



ACER



European Union Agency for the Cooperation
of Energy Regulators

ACER webinar on Europe's emerging hydrogen market

Tuesday, 3 December 2024

10:00 – 11:00 CEST

Webinar

Introductory remarks

10:00 – 10:05

Riccardo Galletta, *Team Leader – Emerging Hydrogen Markets, ACER*

Indicative time	Webinar items	
09:50 - 10:00	Webinar open for log-in	Starts promptly at 10:00
10:00 - 10:05	Introductory Remarks Riccardo GALLETTA, ACER	
10:05 - 10:15	2024 Market Monitoring Report: conclusions and recommendations Vasilis PAPANDREOU, ACER	
10:15 - 10:40	Panel discussion Zsuzsanna SZELES, European Commission Carina KRASTEL, EIT InnoEnergy Olivia INFANTES, Moeve Moderator: Csilla BARTOK, ACER	
10:40 - 10:55	Q&A	
10:55 - 11:00	Closing Remarks Riccardo GALLETTA, ACER	

Housekeeping rules



Please pose your questions using the Slido tool within Microsoft Teams

You can also access Slido through this direct link:
<https://app.sli.do/event/frmvhLA9vvifjmE6QkdCPG>



This meeting is being recorded

Questions from other participants can be 'liked' to increase their visibility



Slides and recording of this webinar will be uploaded to ACER website



Keep your microphone muted unless the chair gives you the floor

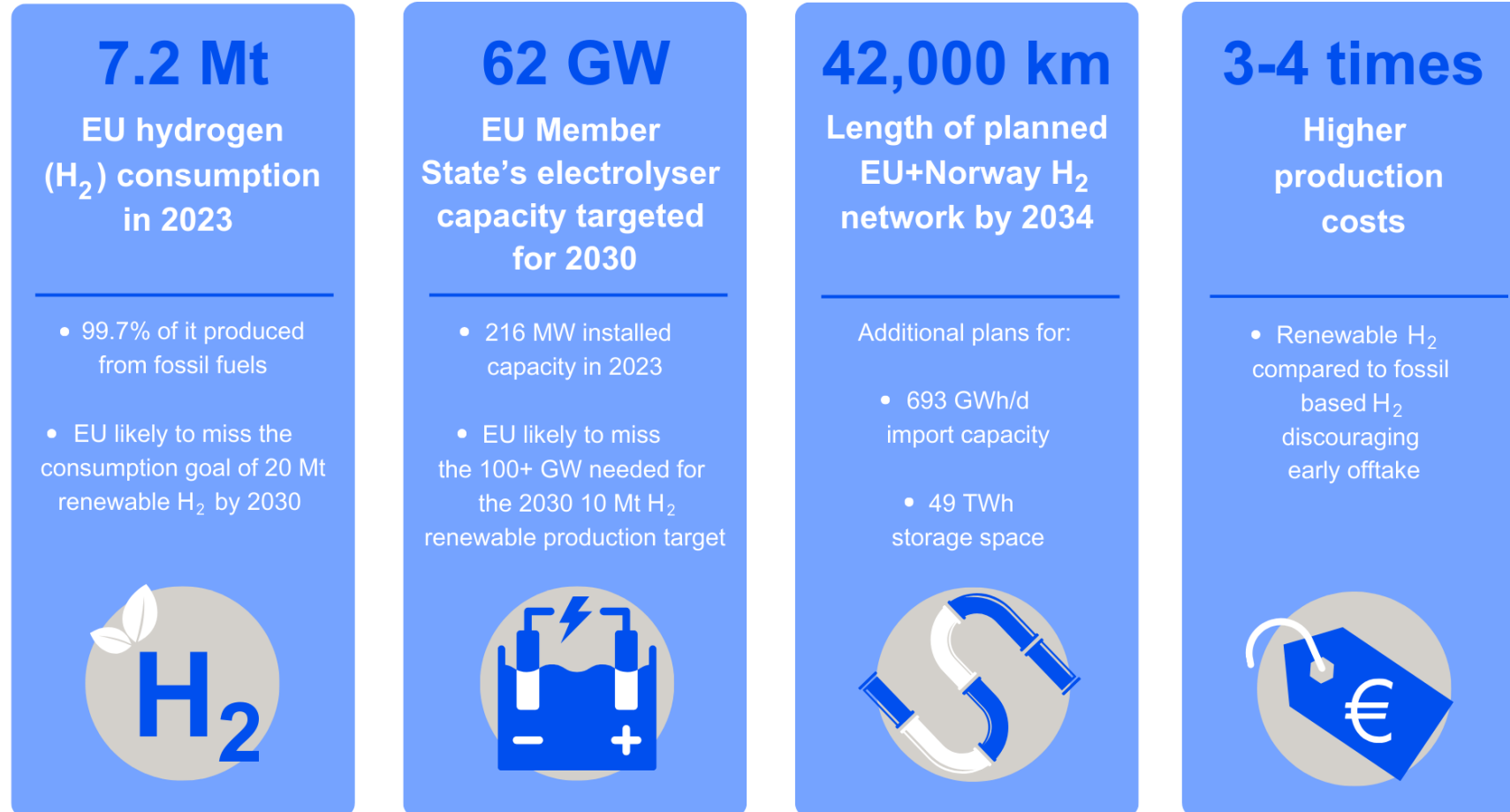
Substance-related questions will be addressed during the relevant Q&A session; although they can be posed at any point



Market Monitoring Report 2024 - European Hydrogen Markets - *Key findings and recommendations* 10:05 – 10:15

Vasilis Papandreou, *Policy Officer – Hydrogen markets*

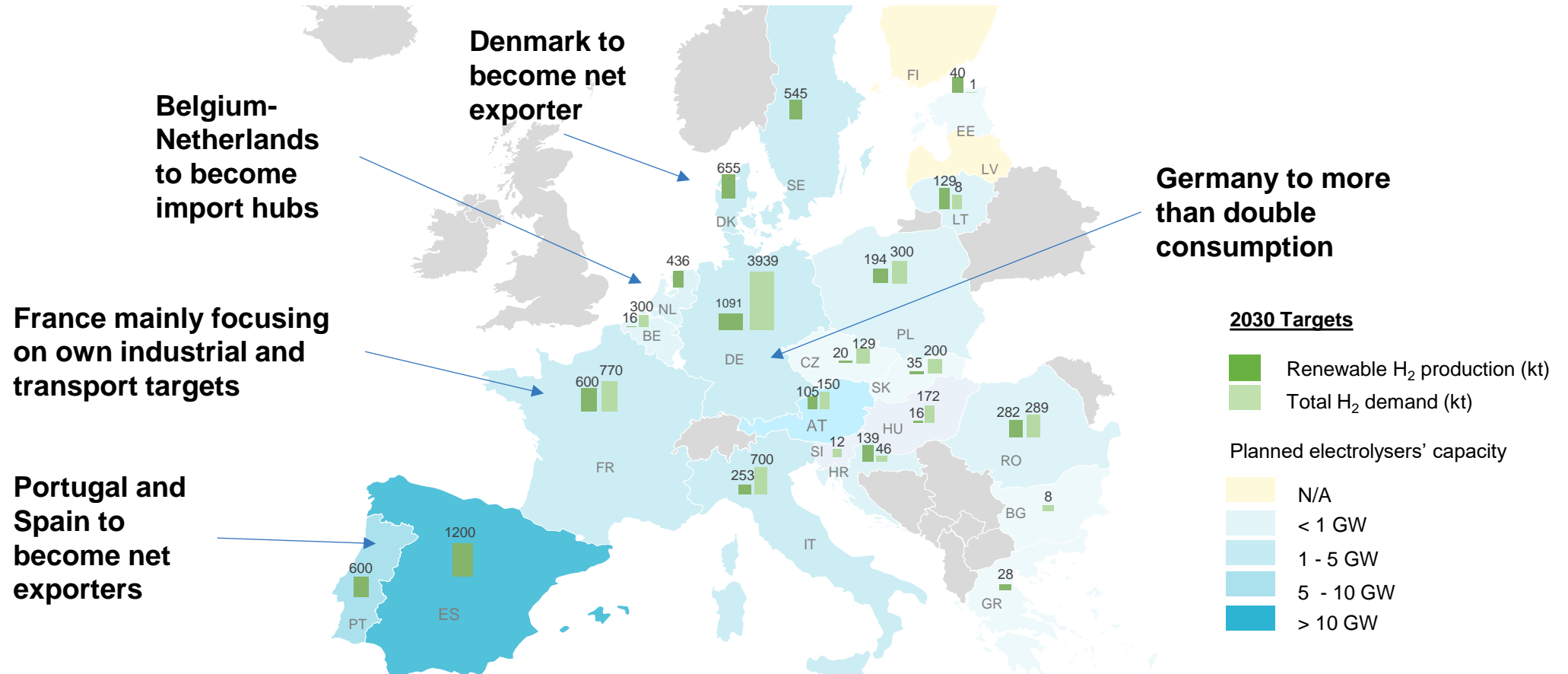
Hydrogen in Europe today ~ key figures



The EU needs to speed up to achieve its 2030 targets. Strong national commitments are necessary to materialise plans and projects. Current cost gap is the key barrier for renewable hydrogen uptake.

Whilst national plans are relatively ambitious ...

Planned hydrogen production and demand and electrolyser capacity in 2030



Belgium-Netherlands to become import hubs

Denmark to become net exporter

Germany to more than double consumption

France mainly focusing on own industrial and transport targets

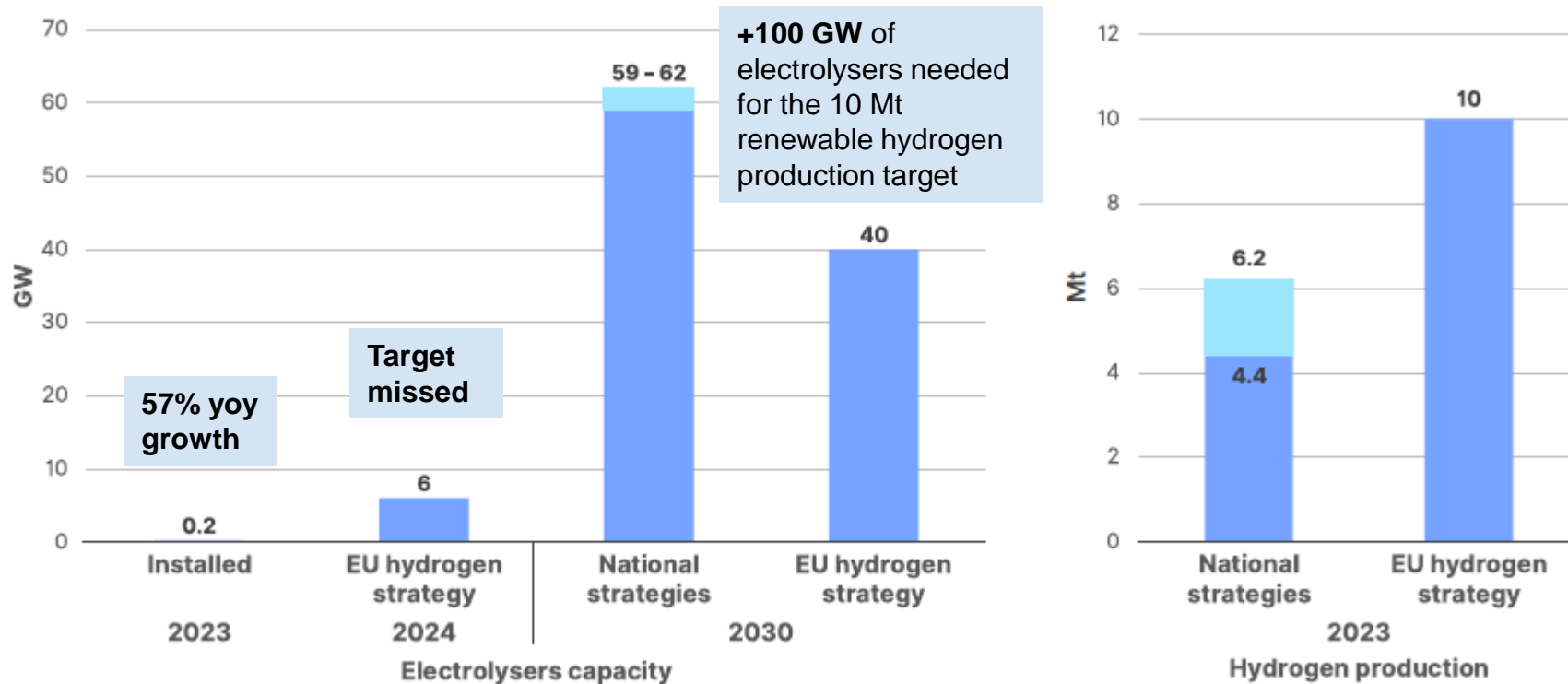
Portugal and Spain to become net exporters

Ambition across Member States varies, leading to different paces of sector development. Hydrogen networks will be important to link favourable production sites and import hubs with demand centres, but demand uncertainties need to be tackled. Setting national and EU market rules quickly is key.

Source: ACER based on national hydrogen strategies and roadmaps, NECPs, and information provided by national regulatory authorities.

... overall, we are likely to miss EU 2030 targets

Comparison of EU targets with national ones according to the national strategies on electrolyser capacity (left, GW) and hydrogen production (right, Mt)

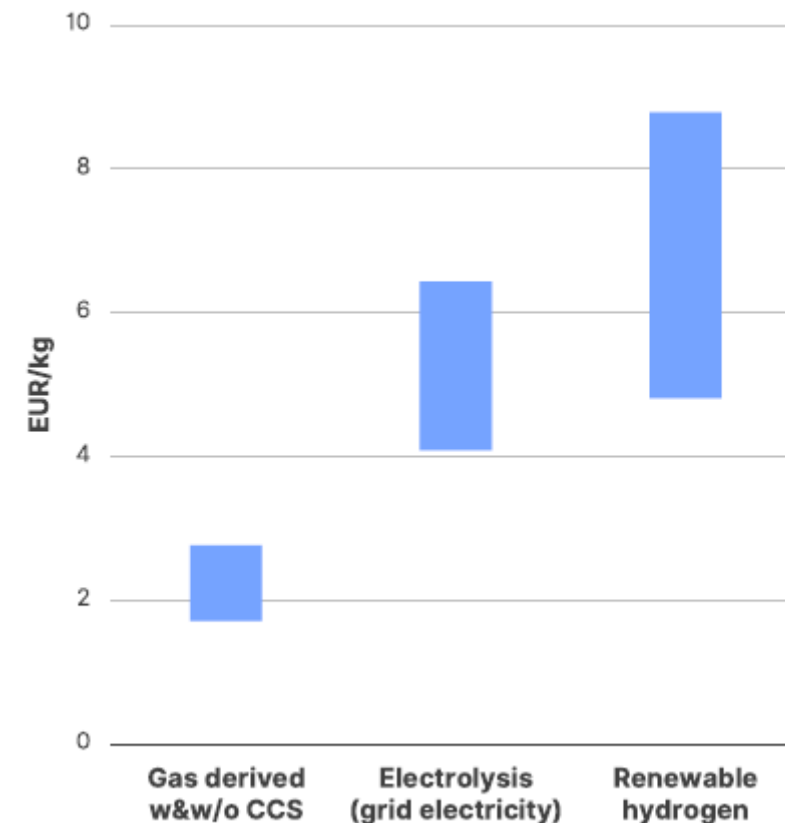


The current pace of deployment of electrolysers is not enough to meet the EU targets. Some 70 GW of projects still ‘on paper’ due to high uncertainty.

Renewable hydrogen is largely ‘out of the money’

- Renewable hydrogen is 3-4 times more expensive to produce than fossil-based hydrogen
 - Current gap is too large to enable rapid deployment
 - Cost reduction expectations may discourage first-movers
- Yet, European Hydrogen Bank’s first auction results indicate instances of both very low production cost and high-enough willingness to pay for renewable hydrogen
- Scaling electrolyser deployment and continuing the rapid decarbonisation of electricity is essential for renewable hydrogen competitiveness
- Clarifying low-carbon hydrogen’s role is key for market development and long-term climate goals

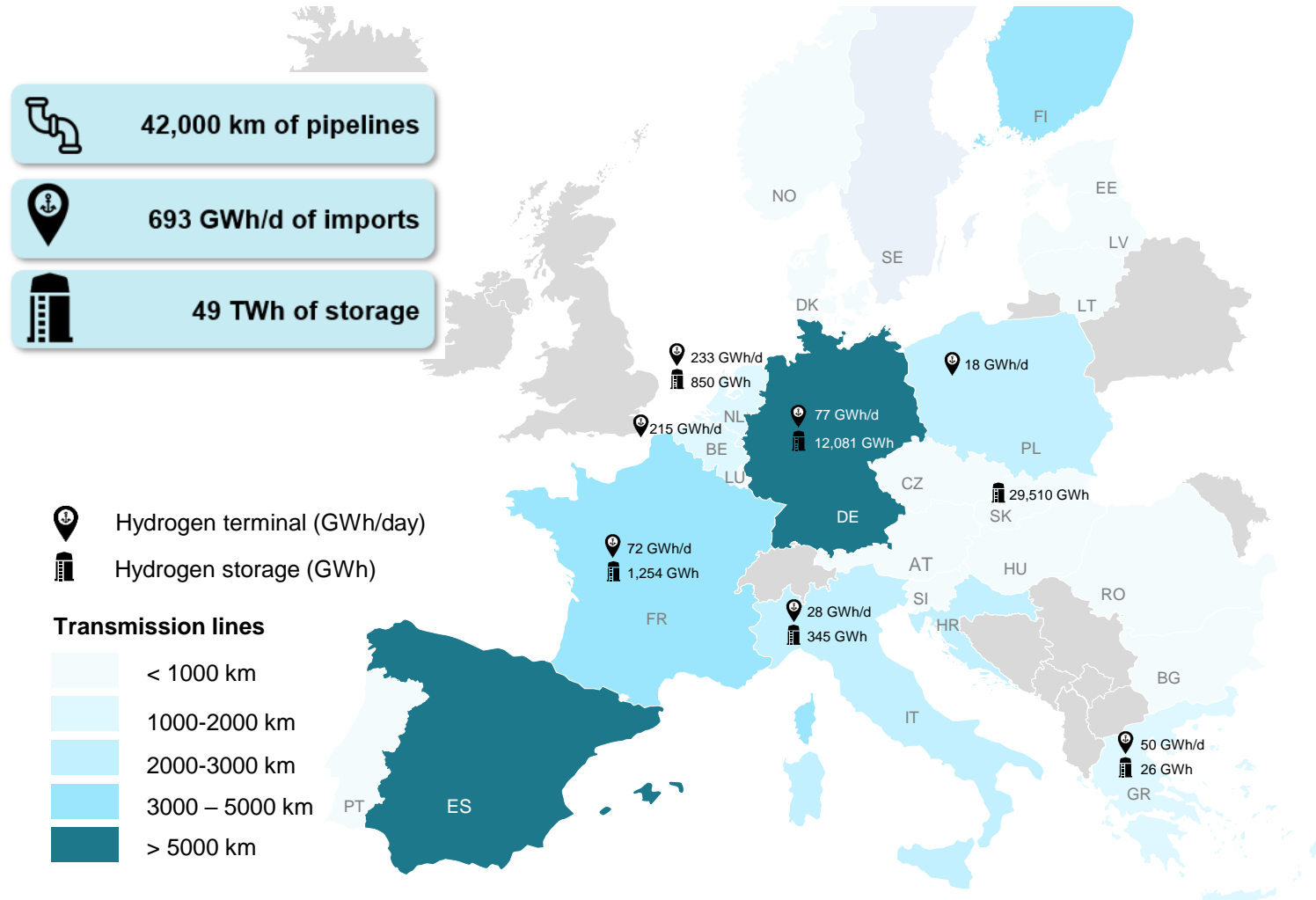
Cost ranges of hydrogen by production method



Hydrogen network: How much, by when & where?

Planned hydrogen infrastructure according to TYNDP-2024

- Future demand is uncertain, increasing financing risks
- Actual cost of repurposing may vary significantly
- Inter-dependencies with gas and electricity system call for integrated planning
- Electricity grid delays affect deployment of electrolysers and renewable generation
- Where to locate electrolysers is important



With additional planning complexity coming on top

ELECTRICITY GRID NEEDS

To reach 10 Mt of
renewable H₂ target

- +100 GW electrolyzers
- 550 TWh of renewable electricity
- Up to 180 GW of wind/solar
- Vast grid expansion

**DELAYS IN ELECTRICITY
GRID DEVELOPMENT
ALREADY ENCOUNTERED**

LOCATION OF ELECTROLYSERS

- Co-location with demand or proximity to renewable generation?
- Congestion amplifiers or alleviators?
- Central planning or market choices?
- Which role for locational signals?

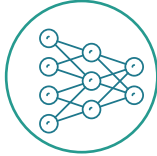
**INTEGRATED ASSESSMENT
NOT YET IN PLACE**

ELECTRICITY SERVICE PROVIDERS

- System flexibility
- Ancillary services
- Renewable curtailment

**ENABLING NATIONAL
FRAMEWORK
NOT ALWAYS IN PLACE**

Hydrogen brings challenges to what is already rather stretched and congested electricity grids in some areas. Rapid progress on integrated planning and coordination of investments in electrification, electrolyzers, renewables and (electricity and hydrogen) networks is needed, yet remains 'easier said than done'.



Integrated network planning

To mitigate the risks of oversizing:

- **Improved demand forecasting** during the planning phase is essential (incl. market tests).
- **Readiness** to adjust to align infrastructure with actual market needs.
- **Incremental infrastructure development** when uncertainty is high.
- **Carefully repurposing gas networks** for hydrogen to minimise costs, but without overlooking impacts on the gas sector (continuous security of supply).



Tackling demand risks in financing hydrogen infrastructure

Uncertain future hydrogen demand can lead to underutilised networks and stranded assets.

- **Inter-temporal cost allocation mechanism** (as e.g. in Germany) could help. Continuous monitoring is important.
- **Effective risk and cost allocation** between users, operators and the State is crucial.
- For cross-border hydrogen networks, **timely cooperation and coordination among Member States** and regulators are essential.

ACER's key recommendations



Legislation

Quickly transpose the hydrogen and decarbonised gas package into national legislation and proceed with its implementation. Member States need to develop their national hydrogen markets in line with the European framework to enable infrastructure development and avoid fragmentation.



Electrolyser deployment

Speed up electrolysers deployment and decarbonisation of electricity sector to increase renewable hydrogen competitiveness.



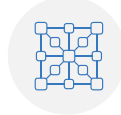
Forecasting and planning

Improve forecasting and accelerate integrated planning to identify realistic hydrogen infrastructure needs, avoiding overinvestments and reducing cost related to under-recovery risks.



Infrastructure development

When future demand is highly uncertain consider **incremental infrastructure development** based on market needs (to avoid building too much network too fast and avoid stranded assets).



Repurposing of gas networks

Consider carefully the repurposing of gas networks for hydrogen to minimise costs, but do not overlook the potential impacts on the broader gas sector (including security of gas supplies).



Risk mitigation

Address future demand risk in financing hydrogen networks. Properly identify different risks associated with uncertain future hydrogen demand. Allocating these risks among stakeholders (considering also cross-border implications) is key to enable hydrogen infrastructure investments.



Market certainty

Provide market certainty over the role of non-renewable, low-carbon hydrogen. Clarity on the uptake of non-renewable hydrogen should be provided by the European Commission and Member States.

Panel discussion

10:15 – 10:40

Speakers:

Carina Karstel, *Managing Director-Green Hydrogen, Innoenergy ETT*

Olivia Infantes, *Regulatory Affairs Director - Hydrogen and Clean Power , Moeve*

Zsuzsanna Szeles, *Policy Officer, European Commission*

Moderator:

Csilla Bartok, *Head of Gas, Hydrogen and Retail Department, ACER*

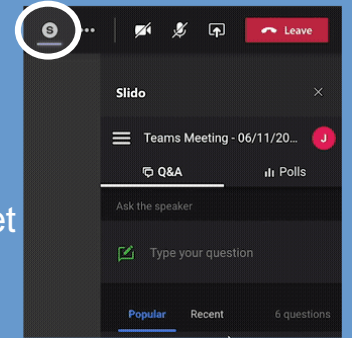
Q&A session

10:45 – 10:55

Connect to Slido

- Directly in MS Teams
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<https://app.sli.do/event/frmvhLA9vvifjmE6QkdCPG>



Csilla Bartok, Head of Gas, Hydrogen and Retail Department, ACER



Closing remarks

10:55 – 11:00

Riccardo Galletta, *Team Leader – Emerging Hydrogen Markets, ACER*

Thank you for your attention



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