

OPINION No 05/2024
OF THE EUROPEAN UNION AGENCY
FOR THE COOPERATION OF ENERGY REGULATORS

of 30 September 2024

**on the compliance of ENTSO-E and ENTSOG draft TYNDP 2024
Scenarios Report with ACER Scenarios Guidelines**

THE EUROPEAN UNION AGENCY FOR THE COOPERATION OF ENERGY REGULATORS,

Having regard to Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators¹ (“ACER”) and, in particular, Article 11(c) thereof,

Having regard to Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on guidelines for trans-European energy infrastructure and, in particular, Article 12(5) thereof,

Having regard to the outcome of the consultation with ACER’s Electricity and Gas Working Groups,

Having regard to the favourable opinion of ACER’s Board of Regulators of 18 September 2024, delivered pursuant to Article 22(5)(a) of Regulation (EU) 2019/942,

Whereas:

1. INTRODUCTION

- (1) Article 12(1) of Regulation (EU) 2022/869 (‘TEN-E Regulation’) tasks ACER to develop and publish framework guidelines with criteria for a transparent, non-discriminatory and robust development of the joint scenarios to be developed by the European Network of Transmission System Operators for Electricity (‘ENTSO-E’) and the European Network of Transmission System Operators for gas (‘ENTSOG’) for their respective Union-wide ten-year network development plan (‘TYNDP’).

¹ OJ L158, 14.6.2019, p. 22.

ACER issued such framework guidelines on 25 January 2023² ('TYNDP Scenarios Guidelines').

- (2) Article 12(2) of the TEN-E Regulation requires ENTSO-E and ENTSG (jointly 'ENTSOs') to follow ACER's framework guidelines for the joint scenarios when developing the draft joint scenarios to be used for the Union-wide network development plans and to submit a draft joint scenarios report to ACER, the Member States and the European Commission for their opinion.
- (3) On 30 May 2024, the ENTSOs submitted their joint TYNDP 2024 Scenarios Report³ ("draft Scenarios Report 2024") to ACER for its review.
- (4) Article 12(5) of the TEN-E Regulation tasks ACER to issue an opinion on the compliance of the scenarios presented in the draft scenarios report with ACER's framework Guidelines for the joint scenarios, including possible recommendations for amendments, to the ENTSOs, the Member States and the European Commission.
- (5) The present Opinion embodies ACER's analysis and conclusions regarding the compliance of the scenarios set out in the draft Scenarios Report 2024 with the TYNDP Scenarios Guidelines.

2. ASSESSMENT OF THE DRAFT SCENARIOS REPORT'S COMPLIANCE WITH THE GUIDELINES

- (6) ACER notes some positive developments in comparison with the previous scenarios reports, such as:
 - a. The development of the National Trends+ (NT+) scenario (which aims to follow the National Energy and Climate Plans [NECPs] whilst respecting the most recent policy targets, following the TYNDP Scenarios Guidelines envisaged central scenario). ACER also recognises the difficulty in working with largely outdated NECPs and amending these to meet the most recent policy targets, where needed.
 - b. The enhanced stakeholder consultations, which allowed for more in-depth discussions on crucial scenario elements.
 - c. The continuous development of new energy-system elements, such as electric mobility, battery storage, prosumers, hydrogen and synthetic fuels, etc.

2.1. Criteria for a timely scenario development process

- (7) Paragraph (18) of the TYNDP Scenarios Guidelines provides that the draft scenarios reports are expected to be published and submitted to ACER, the Member States and the European Commission by 31st December of every odd-numbered year.

²

https://www.acer.europa.eu/sites/default/files/documents/Official_documents/Acts_of_the_Agency/Framework_Guidelines/Framework%20Guidelines/FG_For_Joint_TYNDP_Scenarios.pdf

³ <https://2024.entsos-tyndp-scenarios.eu/>

- (8) The draft Scenarios Report 2024 was thus expected by the end of 2023. However, its final publication was on 22nd May 2024 and its submission to ACER was on 30th May 2024.
- (9) Paragraph (19) of the TYNDP Scenarios Guidelines recommends the ENTSOs to identify and propose, together with the Stakeholder Reference Group, a cut-off date by which adopted energy and climate policies should be considered by the ENTSOs when developing scenarios.
- (10) No such cut-off date was published or communicated to ACER, let alone agreed with ACER.
- (11) Paragraph (20) of the TYNDP Scenarios Guidelines underlines the essentiality of the revised NECPs being taken into account in the scenario preparation to the extent possible.
- (12) The draft Scenarios Report 2024 states on p. 16 with regard to the NT+ scenario, '*For TYNDP 2024, the dataset collection is finalised in 2023 Q1, prior to the publication of the draft updated NECPs, which were due to be published in summer 2023. Consequently, differences between updated NECPs and the datasets are anticipated*'.
- (13) It is not clear whether the ENTSOs amended the NECP inputs to bring them in line with the latest policies and technology cost developments as envisaged in paragraph (31) of the TYNDP Scenarios Guidelines. Therefore, it appears that this requirement was not met.

2.2. Criteria for robust, objective-driven scenarios

- (14) Paragraph (23) of the TYNDP Scenarios Guidelines recalls the requirement of Article 12(1) of the TEN-E Regulation that the scenarios are to be in line with the energy-efficiency-first principle. The latter can have a great impact on the identification of infrastructure needs and plays a similarly important role as those of other main scenario assumptions.
- (15) From the draft Scenarios Report 2024 it is not clear whether and how this alignment was guaranteed by the ENTSOs.
- (16) To help improve the understanding of how assumptions impact scenarios, paragraph (27) of the TYNDP Scenarios Guidelines requires the ENTSOs to provide a qualitative assessment of how the scenarios would be impacted by the uncertainty around the main assumptions and drivers. This would facilitate a broader understanding of the energy system and enable informed policy decisions to not only support new infrastructure with more confidence, but also influence the support and development of drivers affecting infrastructure usage.

- (17) Such assessment was not included in the draft Scenarios Report 2024.
- (18) Paragraph (33) of the TYNDP Scenarios Guidelines states that stability and comparability must be enhanced by building scenarios around consistent time horizons, fixed around ‘0 and ‘5 years. And that scenarios shall be developed at least for the short-term (indicatively up to year 7 after the TYNDP year), the mid-term (approximately up to 10 years after the TYNDP year) and the long-term horizon (approximately 15 years after the TYNDP year). These time frames are crucial when deciding on infrastructure projects, as the relative risk of failing to accurately predict does not yet overwhelm the acceptability of cost-benefit assessment results.
- (19) The draft Scenarios Report 2024 states on p. 16, ‘*Additionally [to 2030 and 2040], a snapshot for the 2035 time horizon is provided in the datasets and in the visualisation platform, representing an average between the 2030 and 2040 time horizons*’.
- (20) Such an approach does not ensure the data quality and robustness for year 2035, which is the essential time horizon to be studied in the TYNDP simulations to decide on the projects which are to be completed before year 2035. The assessment of the first 10 to 15 years is crucial as the forecasts are considered sufficiently accurate and thus trustworthy. Using the average of the adjacent timeframes fails to capitalise on that, as it would speculate on assumptions that cannot be averaged (e.g. half a powerplant generating electricity, half of an industrial site consuming energy, ...).
- (21) According to paragraphs (35), (37) and (38) of the TYNDP Scenarios Guidelines, the set of scenarios must be balanced and informative to decision makers.
- a. In terms of a balanced set of scenarios, ACER observes that the two deviation scenarios, “Distributed Energy” (DE) and “Global Ambition” (GA) do not appear to deviate from the NT+ scenario in a balanced way, i.e. equally to both sides alongside the same assumption made in the NT+, as required by paragraph (38) of the TYNDP Scenarios Guidelines. For example, the total 2040 hydrogen demand for NT+ scenario is 1688 TWh (approx. 51Mt), while for GA 2189 TWh (approx. 66Mt) and for DE 1750 TWh (approx. 53Mt), meaning that both deviation scenarios go beyond the NT+ ambitions when it comes to hydrogen demand in 2040. Furthermore, as the current total hydrogen consumption is approx. 264 TWh (8Mt), alongside only 3 GW of electrolyser projects confirmed (with an annual capacity of 8.4TWh or 0.25Mt)⁴, even the central NT+ target of 500 TWh (15Mt) for 2030 and 1688 TWh (51Mt) for 2040 appears very optimistic, thus a less ambitious hydrogen target for one of the alternative scenarios would provide valuable insight.
- b. In terms of being informative to decision makers, and in line with paragraph (37) of the TYNDP Scenarios Guidelines, ACER requests high and low economy variants to stress test the central, NECP-based scenario. ACER finds the alternative deviation scenarios proposed by the ENTSOs (DE and GA) do not

⁴ [Navigating the hydrogen ecosystem | Strategy& \(pwc.com\)](#)

meet the requirement of providing an informative and balanced stress-test. Namely, the draft Scenarios Report 2024 fails to provide the reasoning behind the choice of DE and GA (and not some other alternatives), which reduces their informative value and trustworthiness.

2.3. Criteria for a transparent, inclusive and streamlined development process

- (22) Paragraph (42) of the TYNDP Scenarios Guidelines required the ENTSOs to create the Stakeholder Reference Group within 3 months after the adoption of these guidelines. The TYNDP Scenarios Guidelines were adopted on January 25th, 2023. The main driver to create the Stakeholder Reference Group was to further enhance the cooperation between the ENTSOs and stakeholders impacted by or having impact on network development scenarios. ACER believes that only through enhanced, continuous cooperation between stakeholders throughout the scenario development process would the final scenarios be trustworthy and accepted by the majority. In turn, this enhances the decision makers' trust of the entire network development process, of which scenarios are a crucial element.
- (23) The ENTSOs opened the call for Stakeholder Reference Group membership on May 5th, i.e. after the 3-month deadline, and the Stakeholder Reference Group became active only as late as November 2023, i.e. 7 months after the 3-month deadline. ACER believes that ENTSOs could have facilitated a faster creation of the Stakeholder Reference Group, which could have in turn helped improve the trustworthiness of scenarios.
- (24) The draft Scenarios Report 2024 indicates on p. 19 a potential reassessment of the Stakeholder Reference Group's involvement in the scenario development process if the Stakeholder Reference Group is no longer able to contribute recommendations from a balanced variety of interests.
- (25) In that regard it is to emphasise that paragraph (45) of the TYNDP Scenarios Guidelines tasks the Stakeholder Reference Group to act independently from the ENTSOs. If the ENTSOs perceived and dismissed any of the Stakeholder Reference Group's recommendations as biased, they should transparently explain why this would be the case (according to paragraph (58) of the TYNDP Scenarios Guidelines), and they should inform ACER accordingly. However, although the ENTSOs can dismiss individual Stakeholder Reference Group recommendations provided that they give reasons for such action, this is no ground for a denial of the Stakeholder Reference Group's involvement in the scenario development process. Furthermore, such denial would contradict the legal obligations under Article 12(3) of the TEN-E Regulation.
- (26) Paragraphs (46) and (47) of the TYNDP Scenarios Guidelines require the ENTSOs to publish a comprehensive process timeline and stakeholder engagement plan specifying the key moments for decision makers, stakeholders and the public to provide inputs. These should include different steps of scenario construction, cut-off-date for the particular scenario building process, timing of updates to be shared with

stakeholders (including data and other documents) and how the Stakeholder Reference Group and other stakeholders are engaged in the scenario development process.

- (27) At the beginning of the scenario development process, the ENTSOs presented a generic time plan of it. However, this plan did not provide all the abovementioned information, required by the TYNDP Scenarios Guidelines.
- (28) Paragraph (52) of the TYNDP Scenarios Guidelines requires that, for informed stakeholders, the ENTSOs publish all data sets, qualitative assumptions and formal hypotheses, as granular and disaggregated as possible, in an appropriate and predefined format to be consulted with the Stakeholder Reference Group.
- (29) The draft Scenarios Report 2024 and its accompanying documents provide no evidence that the identification of formats took place as required.
- (30) ACER notes that the draft Scenarios Report 2024 is accompanied by a summary Scenarios Report Data Figures file (spreadsheet) and a Visualisation Platform. However, the disaggregated data at country or, where relevant, bidding zone level are hardly retrievable, making it impossible to execute a thorough scrutiny of scenarios, which is needed e.g. to assess consistency of national scenarios with TYNDP scenarios. Nonetheless, several significant inconsistencies between the draft TYNDP scenarios and official national data were discovered. For example, regarding Austria, PV generation is lower than in the Austrian integrated network infrastructure plan (ÖNIP) in the NT+ scenario, while in DE it is grossly overestimated. Electricity storage levels also fail to reflect reality, as the current battery levels are already higher than the ones forecasted under “high trajectory”. Similarly, the regulatory authority of the Czech Republic also reported deviations which are especially notable on usage of pellets and heat-pumps. Also, the relation between the data in the summary Scenarios Report Data Figures file and the detailed Plexos-based data files is not very clear⁵.
- (31) To further enhance transparency, paragraph (53) of the TYNDP Scenarios Guidelines tasks the ENTSOs to benchmark their scenarios with the most relevant external scenarios, by providing a comparison of the key inputs and outputs and explaining the reasons for any deviations.
- (32) The draft Scenarios Report 2024 contains a chapter on benchmarking. However, it fails to provide reasons for the deviations displayed.
- (33) In general, it is to note that transparency is a key element in the process of developing scenarios as well as of assessing their compliance with the TYNDP Scenarios Guidelines. Accordingly, paragraph (66) of the TYNDP Scenarios Guidelines calls on the ENTSOs to ‘transparently report on how the scenarios and the scenarios-development process ensure compliance with the TYNDP Scenarios Guidelines.’

⁵ E.g., while the hydrogen demand for the EU in NT2030 in the summary file is 483 TWh, the native demand in NT2030 in the Plexos-based data file is 423 TWh.

(34) The draft Scenarios Report 2024 states on p. 14, '*The TYNDP 2024 scenarios apply part of the guideline set in the TYNDP Scenarios Guidelines, which were published midway through the 2024 scenario building process. These include guidelines on the extended stakeholder engagement process, the transition to more robust and transparent tools, and improved methodologies to capture increased sectorial integration and flexibilities (...)*'. Except this sentence, the draft Scenarios Report 2024 and its accompanying documents do not indicate how the scenarios developed in the draft Scenarios Report 2024, and the process of their development, ensure compliance with the TYNDP Scenarios Guidelines.

(35) Such an approach fails to transparently report, contrary to paragraph (66) of the TYNDP Scenarios Guidelines, how the scenarios and the scenarios development process ensure compliance with the TYNDP Scenarios Guidelines.

2.4. Ensuring stakeholder scrutiny

(36) Paragraphs (54) to (58) of the TYNDP Scenarios Guidelines provide general guidance on the cooperation between the Stakeholder Reference Group and the ENTSOs in the scenario development process.

(37) However, as noted in paragraph (23) of this Opinion the cooperation between the Stakeholder Reference Group and the ENTSOs was hampered by a substantial delay in Stakeholder Reference Group creation.

(38) Effective stakeholder scrutiny can only be fulfilled by a continuous involvement of stakeholders in the scenario development process, allowing them to scrutinise the inputs and decisions and other processes leading to the outputs. To which extent such scrutiny was enabled and achieved, is not clear from the draft Scenarios Report 2024. Yet, the creation of the Stakeholder Reference Group late in the scenario development process inevitably impacted the stakeholder scrutiny of scenarios.

(39) As published in Annex I of the draft Scenarios Report 2024⁶, the Stakeholder Reference Group provided feedback to the draft preliminary 2024 TYNDP Scenarios Results. This feedback consists of 36 proposals for improvement. However, the draft Scenarios Report 2024 does not include detailed information on whether and how these proposals have been taken into account. ACER believes that proper stakeholder engagement requires respectful and transparent treatment of all received inputs, even if these inputs are disregarded, which remains under full authority of the ENTSOs as the ones responsible for the scenarios development.

⁶https://www.entsos-tyndp-scenarios.eu/wp-content/uploads/2024/03/SRG_feedback_to_the_preliminary_2024_TYNDP_Scenarios_Results.pdf

3. CONCLUSIONS

- (40) The scenarios presented in the draft Scenarios Report 2024 show several incompliances with the TYNDP scenarios Guidelines, the most prominent being:
- a. **Continued usage of diverging scenarios.** *Distributed Energy* and *Global Ambition* were used, while *high and low economy variants*, as required by the TYNDP Scenarios Guidelines, were not. ACER notes that this incompliance can be attributed to the timing misalignment between the start of the scenario development process mid-2022 and the TYNDP Scenario Guidelines adoption in January 2023.
 - b. **Unbalanced set of scenarios.** The chosen diverging scenarios are not developed in a balanced way around the assumptions of the central NECP-based “NT+” scenario. An obvious example of this is that the hydrogen demand is higher compared to the central NT+ scenario in both DE and GA.
 - c. **Late creation of the Stakeholder Reference Group and the resulting suboptimal involvement of stakeholders into the scenario development process.** ACER notes that this can be attributed largely to the aforementioned misalignment between the 2024 scenario development process and the TYNDP Scenarios Guidelines adoption in January 2023, although a faster Stakeholder Reference Group creation could be achieved and would aid in further developing trust in the delivered draft scenarios.
 - d. **Unmet transparency standards remain.** Despite providing increased transparency compared to the previous scenario cycle, the development of the scenarios presented in the draft Scenarios Report 2024 did not fully meet the transparency standards set by the TYNDP Scenarios Guidelines. Among others, an insufficiently detailed planning of both the scenario development process and the involvement of stakeholders limit the planning needed by the Stakeholder Reference Group to be actively involved and understand its role, which hampers effective stakeholder involvement significantly, also beyond the stakeholder Reference Group, and limits improvements of future scenario cycles.
 - e. **Significantly delayed delivery of the draft Scenarios Report 2024.** These delays are detrimental to the rest of the TYNDP process, as they reduce the time and efforts dedicated to project assessments and finalisation of the TYNDP itself, and adverse to the consistency of national scenarios with TYNDP scenarios, putting at risk the coherence of national development plans with the TYNDP scenarios (and therefore the EU energy and climate policies). In addition, these delays are not explained in the draft Scenarios Report 2024 and there are no obvious reasons for such delays in this network development cycle.
 - f. **Unclear alignment with policy targets and latest national data.** The latest revised NECPs were not considered, and information on whether and how the information was processed to overcome this shortcoming was not provided. This

inevitably leads to question if scenarios are up-to-date, and if alignment with the most recent policy targets was fully considered. This is further substantiated by the European Scientific Advisory Board on Climate Change, which found that the draft scenarios are not compatible with the EU's climate 2030 targets for energy and climate and its 2050 climate neutrality objective⁷,

HAS ADOPTED THIS OPINION:

1. The scenarios presented in the draft Scenarios Report 2024 are not fully compliant with the TYNDP Scenarios Guidelines.
2. For the final Scenarios Report 2024 and its subsequent usage in TYNDP 2024, it is recommended that ENTSO-E and ENTSOG improve the draft Scenarios Report 2024 by:
 - a. promptly complying with the TYNDP Scenarios Guidelines' specifications concerning data publication and publishing the key parameters of TYNDP 2024 scenarios, in particular electricity, methane and hydrogen demand (per bidding zone in each scenario and time horizon), in an easily understandable format (e.g. by expanding the Scenarios Report Data Figures spreadsheet); and
 - b. promptly publishing their evaluation of comments and proposal for improvements prepared by the Stakeholder Reference Group.
3. For the future scenario development processes, starting with the TYNDP 2026 development cycle, it is recommended that ENTSO-E and ENTSOG devote further attention to fully respecting the criteria and specifications of the TYNDP Scenarios Guidelines, and to streamlining the scenario development process.
In particular:
 - a. ENTSO-E and ENTSOG should make available the planning of the scenarios development process for the 2026 TYNDPs, defining milestones and expectations regarding stakeholders' and the inputs of the Stakeholder Reference Group.
 - b. ENTSO-E and ENTSOG should also investigate streamlining options, such as analysing the perspective for the very long-term horizons (2050) separately from scenario building until year n+15 and preparing two separate reports with different timings, thereby allowing more in-depth assessment for each study and mitigating the risk of delays in the scenario development activities for the TYNDPs.

⁷<https://climate-advisory-board.europa.eu/reports-and-publications/towards-climate-neutral-and-resilient-energy-networks-across-europe-advice-on-draft-scenarios-under-the-eu-regulation-on-trans-european-energy-networks>

This Opinion is addressed to ENTSO-E, ENTSG, the Member States and the European Commission.

Done at Ljubljana, on 30 September 2024.

- SIGNED -

*For the Agency
The Director*

C. ZINGLERSEN