



Climate Action Network (CAN) Europe is Europe's leading NGO coalition fighting dangerous climate change. With 200 member organisations active in 40 European countries, representing over 1,700 NGOs and more than 40 million citizens, CAN Europe promotes sustainable climate, energy and development policies throughout Europe.

September 2024

CAN EUROPE'S COMMENTS AND QUESTIONS TO THE EUROPEAN COMMISSION AND E3 MODELLING ON THE PROCESS OF CREATING THE EU 2025 REFERENCE SCENARIO

CAN Europe's Energy Team would like to thank for the opportunity to comment on the EU 2025 Reference Scenario, as part of the Stakeholder Consultation on Technology Assumptions. Next, we would like to raise some comments, observations and recommendations about the consultation, as well as aspects related to the energy data, as a submission from CAN Europe to the European Commission and E3 Modelling in September 2024.

On the consultation

1. CAN Europe would like to improve on the circulation of the consultation

From our enquiries, it appears that some stakeholders received information about the consultation rather late. As a case in point, CAN Europe was for some reason not contacted by the European Commission for this consultation.

CAN Europe's network consists of 200 organisations, with a range of experts at energy and climate networks, some of whom **could have provided their expertise to assess the data** (e.g. a breakdown on sub-regional cost assumptions), if directly contacted.

2. CAN Europe would like to improve on the transparency of the consultation

It would be useful to have full transparency, and to mention at the forthcoming October workshop, at the next steps of the process, as well as once the updated Reference Scenario 2025 is fully published, how the invitations to the Consultation have been circulated. As a recommendation, such information of stakeholder dynamics and feedback **should also be mentioned, as a part of the methodology section.**

3. CAN Europe would like the modellers and the EC to pay further attention to information design

We thank the actual Consultation Site for simplicity, as being to the point (<https://ec.europa.eu/eusurvey/runner/scenario2025>). However, overall, the documentation for the consultation is scarce.

We recommend the EC and the modellers to improve on the information design. As a benchmark, ENTSO-E's public consultations to stakeholders are more user-friendly: <https://consultations.entsoe.eu/>

On consultation objectives

4. CAN Europe would like more regular data updates

“Some assumptions presented in the current files differ from those presented in the accompanying documents of the 2040 Climate Target Plan and the EU Reference Scenario 2020, as they had been updated using the latest available information based on a literature review” (Document on PRIMES Techno-economic assumptions, p. 3)

As it reads, the statement above is rather vague. EC and E3 Modelling could **inform stakeholders of data updates and presented information regularly**. Wider communications would also be important for traceability and data transparency.

5. CAN Europe hopes for terminological consistency

The document on PRIMES assumptions refers to the “2040 Climate Target Plan”. As better known as the [assessment for a 2040 climate target \(February 2024\)](#), apart from individual documents, the term “Plan” has been less often used.

We recommend **clarity** in terminology. Although this may be understandable to related experts in the field, a lack of attention to detail can cause unnecessary confusion.

On methodology of the literature review

6. The consultation mentions an aim for “a broad and rigorous literature review”. For transparency, the updated EU 2025 Reference Scenario should describe in the documentation how the literature review was conducted, as part of the methodology. Without **transparency** of underlying data sources, or **how** they were selected, stakeholders will struggle to fully assess the reliability of the Reference Scenario 2025 update.
7. On key data sources, we would like to commend the modellers for the selection of relatively new data sources. However, we recommend also adding to the methodological documentation on the **criteria** and the **scope** of selection? Additionally, what are its **limitations**?

On document design

8. In the excels, such as “E3M_technoecon_Energy.xls”, it would be helpful if reference(s) per technology were **next to the data points**. A wealth of literature is mentioned in the accompanying PDF, but there is no immediate visibility, how the final figures were selected.

9. Despite the accompanying PDF, with short thematic descriptions as per sheet, **rather limited context or explanation** is provided to the assumptions provided in the excels, as justification for qualitative assessment. Although the associated judgment could be sound, a lack of documentation makes assessing this difficult.
10. We would also warmly recommend familiarising with **the FAIR Principles**, as guidelines to improve the Findability, Accessibility, Interoperability, and Reuse of digital assets: <https://www.go-fair.org/fair-principles/>
11. Overall, as part of the EU Reference Scenario process, we recommend further steps for greater access and transparency, by moving to a less manual mode, and advancing the adoption of **open data and open sourcing principles**.
12. In the PDF, the last data sheet is called “new fuels”. In Excel, it is called “clean_fuels”.
13. As far as we can see, there seems to be **no explicit justification** for the range of technologies included as a basis for the range of techno-economic assumptions. From an evaluation perspective, subjective criteria or ‘common reasoning’ are not easy to validate.

On the buildings data

14. Observations related to PRIMES BuiMO to keep into account to improve the methodology/data collection
 - **Residential sector:** The buildings database includes 54 building types for each Member State, which are split into single or multi-storey buildings; by age of construction (9 age bands covering the period 1920-2015); and by spatial allocation, i.e., urban, semi-urban and rural. It would be useful to enrich the classification by adding an additional category, which is related to the type of ownership concerning these buildings, namely publicly owned and privately owned. These two segments have different capacities, constraints and an overall different approach to energy renovations.
15. **Service sector:** as part of the sub-sectors, it will be of crucial importance to include as a category “data centres”. With data centres estimated to account for close to 3% of EU electricity demand ([as per the Commission](#)) and likely to increase in the coming years. Energy efficiency improvements applied to this sector can not only reduce energy and water consumption, but also promote the use of renewable energy, increased grid efficiency, or the reuse of waste heat in nearby facilities and heat networks.

On the battery cost assumptions

16. As a rapidly evolving field, we recommend the EC and E3 Modelling to keep an eye on regularly updating battery cost assumptions, and to **inform stakeholders of these data updates**, as potentially susceptible to outdated assumptions.
17. On the averages of battery costs, data gathered by Ember seems roughly in agreement with the PRIMES numbers

- Ember gathered costs from ~10 studies (prioritising recent ones, nothing before 2021) and aimed to standardise units to make them comparable.
- These included numbers from the latest IRENA study, NREL, Aurora, Danish Energy Agency, Belgian and Italian TSOs.
- The range was surprisingly wide, from 70 - 470 Euro/kWh across 2-8 durations in 2030 compared to PRIMES 250 (2h) and 180 (8h).

18. A further **breakdown of the components of the CAPEX** could allow a more robust comparison with external, reliable sources. In the case of battery storage, the investment cost assumptions include costs of installation, land cost and grid connection.

On the energy data

19. As a clarification, CAN Europe would like to ask about the justification of CAPEX and OPEX for 'coal' steam turbines across 2020, 2030, 2040, 2050, remaining at a constant. For instance, the UK closed its [last coal power station](#) on 30 September 2024, [as widely reported](#). In line with climate targets, with coal phase-outs, what are the modellers' reasoning on costs in 2050? Is there a possibility that the phase-out of the technology actually makes it more expensive?

20. CAN Europe expresses some reservations on the cost assumptions of small modular reactors (SMRs), and a proposed cost curve to be halved by 2050 (CAPEX 2020: 10,000 EUR/kW, CAPEX 2050: 5,000/kW). As not many use-cases are available yet, such assumptions should be treated with caution. Again, it would be more helpful to assess the basis for the cost curve, if the deployed reference was readily available next to the figure.

21. CAN Europe expresses some reservations on the assumptions on relying on carbon capture and storage (CCS) and its associated cost curve.

Further references

Alongside these comments, we recommend familiarising with two useful publications, which may inform the Commission and the modellers' work.

CAN Europe (2024) Paris Agreement Compatible scenario: Executive Summary. Climate Action Network (CAN) Europe, European Environmental Bureau, Renewables Grid Initiatives, REN21. <https://caneurope.org/content/uploads/2024/09/PARIS-AGREEMENT-COMPATIBLE-SCENARIO-2024.pdf>

E3G (2021). 1.5C Steel: decarbonising the steel sector in Paris-compatible pathways https://www.e3g.org/wp-content/uploads/1.5C-Steel-Report_E3G-PNNL-1.pdf

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