

## Public consultation report on ENTSOG's guidance documents for TYNDP 2024

### Contents

1.	Introduction.....	2
2.	Legal background .....	2
3.	Inputs to the consultation .....	5
<b>3.1.</b>	Inputs from the public consultation survey: Annex D1 - Implementation Guidelines (IG) for project-specific cost-benefit analyses of hydrogen infrastructure projects .....	5
<b>3.2.</b>	Inputs from the public consultation survey: Annex D2 – Hydrogen Infrastructure Gaps Identification (IGI) methodology .....	22
<b>3.3.</b>	Inputs from the public consultation survey: Annex D3 – System Assessment methodology .....	28
4.	Next steps.....	30

## 1. Introduction

The present consultation report concerns the public consultation of ENTSOG's draft TYNDP 2024 Annex D (draft Annex D). The draft Annex D contained following documents<sup>1</sup>:

- > **Annex D1: Implementation Guidelines** for the project-specific cost-benefit analysis (PS-CBA) of candidates for the status of Project of Common Interest (PCI) or Project of Mutual Interest (PMI).
- > **Annex D2: Infrastructure Gaps Identification methodology** for the Infrastructure Gaps Identification report (IGI report).
- > **Annex D3: System Assessment methodology** for deliveries that do not feed the PCI/PMI selection process.

As part of the consultation process, ENTSOG organised a dedicated, public stakeholder webinar on 24 June 2024<sup>2</sup>. Feedback was requested from stakeholders during a consultation period between 19 June and 9 July 2024 via an online form. This consultation report details the received inputs from stakeholders as well as a statement by ENTSOG on how this input was considered.

This is the second consultation report prepared by ENTSOG for the TYNDP 2024. The first one was voluntarily prepared by ENTSOG on the public consultation of the draft TYNDP 2024 Guidelines for Project inclusion (GPI).<sup>3</sup>

Two more public consultations will be held for the TYNDP 2024: On the Hydrogen Infrastructure Gaps Identification (IGI) report and another one on the full set of documents of the draft TYNDP.

## 2. Legal background

Article 29(1) of Regulation nr. 2024/1789, on the internal markets for renewable gas, natural gas and hydrogen (GHR) states: *"While preparing [...] the draft [TYNDP] for natural gas [...], [ENTSOG] shall conduct an extensive public consultation process, at an early stage and in an open and transparent manner, involving all relevant market participants, and, in particular, the organisations representing all stakeholders, in accordance with the rules of procedure referred to in Article 25(1). That consultation shall also involve regulatory authorities and other*

---

<sup>1</sup> Link to the draft documents: <https://www.entsog.eu/tyndp#entsog-ten-year-network-development-plan-2024>

<sup>2</sup> Link to stakeholder webinar website: <https://www.entsog.eu/webinar-tyndp-2024-guidance-documents-system-and-project-level-assessment#welcome>

<sup>3</sup> Link to the consultation report on the GPI: <https://www.entsog.eu/sites/default/files/2023-10/TYNDP%202024%20Guidelines%20for%20Project%20Inclusion%20Consultation%20Report.pdf>

*national authorities, supply and production undertakings, network users including customers, distribution system operators, including relevant industry associations, technical bodies and stakeholder platforms. [ENTSOG] shall publish drafts of [...] the [TYNDP] for natural gas [...] for comments by the stakeholders and provide sufficient time for them to participate in the consultation process effectively. The aim of that consultation is to identify the views and proposals of the relevant stakeholders during the decision-making process.”*

From Article 29(3) of the GHR it follows that in general a consultation report is not mandatory for the TYNDP-related consultations detailed in Article 29(1) of the GHR. However, Regulation nr. 2022/869 on Guidelines for trans-European energy infrastructure (TEN-E Regulation) stipulates mandatory consultation reports for the preparation of the Cost-Benefit Analysis (CBA) methodology (see Article 11)<sup>4</sup>, for the preparation of the TYNDP scenarios (see Article 12)<sup>5</sup>, and for the preparation of the infrastructure gaps identification report (see Article 13).

More specifically, Article 13 of the TEN-E Regulation states:

*“1. [...] Prior to publishing their respective reports, [ENTSO-E] and [ENTSOG] shall conduct an extensive consultation process involving all relevant stakeholders, including the EU DSO entity, associations involved in electricity, gas and hydrogen markets, heating and cooling, carbon capture and storage and carbon capture and utilisation stakeholders, independent aggregators, demand-response operators, organisations involved in energy efficiency solutions and, energy consumer associations, civil society representatives, [ACER] and all the Member States’ representatives that are part of the relevant energy infrastructure priority corridors that are set out in Annex I [...].*

*[...]*

*3. Within three months of receipt of the infrastructure gaps report together with the input received in the consultation process and **a report on how it was taken into account**, [ACER] shall submit its opinion to [...] [ENTSOG], the Commission and Member States and make it publicly available.”*

---

<sup>4</sup> Link to the consultation report on ENTSOG's preliminary draft hydrogen CBA methodology: [https://www.entsog.eu/sites/default/files/2023-06/Consultation%20report%20accompanying%20ENTSOG%27s%20draft%20CBA%20methodology\\_Final.pdf](https://www.entsog.eu/sites/default/files/2023-06/Consultation%20report%20accompanying%20ENTSOG%27s%20draft%20CBA%20methodology_Final.pdf)

<sup>5</sup> Link to the consultation report on ENTSOG's and ENTSO-E's joint TYNDP 2024 scenarios: [https://2024.entsos-tyndp-scenarios.eu/wp-content/uploads/2024/01/TYNDP\\_2024\\_Scenarios\\_Input\\_Data-Public\\_Consultation\\_Summary\\_Report.pdf](https://2024.entsos-tyndp-scenarios.eu/wp-content/uploads/2024/01/TYNDP_2024_Scenarios_Input_Data-Public_Consultation_Summary_Report.pdf)

The public consultation of the draft TYNDP 2024 Annex D contained assumptions of relevance for the Hydrogen Infrastructure Gaps Identification report. It covers, as mandatory part, the inputs of relevance to the IGI report, i.e., parts of Annex D1 and the full Annex D2.

ENTSOG's hydrogen CBA methodology has yet to receive the EC's formal approval. It should be noted that part of the requirements for the consultation of the Implementation Guidelines are expected to be established by the hydrogen CBA methodology: *"The Implementation Guidelines are extensively consulted with relevant stakeholders before their application in the TYNDP. When planning the stakeholder consultation on the Implementation Guidelines, ENTSOG provides sufficient time to ensure that the feedback received can be adequately considered. On some occasions, the Implementation Guidelines can also be prepared in several steps with individual consultations. **Where required, ENTSOG provides reasons where it has not, or has only partially, integrated the feedback received during the public consultation.**"*<sup>6</sup>

On this basis, this report covers the inputs of relevance for the PS-CBA process, i.e., the full Annex D1 – Implementation Guidelines.

Furthermore, on voluntary basis, this report covers the methodology of sole relevance for the remaining sections of the TYNDP, i.e., the full Annex D3 – System Assessment methodology.

---

<sup>6</sup> Section on Implementation Guidelines from ENTSOG's Hydrogen CBA methodology, submitted for EC approval

### 3. Inputs to the consultation

Informal feedback received from the EC and ACER was considered and is mentioned in this section. Most of the recommendations have been implemented. ENTSOG only decided to not implement the feedback if the non-inclusion was considered justified.

#### 3.1. Inputs from the public consultation survey: Annex D1 - Implementation Guidelines (IG) for project-specific cost-benefit analyses of hydrogen infrastructure projects

**Q9.** Is there certain additional information that you would like to see reflected in the TYNDP 2024 Implementation Guidelines?

- a. No
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	-
SecuoS (survey)	<i>A note identifying the limitations of the methodology how it should be used with a warning on areas which it does not include, e.g. shorter term effects arising from simultaneous events, or an assessment of likelihood and risk.</i>	ENTSOG's draft hydrogen CBA methodology contained a wider set of disruption events. During exchanges with the EC on their consideration, ENTSOG was asked to limit the SoS assessment to a stressful weather year. ENTSOG followed this request. The estimated likelihood (here: 7%) of this event and its risk (i.e., the amount of associated hydrogen demand curtailment) are now defined in the document.
Edison (survey)	No	-
Hydrogen Europe (survey)	-	-
ACER	<p><i>[...] the following information were not published neither in the TYNDP 2024 Guidelines for Project Inclusion nor in the currently consulted Implementation Guidelines:</i></p> <ul style="list-style-type: none"> <li>- definitions and criteria used to define cross-border and internal infrastructures;</li> <li>- definitions for the different types of TYNDP project capacities considered (e.g. yearly firm capacity, peak capacities, etc.).</li> </ul> <p><i>ACER calls on ENTSOG to explain how the above-mentioned elements are defined in the TYNDP 2024 and how ENTSOG plans to use those in the different TYNDP simulations "cases" for gaps identification and PS-CBA.</i></p>	<p>Additional information about the mentioned points was added, e.g., the types of capacities considered.</p> <p>Concerning the consultation of a draft list of proposed CBA project groups: The grouping process is supported by ENTSOG but under the guidance of the EC. If seen as a useful exercise by the EC, ENTSOG would consider such public consultation for the next TYNDP edition if instructed to do so.</p>

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
	<i>Furthermore, to ensure a high level of transparency and stakeholder engagement, ACER recommends that ENTSOG also publishes and consults in the future on the draft list of proposed CBA project groups based on the consulted grouping principles. ACER believes such approach would add an extra value to the TYNDP and the subsequent work of PCI Regional Groups.</i>	
EC	-	-

**Q10.** Which natural gas infrastructure level do you support to be used in the Dual Hydrogen/Natural Gas Model (DGM) for the TYNDP 2024 PS-CBA and for the TYNDP 2024 Infrastructure Gaps Identification and why?

- a. "Low" natural gas infrastructure level
- b. "Advanced" natural gas infrastructure level
- c. No preference

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	<i>No preference</i>	The EC's request was followed and specified in the document.
SecuoS (survey)	<i>"Low" natural gas infrastructure level</i>	
Edison (survey)	<i>"Low" natural gas infrastructure level</i>	
Hydrogen Europe (survey)	<i>"Low" natural gas infrastructure level</i>	
ACER	<i>[...] all the projects identified by RePower EU plus the ones which got the FID by the time of their submission to the TYNDP 2024.</i>  <i>Alternatively [...] all projects having at least successfully completed the environmental impact assessments. This second option would also ensure further consistency with ENTSO-E TYNDP approach.</i>	
EC	<i>"Low" natural gas infrastructure level with the addition of a selection of projects that was funded by the Recovery and Resilience Facility.</i>	

**Q11.** Please add any comments here regarding your answer to the previous question (infrastructure levels in the DGM).

[Free text]

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	As stated above, the EC's request was followed. Reductions in natural gas capacities stemming from repurposing of natural gas pipelines are stated in the TYNDP 2024 Annex A1 (see negative values in column L of tab "Capacity Increments").
SecuoS (survey)	<i>Including advanced projects will introduce significant uncertainty due to the dynamic nature. Preferable to have a firm if 'low-case' base.</i>	
Edison (survey)	<i>Given the focus of the CBA on H2 development and the very advanced status of the existing EU gas infrastructure and market, we believe that the low level is sufficient for the needs of the proposed DGM model. The inclusions of advanced gas projects, as per the "advanced", does not seem necessary given the already comprehensive list of projects considered for the "low" level.</i>	
Hydrogen Europe (survey)	<i>As gas and hydrogen infrastructures are, at least to some extent, complementary, from a security of supply point of view it would be prudent to perform the gap analysis based on the minimum scenario.</i>	
ACER	<i>[...] the natural gas infrastructure level (as well as the hydrogen one) used for the gaps identification and for the project-specific CBAs of hydrogen projects should [...] [include] only projects addressing well-identified remaining needs and which have highly probability to be commissioned. Similarly to ENTSOG proposal to use a hydrogen infrastructure level based on the European Commission PCI/PMI list, for natural gas it could be used an infrastructure level composed by all the projects identified by RePower EU plus the ones which got the FID by the time of their submission to the TYNDP 2024. Alternatively, the natural gas infrastructure level could be composed by all projects having at least successfully completed the environmental impact assessments. This second option would also ensure further consistency with ENTSO-E TYNDP approach.</i>  <i>[...]</i>  <i>Any reduction in natural gas capacities stemming from the repurposing/retrofitting of existing infrastructures to hydrogen (or to CO2) should be properly displayed and clearly associated with the projects triggering such capacity reduction.</i>	
EC	-	

**Q12.** Which hydrogen infrastructure level do you support to be used in the Dual Hydrogen/Electricity Model (DHEM) for the TYNDP 2024 PS-CBA and why?

- a. "PCI/PMI" hydrogen infrastructure level
- b. "Advanced" hydrogen infrastructure level
- c. No preference

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No preference	The two hydrogen infrastructure levels were established in line with the hydrogen CBA methodology that was submitted to the EC for approval. The two hydrogen infrastructure levels were previously aligned with the EC. Therefore, either the PCI/PMI or the Advanced hydrogen infrastructure level is to be considered. ENTSOG is currently awaiting the EC's and/or Regional Group's decision, regarding which of the two to use for the project-specific CBAs.
SecuoS (survey)	"PCI/PMI" hydrogen infrastructure level	
Edison (survey)	"Advanced" hydrogen infrastructure level	
Hydrogen Europe (survey)	"PCI/PMI" hydrogen infrastructure level	
ACER	[...] the most recent European Commission PCI/PMI list should be the one preferred.  [...] a more conservative infrastructure approach than the ones currently proposed by ENTSOG should be preferred: i.e. comprising only FID projects and those included in the most recent European Commission PCI/PMI list but excluding all the less-advanced projects.	
EC	-	

**Q13.** Please add any comments here regarding your answer to the previous question (infrastructure levels in the DHEM).

[Free text]

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	The feedback reflects the different views. As stated above, the EC's and/or Regional Group's decision is awaited.
SecuoS (survey)	Including advanced projects will introduce significant uncertainty due to the dynamic nature. Preferable to have a firm if 'low-case' base.	
Edison (survey)	Unlike the more mature gas market, in order to assess properly potential H2 flows across the EU grid and market, the most extensive level of infrastructure should be used. Using an approach based only the PCI/PMI level might miss out on projects that might be essential, or at least very meaningful, to assess the impact of incremental projects on the H2 market and infrastructure development, such as new import terminals or H2 interconnectors.	



<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
Hydrogen Europe (survey)	<i>As gas and hydrogen infrastructures are, at least to some extent, complementary, from a security of supply point of view it would be prudent to perform the gap analysis based on the minimum scenario.</i>	
ACER	<i>Considering the two infrastructure levels proposed by ENTSOG for the TYNDP 2024, the most conservative one based on FID projects and projects included in the most recent European Commission PCI/PMI list should be the one preferred. However, from ACER's perspective, a more conservative infrastructure approach than the ones currently proposed by ENTSOG should be preferred: i.e. comprising only FID projects and those included in the most recent European Commission PCI/PMI list but excluding all the less-advanced projects. Given the lack of maturity of less-advanced projects, this option would in fact enable a fairer assessment of the less-advanced projects (which according to TYNDP Annex A represent ca. 54% of all collected projects for the TYNDP 2024) contribution, regardless of their PCI/PMI status.</i>	
EC	-	

**Q14.** Do you support the application of a seasonality of natural gas prices in the TYNDP 2024 PS-CBA that influences the production cost of hydrogen from natural gas as described in the TYNDP 2024 Implementation Guidelines?

- a. Yes
- b. Yes, but with different parameters (please specify in next question)
- c. No (please specify in next question)
- d. No preference

**Q15.** Please add any comments here regarding your answer to the previous question (seasonality of natural gas prices).

<b>Organisation</b>	<b>Answer – combined Q14 and Q15</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	<i>No preference</i>	Seasonality will not be implemented since hydrogen storages already show good usage in the simulations for the IGI report and this reduces complexity.
SecuoS (survey)	<i>No preference</i>	
Edison (survey)	<i>No preference</i>	
Hydrogen Europe (survey)	<i>Yes</i>	
ACER	<i>While we acknowledge the potential merits of incorporating a seasonality approach to estimate the cost of hydrogen production based on natural gas prices, ACER maintains a cautious stance regarding its long-term applicability. In the mid-term and long-term, the cost of hydrogen production is</i>	

<b>Organisation</b>	<b>Answer – combined Q14 and Q15</b>	<b>ENTSOG's reply</b>
	<i>expected to be less influenced by natural gas prices due to the anticipated increase in hydrogen production via Power-to-Gas (P2G) technologies. As a result, hydrogen production costs will likely become more dependent on electricity prices rather than natural gas prices.</i>	
EC	-	

**Q16.** Do you support the application of the alternative fuel approach in the TYNDP 2024 PS-CBA as described in the draft TYNDP 2024 Implementation Guidelines?

- Yes
- Yes, but with different parameters (please specify in next question)
- No (please specify in next question)
- No preference

**Q17.** Please add any comments here regarding your answer to the previous question (alternative fuel approach).

<b>Organisation</b>	<b>Answer - combined Q16 and Q17</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	<i>No preference</i>	The alternative fuel approach was removed for the TYNDP 2024 cycle; a disclaimer was inserted into the documentation, specifying that such an approach should be developed for upcoming cycles with targeted stakeholder involvement. Furthermore, to mitigate the negative effects of the removal of this approach (see justification in the consulted document), sensitivities have been added to the document.
SecuoS (survey)	<i>No preference</i>	
Edison (survey)	<i>No preference</i>	
Hydrogen Europe (survey)	-	
ACER	<i>ACER understands that the “alternative fuel approach” is proposed by ENTSOG to capture those situations where certain hydrogen end users (e.g. some industry sectors) might rely on alternative fuels other than hydrogen if facing hydrogen curtailment, thus also reducing the overall hydrogen curtailment measured by the TYNDP simulations. ACER believes that such approach can be meaningful if the underlying methodology and assumptions are sufficiently robust.</i>  <i>Given the different sectors and characteristics, ENTSOG should have defined a (default) methodology and value in targeted consultation with main industry stakeholders to discuss the common approach (e.g. whether the disruption is foreseeable or unexpected one; etc.) as well as to get specific sectorial parameters (e.g. type of alternative fuel used, quantity available, duration; whether they can rely on alternative fuels only as an emergency measure vs all season/year; etc.). If the responses to the recent public consultation are insufficient to determine any robust</i>	

<b>Organisation</b>	<b>Answer - combined Q16 and Q17</b>	<b>ENTSOG's reply</b>
	<p><i>assumption, ENTSOG should reach out as soon as possible the main industry stakeholders to initiate the discussion with them.</i></p> <p><i>However, without a robust, widely consulted, and accepted method to evaluate the extent and the scope of such fuel switching, implementing the "alternative fuel approach" could undermine the credibility of the assessment (being an underlying assumption which affects other aspects of the TYNDP simulations). Without a robust, widely consulted, and accepted method it may be advisable to exclude this approach from the TYNDP 2024 and aim for its inclusion in the TYNDP 2026.</i></p>	
EC	<p><i>Following ENTSOG's explanations on the rationale of the alternative fuel approach, we understand that i) the assumptions behind create a contradiction with SoS benefits (given that the supply of alternative fuels implies that demand is satisfied) ; and ii) there is a substantive assumption on consumers' behaviour without a robust underpinning.</i></p> <p><i>Given the gravity of this shortcomings, we consider that this approach should be subject to improvement for the next CBA and be left outside of the current methodology.</i></p>	

**Q18.** Which frequency of hydrogen supply disruption do you propose to be used in the TYNDP 2024 PS-CBA to qualify for the shift of hydrogen demand to alternative fuel demand and why?  
[free text]

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	See Q16-17.
SecuoS (survey)	No comments.	
Edison (survey)	We suggest to foresee a frequency of hydrogen supply disruption around 5%	
Hydrogen Europe (survey)	-	
ACER	<i>The explanation of principle "frequency of hydrogen supply disruption" should be further elaborated, in our understanding it refers to the fixed amount of hydrogen demand that would definitely switch to alternative fuels. If so, we predict is likely that in the first years of H2 market development, some consumers which have a chance, will try to rely also on alternative fuels.</i>	

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
	<i>However, in our understanding the percentage described as an example in the IG document (i.e. 33%) applies to H2 demand and its reduction rather than a frequency and its values should be a part of a broader discussion with relevant industry and consumers representatives.</i>	
EC	-	

**Q19.** Which willingness to pay (WTP) values do you propose to be assumed for the alternative fuels, i.e., natural gas and light oil? Please provide a source of information or another form of justification for the proposed values.

Note: the WTP values should be lower than for hydrogen.

[free text]

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	ENTSOG had an additional targeted exchange with the industry association Hydrogen Europe. It was stated that considering the currently available information, the proposed values are acceptable.
SecuoS (survey)	No comments.	
Edison (survey)	-	
Hydrogen Europe (survey)	-	
ACER	<i>In case there have not been enough inputs received in the recent public consultation, or the inputs are very contradictory, ACER calls on ENTSOG to further explore the "willingness to pay values" in a wider consultation with the industry, which would be most suitable to provide feedback on this topic and be based on more realistic values from an industry perspective.</i>	
EC	-	

**Q20.** Do you consider the European Investment Bank values for the societal cost of carbon appropriate for the calculation of the GHG emissions variations indicator (B1) in the TYNDP 2024 PS-CBA as proposed in the draft TYNDP 2024 Implementation Guidelines?

- Yes
- No (please specify in next question)
- No preference

**Q21.** Please add any comments here regarding your answer to the previous question (societal cost of carbon).

[free text]

<b>Organisation</b>	<b>Answer - combined Q20 and Q21</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No preference	<p>EIB values are kept, in line with the submitted hydrogen CBA methodology and the ESABCC opinion. ETS prices are already considered in the B4 indicator. Therefore, without SCC, B1 would not be calculable. Additional sensitivities of the SCC were added to align with ENTSO-E's values. Also, under certain conditions, B1 and B2 will not be considered in the Economic Performance Indicators (EPI) as a sensitivity.</p>
SecuoS (survey)	No preference	
Edison (survey)	<i>To properly monetize the benefit, using the EIB shadow cost poses a relevant risk, as the cost does not seem to reflect the true characteristics of the CO2 market and its future developments, thus making the monetized value of the benefit calculated as such unrealistic. A more appropriate value is the future CO2 price for the EU Emission Trading Scheme (ETS), as it is formed on the actual market value of CO2 and forecast technology developments. Using this value should entail more realistic results for the analysis, thus making this indicator more adequate to evaluate the real benefits of a project.</i>	
Hydrogen Europe (survey)	Yes	
ACER	<p><i>ACER welcomes the inclusion of the societal cost of carbon (SCC) in the Implementation Guidelines document. We acknowledge the importance of incorporating a recognized and credible SCC value to accurately reflect the economic impact of greenhouse gas emissions. While we do not have a specific preference regarding the exact value to be used for the SCC, we consider the approach of adopting values from the European Investment Bank (EIB) to be reasonable and appropriate. The EIB values are well-founded and reflect a comprehensive understanding of the economic damages associated with carbon emissions, aligning with broader EU climate policies and objectives.</i></p> <p><i>Furthermore, ACER believes the final results of the B1 indicator and their inclusion in the EPIs should be carried with and without SCC. Such approach would show what exactly is the incremental effect of the assumed SCC on the benefits associated with GHG emissions variations.</i></p>	
EC	-	

**Q22.** Do you propose another approach for the non-GHG emissions variations indicator (B2) than the one proposed in the draft TYNDP 2024 Implementation Guidelines?

- a. No
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	To align with ACER's feedback, the B2 indicator will be monetised in principle but the economic performance indicators will be prepared with and without it.
SecuoS (survey)	No	
Edison (survey)	No preference	
Hydrogen Europe (survey)	<i>The values should be expressed in monetary terms, not just as "can be".</i>	
ACER	<i>ACER reiterates its view that the non-GHG emission variation benefits alone should not justify the societal viability (ENPV&gt;0) or non-viability (ENPV&lt;0) of a project. As this indicator measures the reduction in non-GHG emissions, while it is true that non-GHG savings would be a benefit if the project is built, they should be marked as "additional benefits" or "additional externalities" since the benefits associated with a reduction in non-GHG emissions (especially if monetised) should not alone justify the construction (or non-construction) of a hydrogen infrastructure project. In fact, these non-GHG emissions can be in some cases reduced by other means and directly at the consumption-site-level, such as through the installation of filters or through future technology developments. Hence, ENTSOG should keep this indicator, but it should correct its scope and its description.</i>	
EC	-	

**Q23.** Do you support the usage of the European Environment Agency values for the VOLY cost or the VSL cost to be used in the TYNDP 2024 PS-CBA for the non-GHG emissions variations indicator (B2)?

- a. VOLY
- b. VSL
- c. No preference
- d. Other [free text]

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No preference	ENTSOG reached out to the EEA, but no guidance was received concerning the most suitable application. Therefore, both approaches will be used: VSL as default and VOLY as sensitivity.
SecuoS (survey)	No preference	
Edison (survey)	No preference	
Hydrogen Europe (survey)	Yes	
ACER	When considering the use of VOLY or VSL cost values for the non-GHG emissions variations indicator (B2), ACER recommends that ENTSOG consult with the EEA or a similar entity with extensive experience in this area to determine the most suitable application. Additionally, a justification for the final choice should be provided in the final IG document.	
EC	-	

**Q24.** Do you support that the increase of market rents indicator (B4) covers both the electricity sector and the hydrogen sector in the TYNDP 2024 PS-CBA and is thereby aligned with the approach taken by ENTSO-E for the PS-CBA of electricity projects?

- a. Yes
- b. No, specify (please specify in next question)
- c. No preference

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No preference	Electricity market rents will be removed from B4 to follow the EC request. The value will however be provided, for information purposes, and a sensitivity will be produced in which B4 includes the electricity market rents.
SecuoS (survey)	No preference	
Edison (survey)	No preference	
Hydrogen Europe (survey)	-	
ACER	-	
EC	To only consider hydrogen market rents including full cross-sectoral rents.	



**Q25.** Please add any comments here regarding your answer to the previous question (market rents indicator coverage).

[free text]

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	-	The B4 indicator including all sectors' (i.e., electricity and hydrogen) benefits would be fully aligned with ENTSO-E's approach to the calculation of socioeconomic welfare (see ENTSO-E's EC-approved CBA methodology). This was also supported by section 8.1 of ENTSO-E's and ENTSOG's joint Interlinked Model (ILM) Progress Report <sup>7</sup> , published in 2024. ENTSOG expects many hydrogen projects' benefits to be higher when disregarding the effects on the electricity side. To follow the EC request, the electricity market rents were removed from the B4 calculation. However, in line with ACER's feedback, a sensitivity will consider the electricity market rents.
SecuoS (survey)	-	
Edison (survey)	-	
Hydrogen Europe (survey)	<i>In principle we support it. However, with one node per country, the grid topology of the grid congestion rents will be underestimated, thus leading to underestimation of the benefits of hydrogen projects.</i>	
ACER	<p><i>The market rents indicator (B4) proposed by ENTSOG appears to encompass both the hydrogen and electricity sectors, as well as the cross-sectorial rents arising from their interlinkage. ACER welcomes any additional consideration in the ENTSOG TYNDP 2024 of interlinkages among sectors. At the same time, and in the absence of a full interlinked CBA approach jointly performed by the ENTSOs, these benefits should be treated carefully to avoid any inconsistency with the benefits assessed by ENTSO-E CBA indicator B1 (i.e. Socioeconomic welfare).</i></p> <p><i>ACER recommends that ENTSOG further explains in the IG documentation why indicator B4 would also measure electricity consumer and producer surpluses when assessing hydrogen projects and it provides examples on how this would be calculated for a specific project. Additionally, in the final CBA results, the components of the B4 indicator should be presented per sector and in an aggregated form.</i></p> <p><i>In any case, for any of the indicators included in the IG, ENTSOG should publish an illustrative example of CBA performed on dummy projects.</i></p>	Examples were added for each benefit indicator.
EC	<p><i>[...] we remain concerned about the risk of double-counting or overlaps between the electricity and hydrogen benefits calculations. In the absence of a clear delineation we ask to remove from B4 indicator the benefits pertaining to the electricity sector (while maintaining the cross-sectoral benefit, in line with the electricity CBA).</i></p> <p><i>The evolution of the ILM should be a process and ultimate tool to capture such benefits in a clear and transparent manner.</i></p>	

<sup>7</sup> [https://www.entsog.eu/sites/default/files/2024-05/entsos\\_ILM\\_progress\\_report\\_240430.pdf](https://www.entsog.eu/sites/default/files/2024-05/entsos_ILM_progress_report_240430.pdf)



**Q26.** Do you support to use the market assumptions listed in the draft TYNDP 2024 Implementation Guidelines for the DHEM in the TYNDP 2024 PS-CBA?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	<p>The gas prices and CCS prices were established in the TYNDP 2024 scenario process. The quoted nuclear and renewable hydrogen costs are only the short run costs based on the minimum cost of the relevant electricity generation type (and water prices). The electricity generation costs are based on the TYNDP 2024 scenarios. The hydrogen production prices will often be higher as the electricity market clearing price is set by the most expensive electricity supply sourced that must be dispatched.</p> <p>Assumptions on hydrogen storage costs were added to the table.</p>
SecuoS (survey)	No comments.	
Edison (survey)	No preference	
Hydrogen Europe (survey)	<p>Gas prices at 6.8 EUR/GJ in 2030 are very optimistic and these values are not supported by current gas futures.</p> <p>It is hard to see how hydrogen produced from natural gas with CCS, with gas at those prices, could be produced for a cost of only 56.6 EUR/MWh – unless the costs of CO2 transport and storage are excluded. If so, we do not see the reason for excluding those costs? It is not obvious what costs for nuclear and renewable hydrogen at 28 and 0.82 EUR/MWh are supposed to represent. The costs are significantly higher.</p> <p>The assumptions on hydrogen storage costs are missing from the table.</p>	
ACER	ACER commends inclusion of the chapter 3.2.4 with Market assumptions table, specified values, description of each assumption and the source of information.	
EC	-	

**Q27.** Do you support that the reduction in exposure to curtailed hydrogen demand indicator (B5) considers 2012 as the stressful weather year, as well as the probability of occurrence and CODH value proposed in the draft TYNDP 2024 Implementation Guidelines?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	<p>The default CODH value was amended based on Edison's remark. At the same time, two sensitivities were introduced: one with the original CODH value and another value to be defined by the EC and/or Regional Group.</p> <p>An explanation of the probability of occurrence was added based</p>
SecuoS (survey)	No objection against 2012, but the possible impact of simultaneous downtime can be taken into account..	
Edison (survey)	Whereas the idea to use for CODH a price tied to a stressful moment for European markets might have some merit, it seems excessive to pick the maximum daily average price of 2022, which is the highest peak for wholesale electricity prices in recent history. A more balanced approach, while still retaining the idea of picking a stressful situation for markets, could be the average of the daily maximum prices of 2022	

Organisation	Answer	ENTSOG's reply
	<p><i>and 2023, which were as a whole a critical moment for the energy market. Choosing the highest peak ever reached by electricity prices instead might lead to a misleadingly high value for COHD.</i></p>	<p>on the analysis of 30 weather years and the value was modified accordingly.</p>
<p>Hydrogen Europe (survey)</p>	<p>-</p>	
<p>ACER</p>	<p><i>Given that the hydrogen sector and its infrastructure are still in the early stages of development, ACER reiterates its position that Security of Supply (SoS) under stressful conditions is currently not the main driver for hydrogen projects development. In any case, we recommend that the Implementation Guidelines (IG) document provides a clearer presentation of the specific differences in the parameters used for the analysis within the scope of the B5 indicator. A more detailed statistical presentation would offer greater insights into what the 2012 stressful weather year represents compared to a reference year. This should include information on which months experience significant reductions in electricity production (expressed in percentage terms), the variability of solar and wind resources, and explaining specific weather scenarios duration.</i></p> <p><i>In line with its Opinion No 08/2023 – ACER Opinion on the draft CBA methodology, ACER reiterates the importance to use a dedicated cost of disruption for hydrogen value, which should differ from the one used for the natural gas. Therefore, ACER recommends ENTSOG to conduct a study on the methodology that could be used to quantify the cost of disruption of hydrogen.</i></p> <p><i>In general, for any of the indicators included in the IG document, ACER calls on ENTSOG to publish an illustrative example of CBA performed on dummy projects.</i></p> <p><i>ENTSOG should have published and consulted in the Implementation Guidelines (IG) document the methodology that led to identify 2012 as the most stressful year and to estimate the related probability of occurrence. This methodology should be grounded in research and statistics from various reputable sources and entities specializing in weather conditions, analysis, and historical data. ACER believes that when computing the final probability value for the chosen year used for the TYNDP assessment, it would be prudent to consider that wind and solar exhibit different patterns of variability on a year-by-year basis</i></p>	
<p>EC</p>	<p>-</p>	

**Q28.** Should the benefit of avoidance of demand curtailment be calculated, monetized at CODH and added to the reduction in exposure to curtailed hydrogen demand indicator (B5) also when applicable to the reference weather years?

- a. Yes
- b. No
- c. No preference

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No preference	As additional information, the B4 indicator will include the information how much hydrogen demand curtailment was mitigated by the assessed (group of) project(s). B5 remains unchanged in accordance with ACER's feedback.
SecuoS (survey)	No preference	
Edison (survey)	No preference	
Hydrogen Europe (survey)	Yes	
ACER	<p>As explained by ENTSOG in chapter 3.2.11 of the IG document, the B5 indicator does not currently show risk of interlinkages (i.e. overlapping with other indicators) since the other benefit indicators are calculated based on the reference weather year, while B5 indicator would be calculated based on a more stressful weather year.</p> <p>By adding the avoidance of demand curtailment under a reference weather year to the currently proposed B5 indicator it would likely cause double counting with other indicators, and this should always be avoided. ACER recommends not to include the benefit of avoidance of demand curtailment under reference weather year to the B5 indicator.</p>	
EC	-	

**Q29.** Do you consider the list of benefit indicators in the draft TYNDP 2024 Implementation Guidelines as complete and satisfactory?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	Indeed, without more granularity of electricity infrastructure, only congestion reduction across electricity bidding zones can be captured, while congestion reductions within bidding zones are not assessed.
SecuoS (survey)	No comments.	
Edison (survey)	No preference	
Hydrogen Europe (survey)	A big benefit of contributing to reduction of grid congestion is missing. But as long as the spatial granularity of grid topology	

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
	<i>remains to be one node per country/bidding zone, calculating such an indicator wouldn't be possible.</i>	
ACER	<i>ACER considers there is no need for any additional indicator for the purpose of the TYNDP 2024 process.</i>	
EC	-	

**Q30.** For hydrogen storages, the DHEM considers an energy efficiency of storage operations. This aims to reflect the energy consumption of the injection process and reduces the benefits of such projects (as the consumed energy is valued at the actual price used in the model). Do you support to therefore remove energy-related OPEX from the hydrogen storage projects' costs, to avoid double counting of these expenses in the economic performance indicators?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	<i>no</i>	The approach was adopted as supported by the stakeholders.
SecuoS (survey)	<i>No comments.</i>	
Edison (survey)	<i>No preference</i>	
Hydrogen Europe (survey)	<i>Yes. Double counting of costs should be avoided when possible.</i>	
ACER	<i>While ACER is not fully aware of all the details in the modelling approach, we can provisionally support ENTSOG's approach based on the provided description. For greater clarity, ACER recommends that ENTSOG further explains this approach in the Implementation Guidelines (IG) document.</i>	
EC	-	

**Q31.** Do you support the sensitivities proposed in the draft TYNDP 2024 Implementation Guidelines?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	ENTSOG included various sensitivities and clearly specified which ones will be performed. Sensitivities on the CODH were also added (see Q27).
SecuoS (survey)	No comments.	
Edison (survey)	No preference	
Hydrogen Europe (survey)	Yes	

ACER	<p>ACER has no objection to the proposed sensitivities outlined in the Implementation Guidelines (IG) document. However, it is not clear which sensitivities will actually be performed (as in the text it often says “[...] could be performed [...]” and how ENTSOG intends to perform some of the proposed sensitivities (e.g. which range of SCC will be considered; avoided natural gas decommissioning cost; etc.). ENTSOG should have clearly consulted on all these elements.</p> <p>In addition to those sensitivities specified in the document, ACER also recommends incorporating a sensitivity analysis on the cost of hydrogen disruption (CoDH), which we consider a primary driver of the resulting benefits.</p>
EC	-

**Q32.** Do you have any other remarks on any other part of the draft TYNDP 2024 Implementation Guidelines?

- a. No
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	Replacement costs were removed from project costs section.
SecuoS (survey)	No comments.	
Edison (survey)	Not currently	
Hydrogen Europe (survey)	-	
ACER	-	
EC	<p><i>The replacement cost is not mentioned the TEN-E frame as being part of the initial CAPEX. In addition, the 25 year timeframe of the assessment results in very limited ( inf any ) expenses with the replacement of infrastructure parts.</i></p> <p><i>Any replacement costs should be collected separately or included as part of OPEX, rather than being part of the initial CAPEX.</i></p>	

### 3.2. Inputs from the public consultation survey: Annex D2 – Hydrogen Infrastructure Gaps Identification (IGI) methodology

**Q33.** Do you support the definition of the hydrogen market clearing price spread indicator (IGI indicator 1) as well as the concept and values of its thresholds in the draft TYNDP 2024 IGI methodology?

- a. Yes
- b. No opinion
- c. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG’s reply</b>
ouest-france (survey)	No opinion	As ACER stated to be sceptical about this IGI indicator, the suggestion of Hydrogen Europe to reduce the threshold was not followed. This IGI indicator is still part of the study as competition is also deemed a relevant dimension of the future internal hydrogen market. By setting a certain threshold, not any bottleneck leads to the identification of an infrastructure gap, but only significant ones. ACER’s proposal to focus on pure hydrogen demand satisfaction is addressed by IGI indicator 2.1 (hydrogen demand curtailment for a reference weather year). Concerning the identification of potentially competing projects, ENTSOG stated its solutions in the Implementation Guidelines: Amongst other solutions, competing projects can be assessed through the targeted grouping of projects (see section 3.1 of the TYNDP 2024 Implementation Guidelines).  Approximations of required hydrogen storage capacities as well as the European hydrogen supply gap were added to the IGI methodology. Furthermore, maximum utilisation rates of transport infrastructure will be displayed to point at bottlenecks
SecuoS (survey)	No comments.	
Edison (survey)	No opinion	
Hydrogen Europe (survey)	We agree with the overall approach.  However, we suggest to reduce the daily clearing price difference signal from 20 to 15 EUR/MWh which would be closer to h2 transportation costs via high capacity pipelines.	
ACER	<p>ACER acknowledges that the market clearing price indicator could potentially serve as a metric to identify infrastructure gaps. However, it is important to note that this indicator would depend on certain critical assumptions - such as supply prices - that are currently uncertain in the early stages of hydrogen market development. As also explained by ENTSOG, the application of this indicator to assess infrastructure gaps would also require the use of a subjectively defined threshold which could further weaken the quality and the credibility of the analysis.</p> <p>As such, in ACER view a more simplified approach should be preferred for the TYNDP 2024, focusing only on one of the aspects mentioned by ENTSOG at e.g. page 7 of ENTSOG Annex D2. This approach could be based on measuring the capability of each country to cover their yearly hydrogen demand (implicitly as if the cost of hydrogen supply would be the same within Europe) and under normal supply and demand conditions (i.e. no stressful situations like infrastructure disruptions or peak demand). Based on this approach, a bottleneck would be identified when there is a physical congestion preventing one or more countries to satisfy its demand.</p> <p>By being centrally modelled at a pan-European level, this approach would consistently identify any infrastructure gaps that prevent a country from meeting its demand, whether directly affecting the</p>	

	<p><i>border of the country facing demand curtailment or indirectly affecting borders between other countries.</i></p> <p><i>While the approach by ACER would not capture situations where two countries, despite not experiencing demand curtailment, have different prices and could benefit from an interconnection to share the same marginal supply source, it could be argued that in the coming years, countries will gradually build infrastructure primarily focusing on meeting their expected hydrogen demands (and securing their supply), somewhat independently of price convergence among them.</i></p> <p><i>Quantification of capacity needs - As also stated in its Opinion No 06/2023, ACER believes that ENTSOG should revisit the proposed approach for the gaps identification as the outcome of this exercise should always be expressed in terms of quantified capacities (i.e. how much capacities should be built to lift the identified bottlenecks and where these capacities could be built). Not showing the results in terms of capacities would make the results of the infrastructure gaps assessment more ambiguous.</i></p> <p><i>By comparing the resulting capacities with the collected projects, it would allow to identify competing projects (in cases where two projects have submitted capacities higher than the target capacities, these projects would be identified as – at least partially – competing) as well as those situations where not enough capacity was submitted to TYNDP by project promoters.</i></p> <p><i>Without performing an expansion simulation based on cost optimisation, multiple solutions could be identified which would then be analysed and explained as part of the TYNDP 2024 infrastructure gap report. For the subsequent TYNDPs, however, the gaps assessment should aim at the identification of the optimal (cross-border) hydrogen capacities needed to meet demand and supply levels (i.e. “capacity targets”). This would also ensure further consistency with the well-established electricity TYNDP approach.</i></p>	<p>within certain hydrogen infrastructure levels. Additionally, advanced projects that helped to mitigate or solve hydrogen infrastructure gaps will be identified and stated.</p>
EC	-	



**Q34.** Do you support the definition of the curtailed hydrogen demand indicator (IGI indicator 2) as well as the concept and values of its thresholds and stress cases in the draft TYNDP 2024 IGI methodology?

- a. Yes
- b. No opinion
- c. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No opinion	<p>The stress cases to be assessed were requested as such by the EC.</p> <p>The IGI indicator 2 was split into 2.1 (for reference weather year) and 2.2 (for stressful weather year). IGI indicator 2.1 matches ACER's request while IGI indicator 2.2 provides additional information. Thresholds were defined for both. The level of SoS assessment is thereby not equivalent to the standards in the natural gas sector.</p>
SecuoS (survey)	<i>The proposed stress cases are OK for gap assessments over the proposed time periods of a month or a year as proposed. The actual threshold levels should be set such that they are significant in terms of the uncertainty in the input data. Additionally we suggest it would be useful to include an indication of the frequency of shortfalls of shorter duration of 1 day and 1 hour which can be disruptive to consumers and more readily addressed by increasing storage capacity.</i>	
Edison (survey)	No opinion	
Hydrogen Europe (survey)	<i>Yes, we agree with the approach, although it is not clear from the document what the curtailed hydrogen (%) thresholds are defined.</i>	
ACER	<p><i>ACER does not support the inclusion of IGI indicator 2 which aims at identifying infrastructure gaps by measuring the hydrogen demand curtailments under stress situations such as under a stressful year or under the unavailability of extra-European hydrogen import supply.</i></p> <p><i>ACER is of the view that for hydrogen, where there is no existing market yet, nor developed network and there are no existing or soon to be commissioned extra-European import routes, the main driver justifying the development of hydrogen infrastructure projects should not be linked to security of supply needs under stressful situations.</i></p> <p><i>Assessing infrastructure gaps against situations more linked to security of supply is premature and ENTSOG should not equate hydrogen to natural gas when performing the infrastructure gaps identification exercise. The impact of projects on specific and more stressful situations can still be assessed through project-specific cost-benefit analysis indicators. In this context, the contribution of a project to supply security could be considered an additional benefit, provided the (lower) likelihood of such stressful events has been duly considered.</i></p>	
EC	-	



**Q35.** Should a third hydrogen infrastructure level (that contains all hydrogen projects that were accepted to the TYNDP 2024) be introduced to further investigate how less-advanced hydrogen projects could address bottlenecks that cause infrastructure gaps?

- a. Yes
- b. No
- c. No preference

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No preference	To follow ACER's feedback, no third hydrogen infrastructure level was added.
SecuoS (survey)	Yes	
Edison (survey)	No preference	
Hydrogen Europe (survey)	Yes	
ACER	<p>ACER does not support the inclusion of a third hydrogen infrastructure level as described in the public consultation question (35). The grid (or infrastructure level) used for the gaps identification should reflect the status of the reasonably expected grid for the specific assessment year.</p> <p>According to the recently published TYNDP 2024, ca. 202 hydrogen-related projects were submitted, of which 110 with less-advanced maturity status). As such, a TYNDP hydrogen infrastructure level, consisting of the PCI/PMI hydrogen infrastructure level as well as all remaining projects submitted to the TYNDP is deemed overly optimistic and it would not bring any added value since relying on project with a higher degree of uncertainty vis-a-vis their actual implementation.</p> <p>In the consulted guidelines (p.11), ENTSOG explains that "by comparing the results of different hydrogen infrastructure levels for simulations that are identical concerning all other parameters, the effect of including additional infrastructure can be identified. [...]. If an infrastructure gap is indicated in the PCI/PMI hydrogen infrastructure level but is not observed in the Advanced hydrogen infrastructure level, the additional projects contained in latter infrastructure level removed it.". Therefore, according to ACER, by comparing more conservative infrastructure levels with an overly optimistic one could result in potential "free-rider situations." In these scenarios, it would appear that all the additional projects within this infrastructure level contribute to addressing the remaining gaps not already covered by the more conservative infrastructure levels, even though some projects might not.</p>	

	<i>Additionally, based on the rules applied by ENTSOG when performing the project-specific cost-benefit analysis, the exclusion of less-advanced projects from any infrastructure level used for the infrastructure gaps identification will not exclude the possibility of assessing their benefits through the project-specific CBA step.</i>
EC	-

**Q36.** Are the explanations in the draft TYNDP 2024 IGI methodology clear and exhaustive?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	<i>no</i>	
SecuoS (survey)	<i>No comments.</i>	
Edison (survey)	<i>No preference</i>	
Hydrogen Europe (survey)	<i>Yes</i>	
ACER	<i>Please see answer to question 37.</i>	
EC	-	

**Q37.** Is there certain additional information that you would like to see reflected in the TYNDP 2024 IGI methodology?

- a. No
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	<i>No</i>	<p>The stress cases to be assessed were requested as such by the EC.</p> <p>If the TYNDP scenarios would provide more granular electricity grid topology, the IGI could make use of it.</p> <p>Additions were made to the IGI methodology to incorporate ACER's feedback: examples for each indicator and how results will be displayed.</p>
SecuoS (survey)	<i>The methodology outlined does not include an assessment of the risk arising from the assumptions on which it is based e.g. due to the system breakdowns, weather and simultaneous events. It is important to have some understanding of what the risk exposure may be in terms of the consequence and frequency of supply interruptions. Such analysis is common for NG, LNG and other energy supply infrastructure to optimise network design, storage capacity and operating practice including stock levels and maintenance scheduling).</i>	
Edison (survey)	<i>No preference</i>	

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
Hydrogen Europe (survey)	<p><i>While aware that the IGI builds on the grid topology developed for the TYNDP scenarios, we remain convinced that the overall spatial granularity of the grids modelling, especially electricity, is insufficient. One node per bidding zone does not allow to properly capture the added value of electrolysers for grid congestion management, optimization of grid investments, or energy storage needs.</i></p>	
ACER	<p><i>The TYNDP IGI methodology should include dedicated examples for each indicator (while now it only includes examples on the threshold application and on the cooperation mode for indicator 2). For indicator 1, an example for each described aspects which would be captured through the indicator, should be presented.</i></p> <p><i>The guidelines should also be more transparent on how the final results of the assessment would be displayed in the Infrastructure Gaps Report.</i></p>	
EC	-	

### 3.3. Inputs from the public consultation survey: Annex D3 – System Assessment methodology

**Q38.** Are there any assumptions in the draft TYNDP 2024 System Assessment methodology that you would propose to change?

- a. No
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG’s reply</b>
ouest-france (survey)	No	The stress cases to be considered in the System Assessment were reduced to focus on natural gas-related stress cases. Furthermore, the System Assessment methodology was amended to only consider the NT+ scenario in order to prioritise the timely delivery of other parts of the TYNDP.
SecuoS (survey)	No comments.	
Edison (survey)	No preference	
Hydrogen Europe (survey)	-	
ACER	<i>In line with the feedback provided related to the cost-benefit methodology application about the limited value of assessing hydrogen infrastructure under stressful security of supply (SoS) situations for the TYNDP 2024, ACER has a general recommendation that the System Assessment proposed by ENTSOG focuses solely on natural gas aspects. This would allow ENTSOG to fulfil its task of delivering a non-binding Community-wide ten-year network development plan for natural gas, as outlined in Regulation (EC) 715/2009 (Article 8) and the forthcoming Gas and Hydrogen regulation. The time and resources saved by not performing hydrogen simulations for the “system assessment” could be re-allocated to extend the scope of the hydrogen infrastructure gaps to all three scenarios (instead of NT+ only) and to all time horizons.</i>	
EC	-	

**Q39.** Are the explanations in the draft TYNDP 2024 System Assessment methodology clear and exhaustive?

- a. Yes
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	no	
SecuoS (survey)	No comments.	
Edison (survey)	No preference	
Hydrogen Europe (survey)	Yes	
ACER	-	
EC	-	

**Q40.** Is there certain additional information that you would like to see reflected in the TYNDP 2024 System Assessment methodology?

- a. No
- b. Free text

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
ouest-france (survey)	No	<p>The interactions between the two networks are explained in the Implementation Guidelines. The System Assessment methodology refers to the relevant sections of the Implementation Guidelines.</p> <p>The Supply Adequacy Outlook chapter was amended.</p>
SecuoS (survey)	Same answer as to question 32.  (ENTSOG note – please refer to question 37, numbering difference being due to the number of branched questions answered.)	
Edison (survey)	No preference	
Hydrogen Europe (survey)	It is not clear how interactions between the two networks are handled and this should be reflected in more detail in the report - e.g. repurposing of existing gas infrastructure to hydrogen, blending etc.	
ACER	[...] ACER recommends that ENTSOG includes in the Supply Adequacy Outlook chapter of the final System Assessment document a more detailed methodology underlying the adequacy assessment that ENTSOG intends to use. It is essential that stakeholders are consulted on this methodology and given the opportunity to provide their comments before the final document is published. Key items to be included should encompass the main assumptions underlying the	

<b>Organisation</b>	<b>Answer</b>	<b>ENTSOG's reply</b>
	<i>central scenario, such as demand and supply estimates and hypotheses regarding storage.</i>	
EC	-	

#### 4. Next steps

ENTSOG shall publish the final versions of Annexes D1, D2 and D3 on its website, together with this consultation report. The methods and assumption outlined in this documentation are used to establish the Hydrogen Infrastructure Gaps Identification (H<sub>2</sub> IGI) report. The report is then subject to the opinions of ACER, Member States, and the EC, as outlined in article 13 of the TEN-E regulation.