



European Union Agency for the Cooperation
of Energy Regulators

Key challenges in hydrogen planning and regulation

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The European Union Agency for the Cooperation of Energy Regulators

Infrastructure

- [SCN Framework Guidelines](#) **NEW!**
- [TYNDPs / NDPs](#)
- [CBA methodology / Interlinked Model](#)
- [PCI monitoring](#)
- [Unit Investment Costs \(UIC\)](#)
- [Cross-border cost allocation \(CBCA\)](#)
- [Security of Supply](#)

Market Monitoring

- [Gas wholesale](#)
- [Electricity wholesale](#)
- Energy retail and consumer protection
- Decarbonised gases
- [Market monitoring data](#)
- [REMIT](#)

Network Codes

- [Drafting NCs](#)
- Guidance & monitoring
- [FUNC platform](#)

LNG Price Assessment

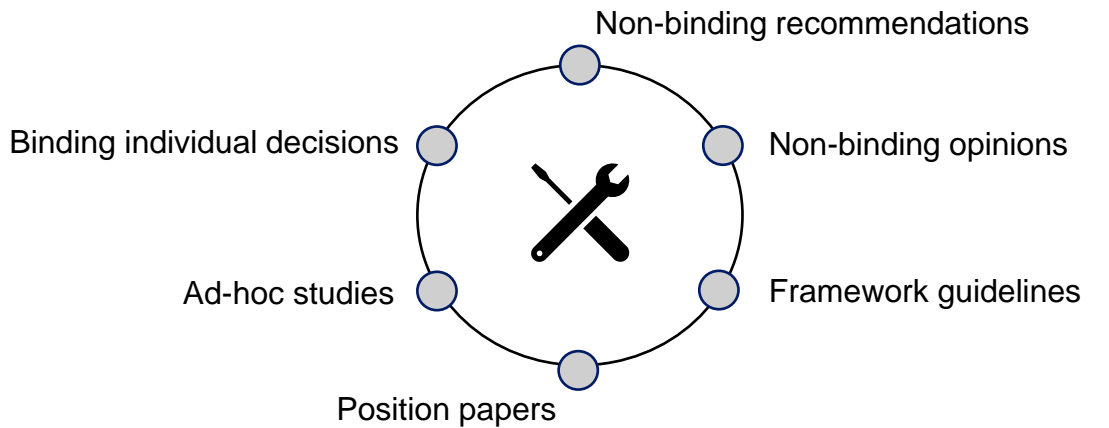
NEW!

- [LNG price assessment](#)
- ACER LNG benchmark

Market Correction Mechanism

NEW!

- [Daily MCM reference price](#)
- Monitoring & effects assessment report

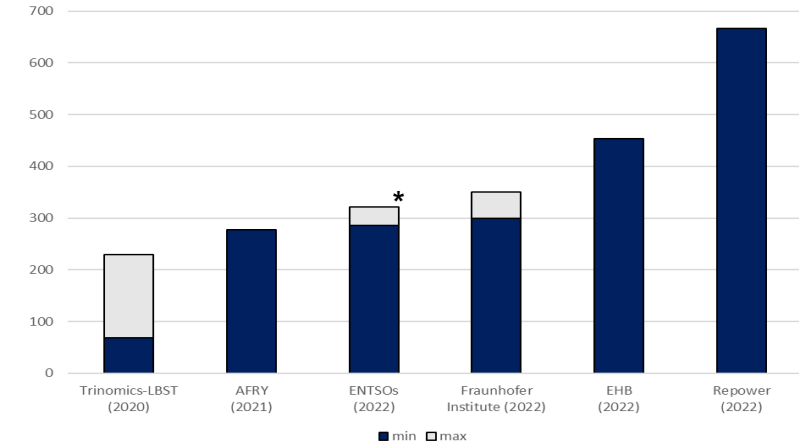


To foster the integration and completion of the EU internal energy markets

Status of hydrogen infrastructure planning at EU level

- Many H2 projects collected by ENTSOG from the TSOs for TYNDP 2022, amounting to a total of ~80 €bn
- Most H2 projects are in a “*conceptual*” phase or have “*less-advanced*” status
- The number of H2 projects proposed by TSOs may exceed reasonable needs for H2 infrastructure
- Analysis of some MSs reveals preference for a gradual approach to network development synchronised with the build-up of H2 supply and H2 demand
- No clear methodology available for the identification of H2 cross-border needs and for the assessment of projects contribution

Hydrogen demand in 2030, evolution in literature (TWh)



* Final TYNDP 2022 H2 demand was adjusted upward to meet Repower ambition

Summary of (draft) TYNDP 2022 investments items and CAPEX

	CH4 projects			H2 infra	BioCH4 injection	Blending	Other infra projects	Total
	TRA	LNG	UGS	HYD	BIO	RET	OTH	
TOTAL investment items, of which	108	23	12	152	11	13	39	358
<i>FID</i>	25	6	5	1	1		3	41
<i>Advanced</i>	46	14	4	13	2	3	12	94
<i>Less Advanced</i>	37	3	3	138	8	10	24	223
TOTAL functional project sets (total number of items included)	17	9	1	28	1	1		57
Sums of project costs in Annex A, in € billion	26.9	2.0	1.0	77.5	1.2	1.6	0.1	110.3

Sources:

- ACER / VIS study on cost-benefit analysis for hydrogen networks ([link](#))
- ACER Opinion on draft TYNDP 2022 ([link](#))

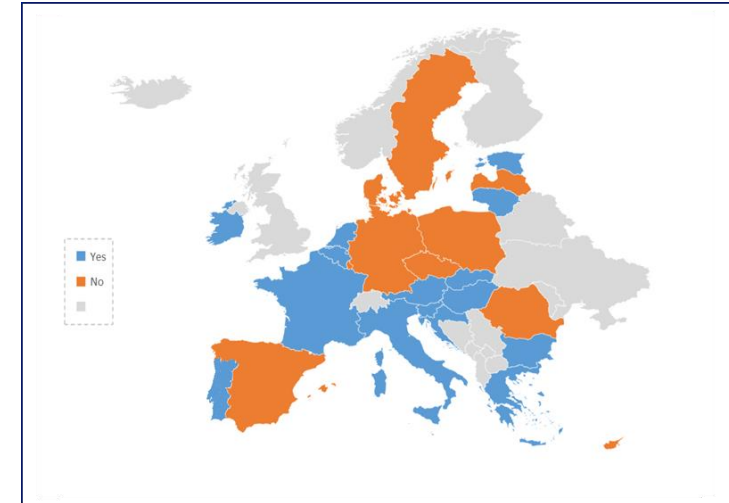
Key challenges on planning of hydrogen infrastructure at EU level

- Development of hydrogen assets should be based on **reasonable assumptions** and **proven needs**, and chosen among the most cost-efficient solutions after having considered future decarbonisation scenarios
- **Transparency is key** to foster acceptability, swift development and visibility on H2 projects. **All TYNDP projects** should be subject to CBA
- Planning of infrastructure should be based on **neutral and independent technical assessment**, to ensure those projects **bringing most benefits** are supported and to avoid any risks of unjustified costs to EU consumers
- An **integrated approach to infrastructure development** (vertical integration / horizontal integration) will ensure the adequacy of the energy infrastructure

Regulatory oversight is crucial to ensure a prudent and no-regrets approach, to focus on projects which maximise societal benefits and avoiding risk of over-investment

Status of hydrogen infrastructure planning at MS level

- In some MSs, NRAs play only a limited consultative role in the process of NDP
- Currently, only in few instances NRAs reported competence for H2 infrastructure
- Decreased consistency between NDPs and EU TYNDP, largely explained by inclusion of H2 in the EU TYNDP
- In some MSs the legislative framework on how to organise the H2 market and system development is ongoing/under discussion
- H2 matchmaking: in some MSs market consultations/dialogues have been initiated with different involvement of TSOs, NRAs, etc.



Most recent gas NDPs covering H2 aspects (Dec. 2022)

Project Type	Included in NDP	Not included NDPs	Total	% of TYNDP projects included in NDPs
Biomethane	4	7	11	36%
Hydrogen	14	70	84	17%
LNG	8	5	13	62%
Retrofitting	5	8	13	38%
Transmission	86	10	96	90%
Underground Storage	8	4	12	67%
Other	5	29	34	15%
Grand Total	130	133	263	49%

% of projects included in both EU TYNDP and NDPs (Dec. 2022)

Sources:

- ACER / VIS study on cost-benefit analysis for hydrogen networks ([link](#))
- ACER Opinion on NDPs-TYNDP consistency 2022 ([link](#))

- **Efficient** network planning which serves **market and consumer's needs** calls for NRAs oversight
 - regulated H2 infrastructures should be **part of a NDP planning process subject to NRA approval**
 - HNOs to be required to submit at least **a biennial consolidated NDP**, irrespective of unbundling model
- Need for **more consistency and coordination**
 - between national and EU plans, and to align plans with decarbonisation efforts and to consider possible future needs to **decommission gas infrastructure**
 - development of cross-border capacities should be **better coordinated across neighbouring NDPs**
- **Aim for more transparency:**
 - 73% of NDPs include cost information. All NDPs should include costs
 - adequate public consultations of the draft NDPs and coordination between operators
- **Matching market needs with infrastructure development:** synchronise expectations of uptake of supply and demand with a **prudent assessment of need** of transportation services

NRAs should have the possibility for joint NDP scrutiny process for H2 and CH4 NDPs.
NRAs should have power to issue opinions, request amendments and approve NDPs.

- NRAs support **cost reflectivity** and **beneficiary-pays principles**, avoiding cross-subsidies
- **Forms of support might be needed in early phase of sector development**, such as:
 - inter-temporal cross-subsidies (a share of costs be borne by later users of the hydrogen network)
 - instruments funded by general taxation
- Deviations from such principles should be limited in both scope and time, and **subject to an appropriate regulatory framework including NRA oversight**

To reduce the risk of over-investment and creates a level playing field between different energy carriers by providing realistic price signals.

- Due to the emerging nature of the hydrogen market, there is a risk that underlying hypotheses are too fragile **to allow a robust ex-ante decision** on the allocation of investment costs
- **Alternative models to regulated cost-sharing** should be put in place, e.g. calls to market or long-term contracts that offer visibility to investors and associate producers, operators and consumers
- A robust assessment and proven needs should be key driver

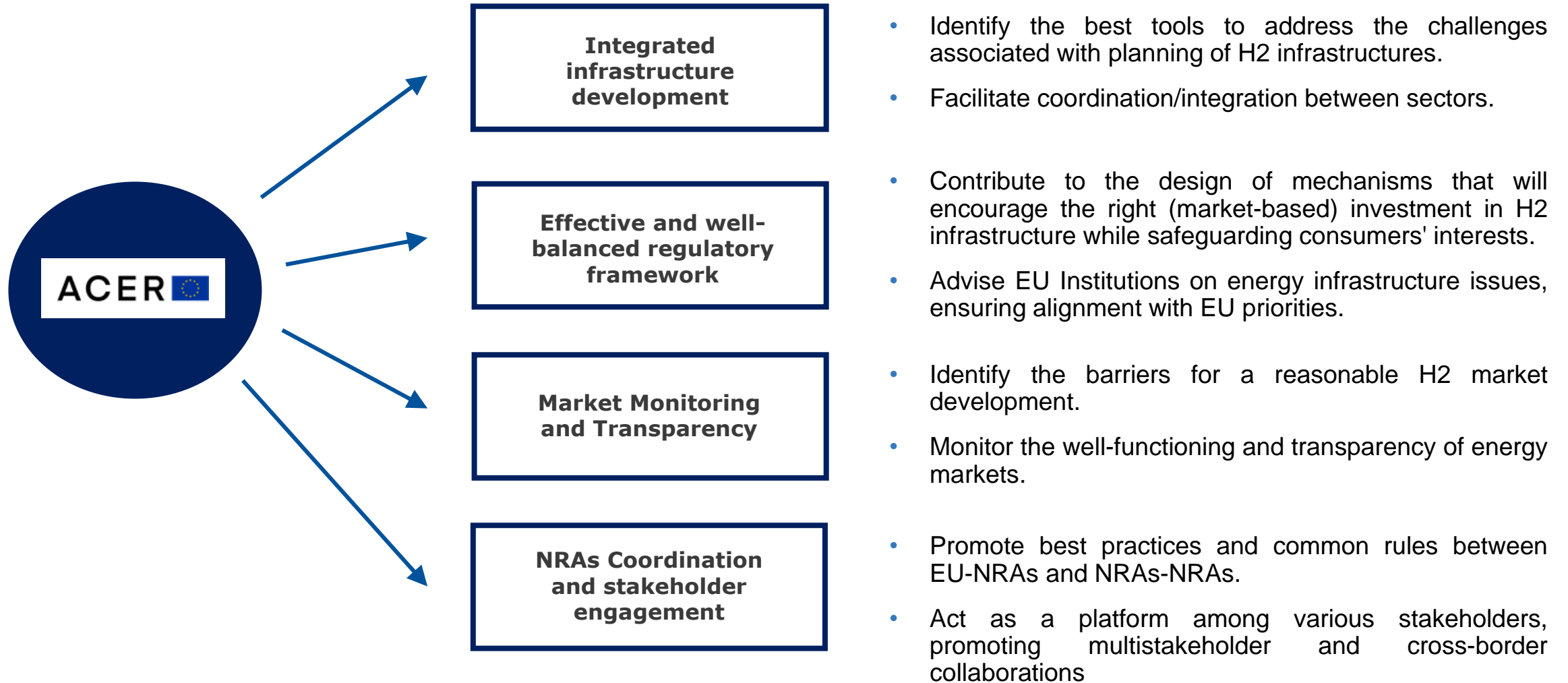
Regulated cost-sharing tools should be adopted only in relevant cases, leaving options for market-based financing and cost-sharing.

On derogations and exemptions

- **Ensure flexibility:** TPA and unbundling rules to be gradually applied through derogations and exemptions, in line with development of the H2 sector, with ownership unbundling as the target model
- **Cross-sectoral unbundling:** allow temporary exemptions for OU gas TSOs for allowing holding company to control H2 production under conditions
- **H2 Storages:** flexible approach for access to H2 storage, letting MS to opt for (r)TPA / (n)TPA
- **Role of NRAs:** require approval by NRAs to grant/end all types of derogations

Find the right balance between a hard deadline approach and leaving sufficient flexibility for the implementation of the rules depending on the maturity of the market

What will be the ACER role?



Thank you. Any questions?

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