ENTSO-E consultation on TYNDP 2024

A Eurelectric response paper

March 2024

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:
- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to

DT TYNDP 2024
Distribution & Market Facilitation Committee
Customers & Retail Services Committee
Markets & Investments Committee
Generation & Environment Committee
Electrification & Sustainability Committee

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For this consultation we have decided to ask as few questions as possible, and instead to allow you to provide any comment you want.

Please use the following free text fields to enter your comments.

4. Open comments

Eurelectric, representing generators, electricity DSOs, and retailers, recognizes the urgent need for enhanced cooperation between grid operators to effectively address the challenges of decarbonization. The increasing penetration of renewable energy sources and electrification efforts are placing significant strain on grid infrastructure, requiring a coordinated response from all stakeholders. We believe that closer collaboration between TSOs and DSOs is crucial to ensure efficient grid integration of renewable energy, optimize network capacity, and ultimately achieve a decarbonized energy system by 2050.

Specifically, we recommend that TSOs actively involve DSOs in the scenario building and planning processes, taking into account their granular locational forecasts and insights into local grid conditions. Regarding the TYNDP process, this could be achieved by formally integrating national DSOs into the demand building exercise within the ETM demand framework where the demand projections are built for the TYNDP scenarios. Currently, national TSOs input their demand forecasts into the ETM. In the future, DSOs could also be granted access to directly participate in this process. Additionally, the demand profiles (e.g., for heat pumps, EVs) for future years are currently developed by ENTSO-E and TSOs based on literature reviews and specific national profiles (e.g., the Netherlands). Since this load will primarily be on the distribution grid, DSOs are well-positioned to contribute to the forecasting of these profiles. Involving DSOs in building these future profiles is essential to enhance their credibility.

The dynamic development of distributed energy resources (DERs) connected to the DSO network and the increasing bidirectional energy flow further underscore the need for greater integration of DSO knowledge in the preparation of TYNDP products. This includes establishing robust mechanisms for sharing operational information bidirectionally, enabling proactive grid management and optimized utilization of flexibility solutions. By working together as valued partners, with a deep understanding of the evolving grid landscape, TSOs and DSOs can effectively address capacity scarcity challenges and ensure a smooth transition towards a decarbonized energy future.

FreeComments1

A few questions

A few questions that will help us improve as we start the preparation of TYNDP 2024.

5. For what purpose do you use the TYNDP? (Write down your name and choice below like the example)

(Required)

- To learn about possible future of the European energy system (scenarios)
- For information on transmission projects
- For information on storage projects
- For information on future system needs in 2030/2040
- I use TYNDP data in my own research/work
- For personal knowledge

- Other (please specify below)

6. Which TYNDP product(s) did you find most useful? (Please put your name along with a tick in the appropriate box like the example)

(Required)	I have not read this document	I've had a look. It's not useful to me.	Somewhat useful	Very useful
Infrastructure Gaps Report			.	✓
Interactive data visualisation tool on system needs				✓
Online project sheets, including CBA results				✓
Scenarios				✓
Offshore Network Development Plans				✓
CBA Implementation Guidelines				✓
System Needs study Implementation Guidelines				✓

7. Use this field for any further comment on the quality, clarity and length of TYNDP deliverables. How easy was it for you to understand TYNDP 2024? Do you have suggestions to improve?

We appreciate the recent improvement in the clarity and quality of the TYNP deliverables. The interactive dashboard is a very useful tool. We recommend the following points for improvement:

1) Adding an EU aggregate for all the data points delivered. Currently in the visualisation dashboard, only countries can be selected.
2) The historic transmission and storage capacity (in GW) is missing in the package. Only the 2030 data is given as a starting point. According to our best knowledge, we could not find the current (2025 or earlier) transmission capacity and storage from the TYNDP website.
3) Please make all the data behind graphs, charts and maps downloadable so that this can be used for later analysis and remodelling.
4) Historic annual investments made in the transmission grid (not only cross-border) is also missing in the TYNDP package. For better perspectives on the future investment requirements this data is required.

5) Please indicate in the socio economic welfare (SEW) analysis how much of the SEW is allocated to which country.
6) Please include in the CBA assessment also the consumer surplus and congestion income and not only producer surplus – ideally split between involved countries.
7) On a more fundamental level we would suggest that for hybrid projects (offshore hubs), the CBA is provided also with a potential for offshore wind assets included. This is necessary to have a correct CBA for these combined projects – that are often asymmetric in their cost and benefit distribution. Solving the CBA for the grid elements is therefore not enough to make the hybrid projects happen – you need both the generator and the grid.

8. Is the TYNDP consistent with the relevance of the power system in achieving the EU Green Deal and the ambitions for competitiveness described in the Draghi report, in identifying the value of infrastructure projects and the way forward? Any suggestion for improvement?

The electrification rate projections in the TYNDP scenarios have consistently been less ambitious than what is required to achieve the EU's decarbonization goals. To reach decarbonization by 2050, an electrification rate of 60-70% is necessary. However, the current TYNDP scenarios project an electrification rate below 50%. This will also affect the infrastructure gaps and system needs identified in the TYNDP study. This discrepancy needs to be addressed to ensure alignment between the TYNDP and the EU's climate targets.

9. How do you think the System needs study and the ONDP should complement each other in future TYNDP cycles?

All in all, the Infrastructure Gaps Report contains important information concerning the integration of different system components. It rightly acknowledges the need for extending grid capacities, for cross-border connections, for capacities in energy storage and for planning these developments on an EU-level. However, basing most of the activity on electricity requires a very systemic/whole view of the electricity sector and many areas closely and distantly related to it.

Therefore, we suggest following areas for improvement.

- There is a lack of detail on how certain technologies (e.g. demand response, smart grids, artificial intelligence) can be better utilised.

- Integration of potential storage solutions (including the question of their placement and capacity dimensioning) could be presented in more detail.
    - It is important to review the expected share of pumped hydro storage, as it is one of the most cost-effective technologies to ensure the integration of variable renewables, manage effectively curtailments and better respond to deep/long periods of generation unavailability.
    - The TYNDP 2024 scenarios show that only 9-17GW of new pumped hydro storage facilities are foreseen until 2040, which is low considering the needs to manage potential curtailments, as highlighted in several studies. It is interesting to see that pumped hydro storage projections are same in all the scenarios (NT, DE & GA) of TYNDP 2024. Why is it so? What are the underlying assumptions that has resulted in such a result?
    - We recommend to review National Plans (we understand that only projects under construction have been considered in National Trends scenarios (which is radically below certain MS expectations for 2030)
    - We would like to clarify whether the storage capacity (GW) in the infrastructure gaps report represents the total storage capacity of the countries in scope or only assets

of cross-border relevance. The reported 24 GW of today is significantly lower than the EU's existing storage capacity of approximately 52 GW.

- In addition to concerted, EU-wide planning (called for in the ENTSO-E documents), coordination at regional and national level is also required; this way, regional particularities can also be better considered.

- Integration of electricity-related sectors such as heating, mobility and industry should be emphasised more strongly in order to improve the overall efficiency and stability of the energy system.

Besides, we see room for improvement with regards to cross-sectoral system integration. The interdependencies between energy vectors (e.g. between the electricity grids and a hydrogen system, especially the role of electrolysers as transformers of energy "from electrons to molecules") need to be analysed and taken into consideration in the network development planning.

10. Is system integration adequately reflected in the TYNDP? Any suggestion for improvement?
Same point as above.

11. Any other recommendations for future TYNDPs?

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability

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