

| Participant                 | Question  | Answer  |
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| Ivan Komusanac (WindEurope) | Will you share the slides?  | You can find the slides on the 2022 scenarios webpage ( <a href="https://2022.entsos-tyndp-scenarios.eu/download/">https://2022.entsos-tyndp-scenarios.eu/download/</a> ). Please be aware that during Q1 of 2023, we will create 2024 website, and any information about 2024 scenarios will be available there.                                       |
| Juan Rojas                  | Will the outputs of the particular stakeholders' consultation be available for the public consultation?<br>Thanks                                     | The critical input parameters will be included within public consultation.  |
| Daniel del Barrio Alvarez   | How was the engagement from "particular stakeholders"? Is that list publicly available (even if the discussions are not)?                             | Bilateral stakeholder engagement list is available on the 2022 scenarios webpage ( <a href="https://2022.entsos-tyndp-scenarios.eu/download/">https://2022.entsos-tyndp-scenarios.eu/download/</a> ).   |
| Dr Bauhofer                 | Are the nt scenarios of neglected importance in future?   | The NT scenarios (for 2030 and 2040) are the aggregation of national approaches; with data coming through the TSOs via NECPs and/or national strategies.  |
| Manuel Alonso (Enel)        | are ACER guidelines going to look after consistency between TYNDP scenarios and Commission Primes scenarios?  | The ACER Framework Guideline is expected to be published by 24th of January 2023.   |
| Włodzimierz Lewandowski     | I think, particularly from TSO point of view, that security of supply should be on first place  | Thank you for your feedback.  |
| Ali Tash                    | How can we be informed of the process and at what step it is at any certain time?<br>Checking the website or also newsletters sent to emails?         | You could register to both ENTSO-E and ENTSG newsletter; which we use to distribute the invitations for the webinars. Within Q1 2023, 2024 scenarios website will be created, where you will be able to see the latest developments and the next steps. Additionally, all stakeholders are invited at all times to reach to the scenario building team. |
| Laurens Stoop               | At the end of the year the new PECD v4.0 will start to become available, will this dataset also be used in the new scenario development?              | We plan to use PECD 4.0.; if the dataset is available (and approved) in time.   |
| Laurens Stoop               | Previously only 3 years were used in the scenario development, likely underestimating climate variability. Will more weather years be used this time? | We are currently under development of the methodology, we will be able to provide more information on this on the upcoming workshops.   |

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| Włodzimierz Lewandowski             | We have rapid DER development (connected mainly to DSO grid), don't you think that share of DSO in elaboration of this scenarios should be really significant? | We agree and work for the cooperation with DSOs to get more information.   |
| Luis Kuehnen                        | How do you plan to take the uncertainties of e.g. the current situation into account in the scenario build-up in order to still obtain reliable data?          | By defining the most important drivers that effecting the energy system development (storylines) and differentiating the scenarios based on these storylines.                                      |
| Laurent Hamou                       | Given the huge 2030 ambition of the Commission, especially with re-power EU, risks that not all objectives are reached. Several 2030 scenarios needed.         | Thank you for your feedback.   |
| Lizzie Cremona (Ember)              | Which Commission scenarios will be used for benchmarking? Fit-for-55 or REPowerEU?   | NT+ 2030 scenario will be aligned with the latest EU targets and both commissions scenarios will be used for a reference (benchmarking will depend on the public availability of these scenarios). |
| Chris Rosslowe                      | What will you consider as 'EU targets' by 2030? E.g., renewable energy share of 40% (as in Fit for 55) or 45% (as in REPowerEU)?                               | NT+ 2030 scenario will be aligned with the latest EU targets.  |
| Laurent Hamou                       | Nacp were designed before the Russian crisis. Impossible to consider now pré Russian crisis scénarios.   | The TSOs will be asked to provide the datasets by anticipating the upcoming NECPs whose draft versions are expected to be published in summer 2023.  |
| Laurent Hamou                       | Not to mention lessons learned from current short term crisis that should question previous margins taken in the previous TYNDP                                | Thank you for your feedback.   |
| Grzegorz Pawelec   Hydrogen Europe  | Will the NT+ scenario for 2030 be aligned with RePowerEU?  | NT+ 2030 scenario will be aligned with the latest EU targets.  |
| Abi Afthab Olikathodi (Eurelectric) | 1) When we say NT+ reaches EU target of 2030, is this the Fitfor55 target or will RePowerEU target be considered?  | NT+ 2030 scenario will be aligned with the latest EU targets.  |
| Abi Afthab Olikathodi (Eurelectric) | How can we say there is no uncertainty for 2030? I agree we have clear targets. But what if we didn't achieve this target? Then the 2040 trajectory changes?   | The regulation asks for scenarios aligned with union's 2030 targets.   |

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| Emmanuel BUE                        | As the data collection is planned to end in October 2022, do you expect a further window for updating the data ?   | We don't foresee any update window for the data after 2023.   |
| Laurent Hamou                       | Energy efficiency first does not mean infrastructure should not be resilient to very possible situations where efficiency objectives are not met...            | Thank you for your feedback.  |
| Laurent Hamou                       | We should have alternative scenarios where efficiency targets are met with a delay   | Thank you for your feedback.  |
| Abi Afthab Olikathodi (Eurelectric) | Could you detail what you mean by strategic independence?  | Strategic independence is less dependency on the energy import and critical materials which are necessary for renewable energy development.   |
| Manuel Alonso (Enel)                | In the past the GA scenario relied on massive imports of decarb fuels /CCS, beyond any other scenario inc Primes sc. Are you going to review such assumptions? | All assumptions will be reviewed, but it is expected that GA will have more import and CCS according to its storyline.  |
| Laurent Hamou                       | Indeed we need a cold spell and a dunkelflaute...  | Thank you for your feedback.  |
| Grzegorz Pawelec   Hydrogen Europe  | Will you do a sensitivity analysis of the two scenarios showing the impact of individual elements e.g. distributed energy with Nuclear and CCS                 | We don't plan to have a sensitivity analysis on the scenarios.  |
| Maciej Grzeszczyk                   | Are you going to differentiate the role of demand-side flexibility in the scenarios?   | Demand side flexibility will be included in the both scenarios, but the magnitude of the flexibility will depend on their storylines. E.g. hybrid heatpumps is expected to provide more flexibility in GA than DE scenarios; whereas V2G is expected to provide more flexibility in DE than GA. |
| Laurent Hamou                       | If you can't deviate from the official ambitions, then add stress tests if not the exercise is only a political manifesto                                      | Thank you for your feedback.  |
| Kirill Glukhovskoy                  | Is it an intension to use a single scenario of fuel prices or it would vary depending on a scenario?   | We will use single fuel prices, as all scenarios aim for same targets.  |
| MODESTO GABRIELI FRANCESCATO        | Might be usefull to take a look to ancillary services required for each scenario   | Thank you for your feedback.  |

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| Laurent Hamou                       | Electrification : the electric system is already terribly stressed. Not because of gas, but because of purely power issues. Are we sure we can accelerate ? | The level of energy carriers will be benchmarked with latest EC scenarios.  |
| Laurens Stoop                       | Sorry, but the use of 3 weather years can be regarded as not an educated guess for the weather by medio 2050.   | Thank you for your feedback.  |
| Eva Hennig                          | Why are gas/ hydrogen heat pumps not taken into account or did I miss this?   | They are included.  |
| Laurent Hamou                       | For heat pumps, we would need the number of heat pumps installed, if possible by type of habitations, not only a %  | It will be possible to differentiate the share of heat pumps between households (residential) and buildings (tertiary) for the Distributed Energy and Global Ambition scenarios.                            |
| Stephan Österbauer (APG)            | What is the share of hybrid heat pumps today? What about the development over the last few years? Is the technology ready - market penetration given?       | The assumptions will be differentiated among scenarios.   |
| Laurent Hamou                       | For heavy goods vehicles, keeping a wide range seems appropriate since CO2 regulation has not yet been voted  | Thank you for your feedback.  |
| Laurent Hamou                       | Do you already have an idea on how to tackle Russia ? No supply of natural gas nor of blue / green hydrogen till when ?                                     | We have assessed an import potential from Russia (before the war) but that this import potential won't be used anymore in the TYNDP. Additionally import assumptions will be differentiated among scenarios |
| Grzegorz Pawelec   Hydrogen Europe  | Solar deployment should be divided into distributed and utility as the impact on grid will be different   | Thank you for your feedback.  |
| Abi Afthab Olikathodi (Eurelectric) | The Fit for 55 target of the commission on solar is 530 GW as they updated in the staff working doc of repower EU.  | Thank you for your feedback.  |
| Stephan Österbauer (APG)            | Shouldn't PV be split between ground-mounted and rooftop installations?   | The split will be provided within the results.  |
| Stephan Österbauer (APG)            | Are the Mediterranean countries being considered in the PV part of the scenario development?  | Yes, they will be considered.   |

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| Abi Afthab Olikathodi (Eurelectric) | Surprising to see a very low number for onshore wind in the GA scenario in 2050. Any explanation?   | The ranges of the RES technologies are revised by the TSOs according to their maximum and minimum national potentials and these are reflected into scenarios depending on their storylines with different price bands.         |
| Stephan Österbauer (APG)            | Are the new planned "energy islands" (eg.: North Sea but also other) - see also offshore TYNDP considered?  | Yes, they will be included in the TYNDP 2024 scenarios.  |
| Stephan Österbauer (APG)            | Is the generation output of thermal power plants - especially nuclear - modeled as a function of temperature? - Cooling problems during extreme weather events! | No, the efficiency of thermal power plants is assumed constant.  |
| Laurent Hamou                       | On supply, as shown by the current situation, a margin reflecting production issues and delay should be included  | Thank you for your feedback.   |
| Grzegorz Pawelec   Hydrogen Europe  | the CCS/nuclear was just an example - the question was on looking at impact of individual elements on the scenario results in general                           | Thank you for your feedback.   |
| Laurens Stoop                       | Current presented data is on national levels; is higher resolution data planned? as the specific sub-national grids and site specific generation from RES       | Higher granularities (NUTS3) are currently investigated within the team.   |
| Eva Hennig                          | How are the different forms of hydrogen taken into account (electrolyser, pyrolysis, phtotcatalitic etc)?   | We are currently under development of the methodology, we will be able to provide more information on this on the upcoming workshops.  |
| Grzegorz Pawelec   Hydrogen Europe  | I am still missing the issue of grid congestion being considered. The copper plate approach is less and less adequate with growing RES penetration              | Thank you for your feedback.   |
| Ph Garrec GRDF                      | What about biomethane development, have you taken into account the target set by repowerEu?   | NT+ 2030 scenario will be aligned with the latest EU targets.  |
| Laurens Stoop                       | What is the most up to date project website ? There is an entsos webpage for the 2022 report and a outdated entsoe webpage.                                     | Currently, the 2022 scenarios webpage ( <a href="https://2022.entsos-tyndp-scenarios.eu/download/">https://2022.entsos-tyndp-scenarios.eu/download/</a> ) is the most updated website. Please be aware that during Q1 of 2023, |

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