TYNDP 2024 Scenarios Workshop

Stakeholder Roundtables – Session 1 - Methodology

July 13, 2023

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Session content and organization

Time: 13h15 – 15h10

Scope: TYNDP 2024 Scenarios methodologies and modelling innovations

Moderators:

David Radu (Scenario Building Technical Lead @ ENTSO-E)

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Agenda & format:

13h20 – 14h00: Tour de table

14h00 – 15h00: Discussion around topics collected

15h00 – 15h10: Closing and next steps

Main topics collected via roundtables form

- Reference grid and investment candidates cost methodology (el and gas)
- EV modelling enhancement, by accounting for inflex charging, elastic demand
- Hydrogen demand build-up and split between zones and sectors
- Hydrogen as carrier for residential heating – its implications
- Methane infrastructure modelling and interlinkage with H2 infrastructure
- Heat modelling enhancement with district heating sector, hybrid systems
- Inclusion of more long-term storage solutions to the mix?
- The value of open-source modelling in scenario building

Discussion Points and stakeholders' views

- Request for more clarity on the process:

  - How does the Scenarios process work as a joint venture between ENTSOs? How can stakeholders provide relevant feedback on the different methodologies (sector coupling, residential heating)?

  - How is the demand for different energy carriers determined for exogenous use within the market models used within the TYNDP Scenarios?

  - How do the TYNDP Scenarios assumptions compare with the state-of-the-art works, especially on demand-side response technologies, e.g., electric vehicles?

  - Scenarios are seen as a crucial step in EU-wide infrastructure development – how will the development address the transparency requirements for data and models?

  - How flexible are the Scenarios in terms of technologies that are modelled (e.g., requests coming for peaking engines and offshore wind platforms w/ electrolysers)

  - How is long-term storage being incorporated in the model?

  - How are the reference grids being established and what sits behind the methodologies determining the lists of investment candidates for transmission infrastructure?

Discussions – reference grid & investment candidates

- It has been widely agreed that the expansion model sitting at the core of the TYNDP Scenarios should inform decision makers in infrastructure build-out and that the correct assessment of infrastructure needs is paramount for a wide range of stakeholders. A couple of points where methodology enhancements are needed:

  - Modelling of the distribution level – at this stage, the Scenarios do capture to some extent the distribution level assets (through the prosumer node mentioned here) however a more detailed approach would be beneficial to properly identify the synergies between T&D

  - The methodologies for the provision of transmission expansion candidates (incl. the expansion costs thereof) are not consistent among electricity and hydrogen networks. The hydrogen expansion costs are perceived as very low by some stakeholders. Substantial alignment on the methodologies of transmission expansion candidates could be addressed in the next cycle

  - It has been agreed that the approach relying on some existing hydrogen infrastructure level in 2030 is preferred to the one in which the expansion planning model starts from green field. However, the definition of the reference grid should be further aligned in the future to guarantee fair expansion model decisions, balancing consistency and hydrogen network maturity.

Discussions – EV modelling

- As EV charging has a major impact on peak electricity demand, the assumptions behind modelling these assets are crucial. Flexibility (e.g., V2G or price-based charging) capabilities are really important. A couple of points where methodology enhancements are needed with respect to the status found here:

  - Modelling of charging stations – a more refined representation of the charging station capabilities would be preferred, e.g., number of EVs connected at one point in time to the station, efficiencies of charging/discharging

  - Modelling of electric vehicles - the current approach of representing passenger EVs in the model as being connected to the prosumer (via Prosumer) and e-market (via Street) nodes is not sufficient, as i) flexibility coming from street chargers is relatively low and ii) a lot of flexibility can be unlocked by modelling other EV types (e.g., buses, trucks, car sharing, etc.)

Discussions – hydrogen modelling

- Modelling of the hydrogen assets and infrastructure are deemed very important to properly identify synergies between the two carriers with the biggest potential for decarbonization. A couple of points where methodologies related to hydrogen needed further clarification:

  - The split of hydrogen demand in the two zones – one oriented on industrial demand and SMR-driven supply (Zone 1) and another driven by a developing hydrogen market (Zone 2) - more details here

  - The means of producing and consuming green hydrogen (electrolyser technologies, on one side, and hydrogen CCGTs, on the other hand) were seen as too limited choices. Furthermore, storage mediums for both hydrogen and electricity (candidates for expansion, at least), were considered to deserve additional options.

Conclusions & Next Steps

- Considering the pressing timeline of the TYNDP 2024 Scenarios, it is very challenging to update any methodology at this stage without severely impacting the timeline of downstream processes (e.g., IoSN, CBA) of the TYNDP

- The ENTSOs representatives in the room took note of the main methodology challenges listed in the previous 3 slides and will consider them in the innovation list for the upcoming TYNDP cycle.

- Early August: The summary of the stakeholder roundtable will be published
- 8 August: Deadline for submissions to the public consultation's online survey
- September: First meeting of the Stakeholder Reference Group (ETAG)
- End-year: Second public consultation with focus on electricity and hydrogen modelling results

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