the MS.

Hybrid Energy System for Economy



Sector coupling to facilitate **integration of renewables** with heating, mobility and industry

Studies: Gas Contributes to Efficient Transition

Navigant, 2019

- **1710 TWh** of H2 & **1170 TWh** of biomethane in the existing gas infrastructure with **4460 TWh** of renewable electricity

Ecofys, 2018

- **€138B/y** estimate of savings with an EU hybrid energy system

Pöyry, 2018

- **€98B/y** estimate of savings with an EU hybrid energy system

DENA-Leitstudie, 2018

- **€600B** estimated savings for Germany up to 2050 with a hybrid energy system

Various literature showcases substantial **cost reductions by using gas infrastructure**

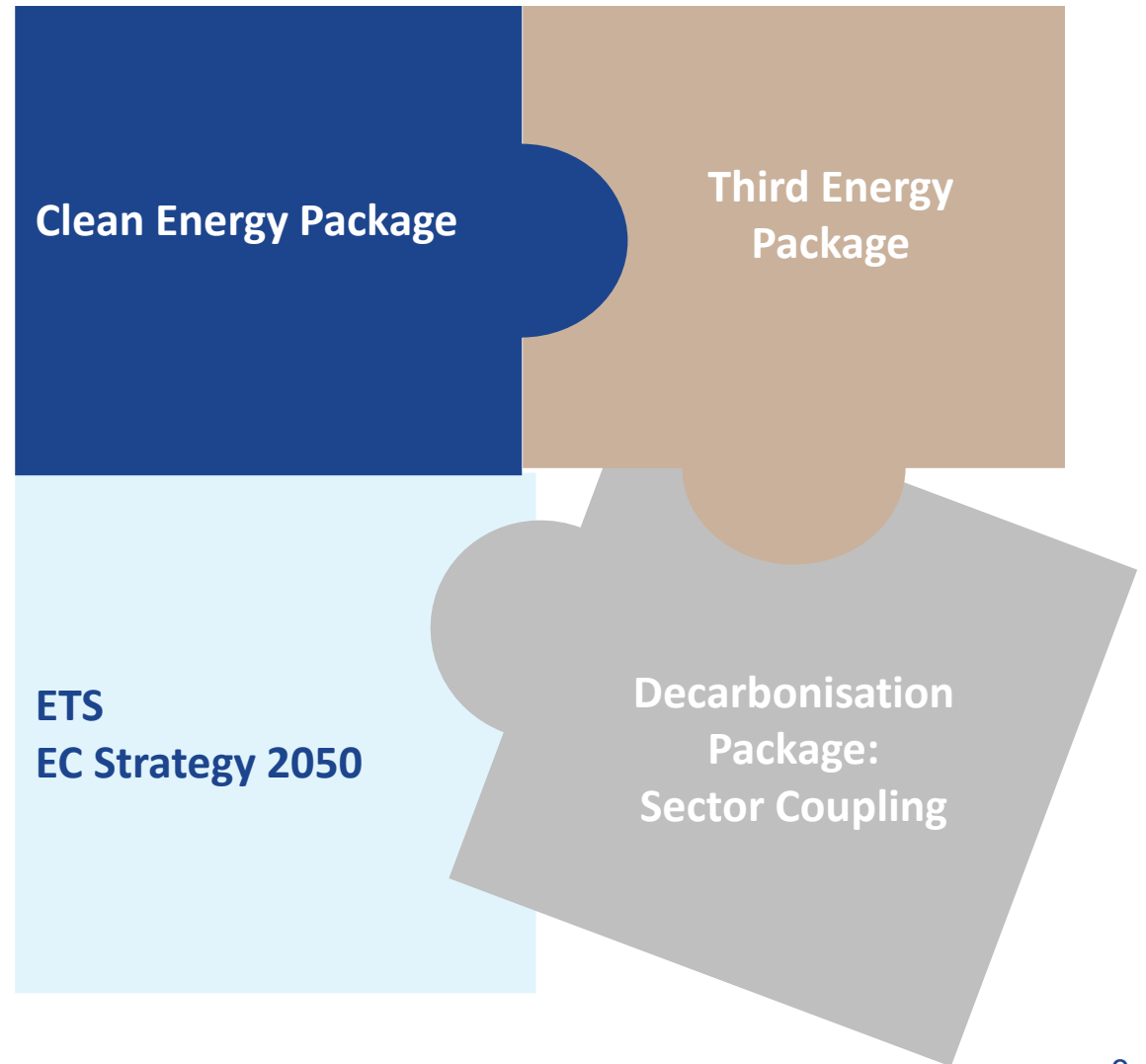


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*“The capacity of **offshore wind farms** could reach around **100 GW** by the year **2030** and the PV capacity installed is expected to increase to **60 GW** in **2020**. Using **P2G** technology could help to **accommodate** these quantities of renewable electricity”*

Klaus-Dieter Borchardt, Director of DG Energy, 2018

From Silos to Sector Coupling



ENTSO-G Next Steps

- **Develop Roadmap 2050 for gas grids:**
 - Parallel pathways for transition - usage of electricity and gas grids
 - Address issues related to technical, regulatory, market, consumer and climate aspects
 - Keep options open for switch from high-carbon intensive fuels to natural gas
- **Facilitate extensive dialogues with stakeholders, EC and ACER/regulators:**
 - Engage full value chain – gas producers & storages, TSOs, DSOs, shippers, traders & consumers etc.
 - Support an open and fact-based approach
- **Support all relevant technologies** and combinations for the most efficient transition both on costs and time.

ENTSOG Innovative Projects Platform (IPP)

GRTGAZ

FenHYx

PARTNERSHIP HYDROGEN

FenHYx is a first demonstrator on a European scale to test hydrogen and decarbonised gases in the networks. The FenHYx platform in particular aims to reproduce the features of gas networks and especially those of the gas transmission networks: compression, expansion, measurement, analysis, injection loop, etc. The opening up of this platform to other operators will contribute to the emergence of the hydrogen sector.



GASUNIE

Hydrogen pipeline

PARTNERSHIP HYDROGEN

The hydrogen released from the Dow's factory is used as a feedstock for high-quality products of Yara through a existing Gasunie pipeline which has been prepared for hydrogen transport.



NOWEGA

GET H2

PARTNERSHIP HYDROGEN POWER TO GAS

The strategic goal of Get H2 is to combine regions with a high share of renewable energies from wind and solar sources with H2 production on an industrial scale. The focus is on the development of a nationwide H2 infrastructure with the coupling of all sectors.



#gasmarket
#securityofsupply
#innovatewithgasgrids

#tenyear**ENTSO**G

10 years



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Thank you for your attention

Jan Ingwersen, ENTSOG General Manager

ENTSOG -- European Network of Transmission System Operators for Gas,
Avenue de Cortenbergh 100, B-1000 Brussels

www.entsog.eu | info@entsog.eu

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