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CONSULTATION RESPONSE

July 2025

ENTSO-E and ENTSOG public consultation on the TYNDP 2026 Scenarios' input assumptions, data, parameters and methodologies

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Submitted to ENTSO-E and ENTSOG public consultation on the TYNDP 2026 Scenarios' input assumptions, data, parameters and methodologies
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Introduction

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Scenarios Innovation Roadmap

4 How would you rate the Innovation Roadmap (clarity, comprehensiveness and format)? (rank 1 to 10 - 10 most satisfactory)

5

5 Do you think that the prioritisation of innovations for the TYNDP 2026 planning cycle could be improved, and if yes, why and how?

2000 characters:

Yes. While the Innovation Roadmap offers a solid framework under ACER requirements and rightly focuses on critical model upgrades given tight timeframes, the overall prioritisation process could still better align with EU climate goals, long-term cost efficiency and integrated system needs.

First, it would be valuable to anchor priorities more explicitly to the EU's cumulative climate objectives and fair-share carbon budgets, ensuring innovations are not just technically important but essential for staying within a 1.5°C-aligned pathway. This reflects recommendations in the ESABCC's "Scientific advice for amending the European Climate Law," which emphasises climate action that strengthens EU strategic priorities and respects tight carbon constraints.

Second, more weight could go to innovations that optimise the whole energy system across electricity, heat, hydrogen and gas, reducing new infrastructure needs and keeping costs down. Focusing on system-wide efficiencies — rather than siloed upgrades — helps apply the "energy efficiency first" principle and lowers the risk of costly lock-ins.

Third, involving more independent scientific expertise and broader societal perspectives would ensure decisions balance technical needs with what's best for end-users, communities and the climate. This directly aligns with repeated ESABCC calls for transparent, inclusive processes that ground choices in rigorous science and build public legitimacy. It's also positive that structured stakeholder dialogues are already underway, offering a strong base to expand.

Finally, clearer communication of trade-offs — like how prioritising certain innovations affects flexibility needs, emissions or infrastructure — would support informed choices and accountability, ensuring the innovation programme stays robust, climate-aligned and cost-effective.

6 Are any innovations missing in the Scenarios Innovation Roadmap that should be mentioned in future editions?

2000 characters:

Yes. Looking ahead, there are areas that would be helpful to include or explore more fully:

Wider modelling of transport electrification, not just for passenger cars but also heavy trucks, buses and new logistics hubs. Considering up-to-date driving patterns and charging behaviours would give a clearer picture of impacts on the grid and where smart charging or local balancing could help.

Better ways to capture how demand changes might reduce infrastructure needs, such as through industrial shifts, more building renovations, or smarter local consumption. This could show how energy efficiency and local improvements directly shape where and how much new infrastructure is actually required.

Innovations that allow electric heat pumps and other local loads to be more flexible, so they can shift their operation in response to grid needs or price signals. This kind of demand-side participation can cut costs and reduce stress on the system.

Simpler platforms or market arrangements that make it easier for households, communities and small businesses to take part, for example by selling

flexibility or local renewable production, supporting a fairer transition.

Grid management and planning tools that help steer new demand — like charging hubs, electrolysers or new industrial sites — to areas where the network is already strong, rather than reacting with costly reinforcements after congestion appears.

Including or deepening these areas would help keep long-term costs down, improve resilience to disruptions, and ensure the benefits of the energy transition reach more people and local areas — all while supporting Europe's climate targets in a practical way.

7 Is there anything that you would like to add?

2000 characters:

We also encourage making the process for the implementation of the Innovation Scenarios Roadmap more transparent, by clearly showing how different ideas or feedback are considered, included or set aside. This would allow all stakeholders to better understand how decisions are made, engage more meaningfully, and help shape scenarios that are secure, fair and climate-consistent.

Draft supply assumptions – encompassing H2 import potential and prices, technology cost, and commodities prices, CO2 cost and synfuel import cost

8 Do you think that the draft import potentials for H2 and ammonia could be improved, and if yes, why and how?

2000 characters:

Yes. While hydrogen and ammonia imports can help diversify the EU's supply, the draft potentials appear optimistic given competing global demand, local decarbonisation needs in producing regions, water availability, infrastructure constraints and potential geopolitical risks. Heavy reliance on these imports could lock in long, costly infrastructure that might underperform or strand if global conditions tighten or sustainability rules become stricter.

The scenarios would be stronger if they also explored pathways that minimise reliance on imports, placing more emphasis on local renewable production and direct electrification of industry, transport and heat.

Finally, these lower-import pathways would better prepare Europe for a global hydrogen market that could be tighter and more expensive than currently forecast, especially if other major economies scale up their own direct uses of clean hydrogen, reducing export availability. -

9 If you answered to the previous question, please reference a source to support your claim.

Source:
https://bellona.org/news/climate-change/hydrogen/2023-03-7-reasons-why-hydrogen-ready-is-a-myth
https://eu.bellona.org/2023/09/26/risks-and-challenges-of-importing-hydrogen-to-europe/

10 Do you think that the draft technology costs could be improved, and if yes, why and how?

2000 characters:

Yes. The draft cost assumptions for key technologies like solar, wind, batteries, and electrolyser systems seem conservative compared to the steep cost reductions seen in recent global auctions and industrial learning rates. If costs continue to fall faster than these draft scenarios assume, it could mean the EU underestimates the affordability of a renewables- and flexibility-led transition.

Updating technology cost pathways with more realistic learning curves would give a more realistic view of how quickly local renewable generation, storage and grid digitalisation can scale, helping to meet climate targets at lower overall system cost.

A sharper focus on future cost declines could also rebalance the scenario assumptions away from long, expensive fuel supply chains toward more local clean energy solutions.

11 If you answered to the previous question, please reference a source to support your claim.

Source:
https://ourworldindata.org/cheap-renewables-growth

12 Do you think that the draft commodities prices, CO2 cost and synfuel import cost could be improved and if yes, why and how?

2000 characters:

13 If you answered to the previous question, please reference a source to support your claim.

Source:

14 Is there anything that you would like to add?

2000 characters:

Draft Methodologies and Assumptions

15 Do you think that the draft market modelling methodologies and their relevant assumptions could be improved and if yes, why and how?

2000 characters:

Yes. While the market modelling for these scenarios is clearly advancing — for example by adding more detailed segments for electric vehicles or different types of electrolyser operation — there is still room to strengthen how the models handle flexibility, demand-side measures, and integrated operation across electricity, heat, hydrogen and other sectors.

Most of the flexibility today is still represented through relatively simplified price-responsiveness assumptions. This understates how smart charging, load shifting, flexible heat pumps and local coordination could ease pressure on grids and lower overall system costs.

It would be valuable to develop a more comprehensive approach to modelling demand-side behaviours, real-time load displacement, and local congestion management, alongside the usual market-based dispatch and price formation. This could show how investing in smarter demand could avoid or defer costly supply and infrastructure expansions.

16 Do you think that the draft target compliance and gap filling methodologies can be improved and if yes, why and how?

2000 characters:

The goals for 2040 are not taken into account for now, so they will obviously have to be added in the next scenarios.

17 Do you think that the draft carbon budget methodology can be improved and if yes, why and how?

2000 characters:

Yes. The draft carbon budget methodology could be improved in certain ways.

While the scenarios do track cumulative emissions and set a total budget, the underlying data shows that the gross emissions are significantly higher than this, meaning the pathway relies heavily on removals through CCS, CCU and LULUCF to stay within this carbon budget. It's also not fully clear whether these pathways actually reach net zero by 2050 given the size of the gap.

Additionally, the sources for these inputs are not always clear, especially as often cited "Impact Assessment by the EC" with certain details not clear – especially since some figures appear carried over from the 2024 scenarios while others are updated for 2026.

It would strengthen the methodology to:

Clearly separate gross emissions from removals, so it can be seen exactly how much of staying within the carbon budget depends on large-scale CCS, CCU and land sinks, and test what happens if these underdeliver.

Provide more precise sourcing for key inputs, so the assumptions can be checked and challenged.

Ensure any long-term infrastructure tested under these scenarios genuinely aligns with staying inside a Paris-consistent cumulative budget — avoiding stranded assets or later abrupt shifts.

18 Do you think that the draft scenarios grid methodology can be improved and if yes, why and how?

2000 characters:

Yes. While the grid methodology usefully tests future infrastructure needs, including some conceptual and long-term projects, it could still give more weight to non-wire alternatives, smarter grid operations, and climate resilience.

More emphasis on solutions like dynamic line rating, advanced congestion management, and local flexibility markets could help avoid or defer costly grid reinforcements, keeping the system more affordable and adaptable. It would also be valuable to see clearer stress tests on how the grid performs under climate extremes, such as prolonged heatwaves or low renewable periods.

Finally, improving transparency on how these options are assessed alongside traditional expansion — and showing their impact on long-term costs and emissions — would make the scenarios stronger tools for planning a secure, efficient and Paris-aligned grid.

19 Do you think that the draft scenario weather years selection methodology can be improved and if yes, why and how?

2000 characters:

Yes. Adding 3 climate years is already an important improvement in integrating the impacts of climate change into the scenarios. However, the decision to use Principal Components Analysis and k-means clustering analysis might discard the most extreme climatic events from the calculation and therefore could not take into account potential disruption that these extreme events could cause.

Though it is understandable to limit the numbers of weather years to avoid the increase in the scenario complexity, it could benefit to potentially add some stress tests relative to more extreme events.

However, we notice that the dataset used seems pretty reliable and that the methodology used to build energy projection from climate historical data and projections, even we some data are missing, seem robust enough.

20 Is there anything that you would like to add?

2000 characters:

Conclusion

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Publish my anonymised answers to this consultation.

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