

# ENTSOG 2050 ROADMAP

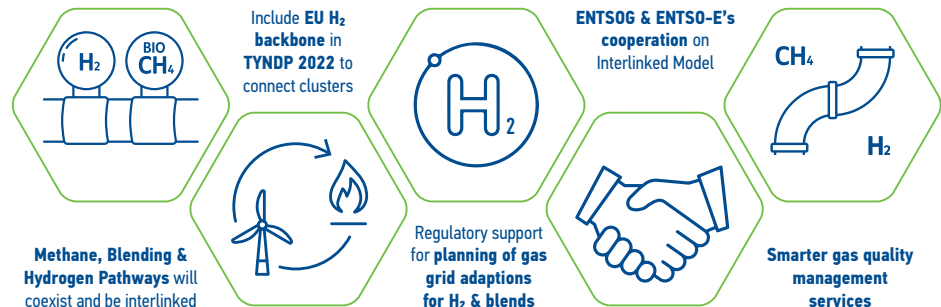
## ACTION PLAN ▶



## DELIVERING EUROPE'S FUTURE ENERGY NETWORKS

Building the EU's future gas network should start already now, if we reasonably expect it to be completed in time for 2050.

In the short term (2020–2030), we need to build the 'no-regrets' European hydrogen backbone, connecting clusters of demand, to keep hydrogen supplies competitive and secure. The EU already has a well-established and trusted planning process for network development, based on the **TYNDP** process, which should be used for the future development of the grid(s). The natural gas, hydrogen and blended networks will be inherently interlinked and have to be planned as a single connected system. **Planning the first stage of the backbone needs to start immediately**, as geography of the first IPCEI projects and hydrogen-based EU recovery will expand. TYNDP 2022 could identify the initial 'no-regrets' backbone of retrofitted or repurposed gas infrastructure and prepare for its gradual expansion and based on an updated CBA methodology. The TEN-E revision should account of the new hydrogen market and deliver this first stage 'no regrets' backbone.



Agenda for the gas networks, ENTSOG, 2020.

**TYNDPs should remain the basic network planning tool for all three future (gradually merging) pathways**; inventing an entirely new one will be time-consuming, unnecessary and risks creating inefficiencies.

The new market involves new players, whose opinions need to be effectively reflected in the planning process. **ENTSOG proposes** to ensure full and inclusive involvement of all relevant market participants in:

- (i) identifying and developing strategies and needs relating to future gas grids,
- (ii) the detailed grid planning process through the TYNDP process, and
- (iii) analysing technical grid issues on gas quality and hydrogen handling.

### ADVISORY PANEL FOR FUTURE GAS GRIDS



ENTSOG proposes to establish an **Advisory Panel for Future Gas Grids** to support gas TSOs and stakeholders in identifying the practical challenges and solutions in preparing the future European gas grids for the decarbonisation and transition, including the planning for an EU hydrogen backbone and ensuring its efficient interaction with existing grids. The Panel will cover infrastructure, technical, market design, regulatory and organisational aspects. Whilst the exact agenda and objectives will need to be set with all participants, the following have been identified by ENTSOG:

1. Coordinate with gas end consumers and industry their gas quality handling and future infrastructure needs. Create policy-oriented principles for cross-border and regional

gas quality handling that are coordinated with gas end consumers and industry needs.

2. Inform on the practical experience of gas TSOs in terms of grid adaptation and timing/costs of adaptation. Assess tolerance and safety thresholds for different levels of hydrogen concentration where blending occurs.
3. Discuss the attribution of costs and benefits from the infrastructure between gas, hydrogen and electricity consumers. Address legal gaps for TSOs' conversion services and their remuneration. Establish principles for cost recovery mechanisms for gas quality handling, digitalisation, repurposing etc.

4. Develop an EU-wide approach for CO<sub>2</sub> infrastructure, including TPA, the role of gas TSOs, transmission charges and liabilities. Include CCUS activities in planning NECPs, TYNDP.
5. Establish a dialogue with the national regulators/ACER on addressing the regulatory principles for infrastructure retrofitting and repurposing, gas quality handling and digitalisation.
6. Update existing TYNDP criteria and CBA methodology to prepare for the evaluation of decarbonisation benefits, which will be needed already in 2021 – including retrofitting and repurposing of gas systems, conversion/upgrading facilities, digitalisation of measuring and data handling, as well as including energy storage and flexibility from all technologies.
7. Exchange with Member States on the initial national H<sub>2</sub> Strategies and discuss developing and reporting on the planned and pilot infrastructure projects, upgrades of gas networks as well as electricity and sector integration projects in their NDPs (National Development Plans) for all types of hydrogen production.
8. Establish coordination with Hydrogen Europe and Gas for Climate, GIE, gas DSOs, regulators, etc. Provide input and feedback to Clean Hydrogen Alliance, agreed with gas and hydrogen stakeholders.

### ENTSO-E/ENTSOG TYNDP JOINT ADVISORY PANEL

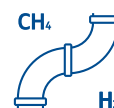


Second, ENTSOG proposes to create together with ENTSO-E an inclusive and transparent stakeholder involvement for the joint TEN-E regulatory tasks, including TYNDP scenarios, interlinked modelling – including preparing for the revised TEN-E to be aligned with the Energy System Integration and Hydrogen Strategies. Transparency would be key for the TYNDP process to be shared and discussed with the stakeholders. Issues would, for example, include:

1. Establish dialogue on future scenarios – simulation models and assumptions.
2. Further progress the Interlinked Model developed jointly by ENTSOG and ENTSO-E, applying combined electricity and gas CBA methodology, and benefit from both associations applying same network modelling tool.

3. The TYNDP 2022 should consider the EC strategies – including the first core elements of a hydrogen backbone.
4. Transparency would be the foundation of success for the Panel; modelling and credible projects' assessment would be ensured and shared by ENTSOG with stakeholders.

### PRIME MOVER GROUP ON GAS QUALITY AND HYDROGEN HANDLING



Thirdly, ENTSOG together with DSO organisations has established a Prime Mover Group on Gas Quality and Hydrogen Handling, with the objective to deliver concrete principles for gas quality management to meet the needs of the consumers. Initial issues identified for work by the group include:

1. Promote a fact-based, technology-neutral, and fair discussion on the possibilities of blending and de-blending services for gas quality management.
2. Coordinate with gas end consumers and industry their gas quality handling needs and access to the product they require.
3. Elaborate on how gas TSOs can facilitate the cost-effective conversion principles and gas quality management services while ensuring market integrity and the diversification of supplies.
4. Facilitate discussion and cooperation with DSOs and TSOs for an appropriate distribution of injection points, injection possibilities and for improving gas quality data exchange.
5. Facilitate the development of innovative and feasible ways to handle gas quality in fluctuating blends and pure hydrogen grids in the future gas system, by addressing the main technical challenges. Promote research on de-blending technologies.
6. Assess the need for new or upgraded tools to ensure system interoperability, security of supply and end-user safety.

**More about the ENTSOG 2050 Roadmap Action Plan:**  
<https://www.entsog.eu/roadmap-action-plan>

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