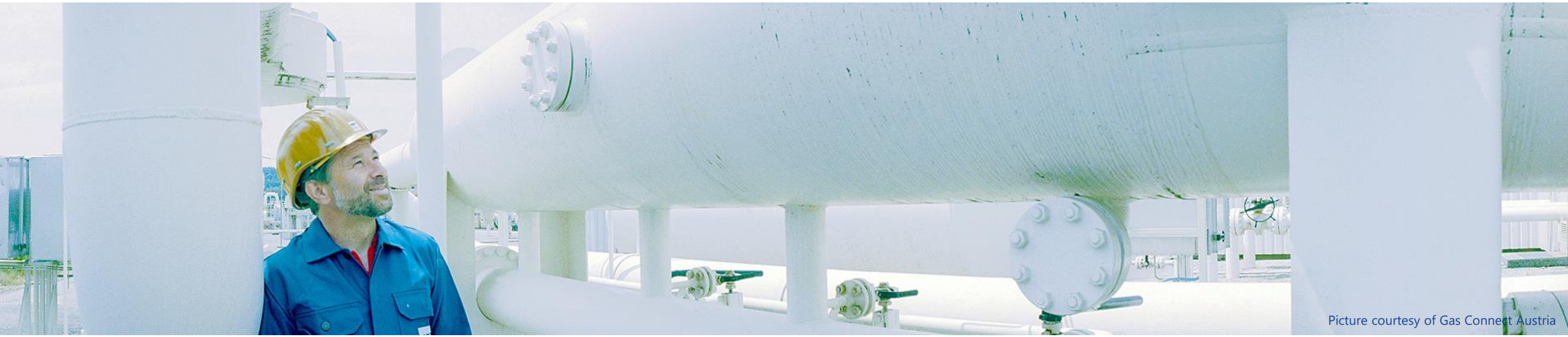
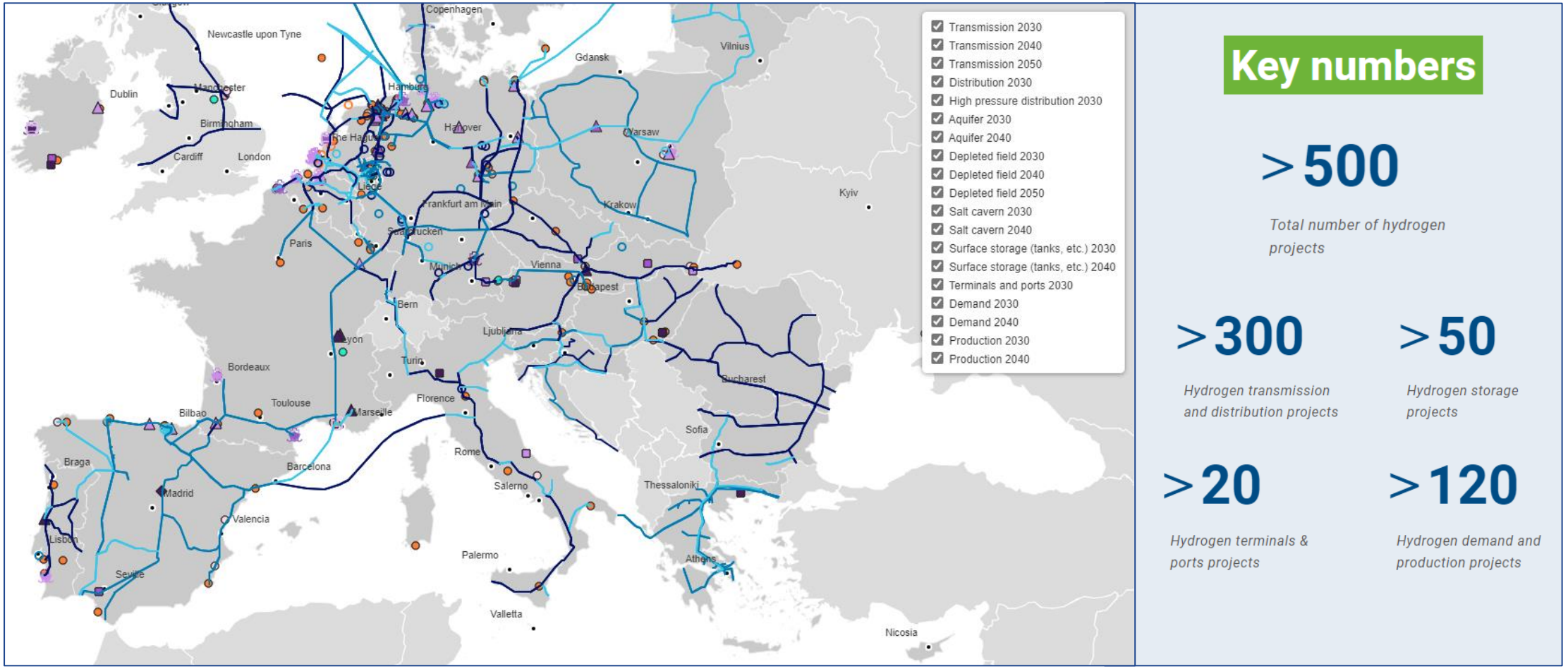


2ND SUSTAINABLE ENERGY DAY

Session 2: Hydrogen Regulation

Sara Piskor – Director Strategy, Policy and Communication

Future Network: Hydrogen Infrastructure Map



Key numbers

>500

Total number of hydrogen projects

>300

Hydrogen transmission and distribution projects

>50

Hydrogen storage projects

>20

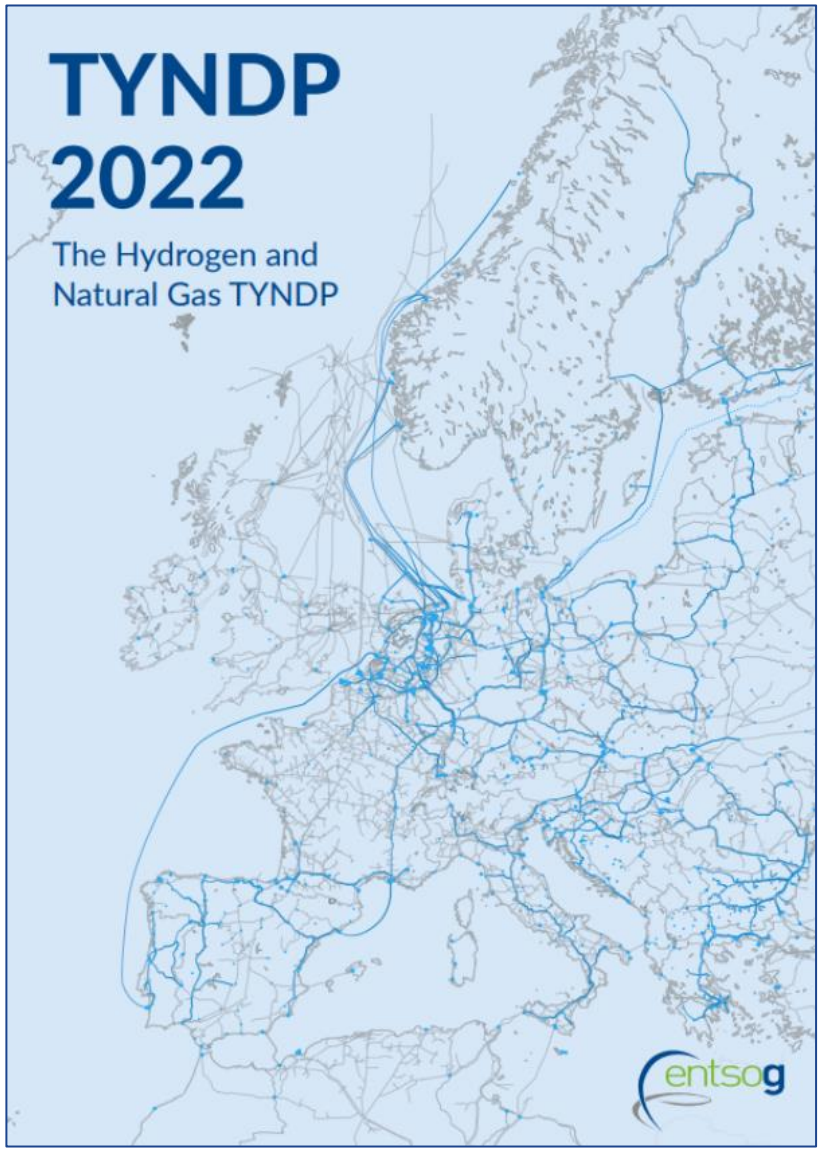
Hydrogen terminals & ports projects

>120

Hydrogen demand and production projects

https://www.h2inframap.eu/

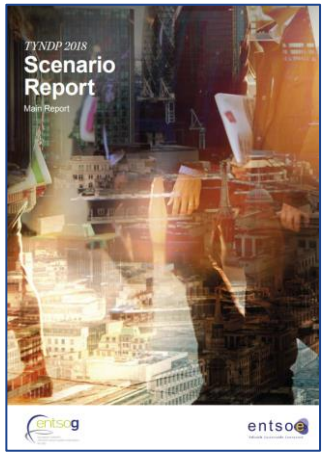
TYNDP2022: Gas and Hydrogen



- Ten-Year Network Development Plan 2022 includes gas and hydrogen
- New infrastructure category: Energy Transition Projects
  - 215 investments into energy transition projects
  - 152 of those investments in new or repurposed infrastructure to carry hydrogen
- TYNDP and scenarios are fully publicly consulted

More about TYNDP: https://tyndp2022.entsog.eu/

Joint Scenario Report: Gas and Electricity // Interlinked Model



Interlinked Model

- Essential to have a holistic view of the energy system. For the integrated energy system of the future we need to take into account interactions between gas and electricity grids and identify infrastructure gaps.
- Model allows us to analyse the most efficient and economical solutions for infrastructure gaps and can help to better assess the mutual benefits of infrastructure projects over gas, hydrogen and electricity grids.

[In 2025] *(…) the ENTSO for Electricity and the ENTSO for Gas shall jointly submit to the Commission and the Agency a consistent and progressively integrated model that will provide consistency between single sector methodologies based on common assumptions including electricity, gas and hydrogen transmission infrastructure as well as storage facilities, liquefied natural gas and electrolysers (…).*

The model (…) shall cover at least the relevant sectors' interlinkages at all stages of infrastructure planning, specifically scenarios, technologies and spatial resolution, infrastructure gaps identification in particular with respect to cross-border capacities, and projects assessment.

Rules On Planning for Gas and Hydrogen

- Art. 8(10) of **Regulation (EC) No 715/2009**: ENTSOG's non-binding TYNDP. TYNDP includes natural gas and hydrogen networks and identifies cross-border investment gaps
- **Renewed TEN-E**: ENTSOG produces cost-benefit analysis methodology (CBAM) (Art. 11) that is applied on the basis of EC-approved scenarios (Art. 12) as follows:
  - CBAs for hydrogen infrastructure PCI/PMI candidates within TYNDP as one input for MSs and EC to decide on granting PCI/PMI status
  - infrastructure gaps reports within TYNDP (Art. 13)
  - cross-border cost allocation procedures (Art. 16)
- ENTSOG has submitted a draft CBAM to EC, ACER, MSs for their opinion. The final CBAM is subject to EC scrutiny and requires EC approval.

The proposed methodology covers interlinkages between hydrogen, electricity, and natural gas

Interlinkages in draft CBAM

- Draft CBAM proposes joint hydrogen indicators both with the electricity (established by the Interlinked Modelling Task Force of ENTSOG and ENTSO-E) and with the natural gas system (dual gas model)
- Dual gas model considers infrastructures, supplies and demands.
  - The systems are coupled by
    - blue hydrogen production facilities (p. 21)
    - the possibility of hydrogen to replace natural gas usage (if hydrogen is available)
    - the reduction of natural gas capacities through repurposing projects (p. 21 & 24)
      - Project promoters are required to submit natural gas projects that enable hydrogen projects (p. 33)
      - Costs required in the natural gas system to enable the hydrogen infrastructure shall be transparently displayed (p. 63-64)
  - Dual gas indicators look into stress cases (p. 55-57):
    - Climatic stress (e.g., 2 weeks Dunkelflaute)
    - Supply stress (e.g., disruption of hydrogen supply of one corridor)
    - Infrastructure stress conditions (e.g., disruption of the largest capacity of a country)
  - The effect of projects on the curtailment of hydrogen and natural gas demand is captured for the listed stress cases (p. 56). It is interpreted in terms of security of supply and competition (p. 8 & 62).

For each TYNDP, complementary documents on project collection (Annex III.2(5) TEN-E) as well as concrete solutions to fulfill the CBAM's requirements will be consulted

Regulation Related To Repurposing Of Gas Assets

Some regulatory elements related to repurposing of gas assets are under the legislative process and under considerations

- Cost mutualization (Art. 4, Regulation)
- Joint planning (Art. 24, 25 Regulation, Art 51 and 52, Directive)
- Most likely on the (national) rules on assets transfers (ACER initiatives)
- Network codes on interoperability and capacity allocation mechanisms (Madrid Forum Conclusions)

Key take aways

- ENTSOG is tasked by TEN-E to include H2 infrastructure in TYNDP and has done so for several years. Hydrogen and gas modelling go hand in hand.
- Our deliverables and tools contribute to EU decarbonization, energy security and full Energy System Integration: TYNDP, joint scenarios and CBA methodology are fully consulted and transparent.
- Dual system assessment facilitates the look at both systems in their own merits and at the same time explores the synergies between them, under scrutiny for both sustainability and security indicators.
- High interlinkage between the planning of hydrogen and gas infrastructure now and in the future will enable the most efficient and economical development of hydrogen infrastructure in the stakeholders and industry- oriented manner.

Thank you for your attention

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Planning Synergies // Repurposing Advantages

Planning synergies

- Visibility and transparency for the users
- Alignment and coordination vis-a-vis electricity

Repurposing advantages

– **Cost efficiency**

- Repurposing existing piplines is much more cost-efficient than building new

- **Speed of transition**
  - Existing land rights, infrastructure is already there