ACER
European Union Agency for the Cooperation of Energy Regulators

ACER DECISION ON THE ERAA 2021: ANNEX II

SUMMARY OF ACER'S RECOMMENDATIONS

(FOR INFORMATION ONLY)

Annex II presents a summary of ACER's recommendations for ERAA 2022, followed by recommendations for subsequent ERAAs, as described in the Decision. The recommendations are presented per topic area. For the reader's benefit, Annex II also provides the relevant sections in the Decision and Technical annex where the reader can find more information about the respective recommendations.

RECOMMENDATIONS FOR ERAA 2022	
Topic	**Recommendations**
Consistency of inputs and assumptions across the TSOs (section 6.4.1 of the Decision)	• Investigate existing TSO practices for determining national assumptions and scope for alignment. Consider harmonisation of methodologies for determining national assumptions, without compromising the consideration of national specifics.
Scenario framework and emissions reduction target (section 6.4.2 of the Decision)	• Reflect fit-for-55. • Reflect Member States' recovery and resilience plans.
Modelled years and scenario framework (section 6.4.3 of the Decision)	• Cover at least four years, including key years related to decisions on capacity mechanisms. ACER suggests that ERAA 2022 models the following years: 2024, 2025, 2027 and 2030. • Consider central reference scenarios for all modelled years. • Consider the inclusion of relevant and meaningful additional scenarios and sensitivities.
Single modelling tool (section 6.4.4 of the Decision)	• Use a single modelling tool that incorporates both the Economic Viability Assessment (EVA) and economic dispatch in a consistent manner.

RECOMMENDATIONS FOR ERAA 2022	
Topic	**Recommendations**
Cross-zonal capacity calculation (section 6.4.5 of the Decision, section 2.4.5 and chapter 5 of Technical annex)	Interconnection and network development: • Detail the state of the network for the modelled years, including information about the commissioning and decommissioning of network elements that significantly affect cross-zonal capacity. • Highlight the main differences between the grid models used for the latest TYNDP and ERAA. Flow-based capacity calculation: • Rely on a single approach (instead of two[1]). • Use a single modelling tool for both the EVA and economic dispatch. • Introduce seasonal Fmax values for all relevant CNECs. • Explain the choice of explanatory variables used to affect flow-based domains to specific hours of Monte Carlo years (currently, wind in Germany and demand in France). • Describe the impact of the adequacy patch on the EVA and economic dispatch, and reflect this patch in all central reference scenarios. NTC and flow-based capacity calculation: • Align the main assumptions underlying the modelling of the minimum 70% target with ACER's Recommendation 01/2019, and provide sufficient data to enable oversight of the modelling. • Justify the use of allocation constraints (need for constraint, and process to obtain the numerical value).

[1] RTE and BE NRAA.

RECOMMENDATIONS FOR ERAA 2022	
Topic	**Recommendations**
Economic viability assessment (section 6.4.6 of the Decision and chapter 3 of Technical annex)	• Expand the EVA to cover the full number of modelled years. • Differentiate appropriately the economic parameters (i.e. costs, hurdle rates) per Member State, where applicable. Ensure consistency between costs assumptions in ERAA and assumptions used by Member States for CONE/CORP calculations, where applicable. • Add storage as potential candidate for market entry (and preferably renewables too), on top of any policy driven market developments • If ERAA 2022 uses the same general approach as ERAA2021, increase the number of Monte Carlo years for EVA and improve the clustering method to ensure consistency between the EVA and economic dispatch results. Evaluate ex-post the profitability of the resource mix (considering also non-electricity market related revenues) and re-adjust the choice of Monte Carlo years, if necessary. • Consider reviewing the simplified EVA approach taken in ERAA 2021 evaluating the advantages and disadvantages against alternative EVA methods and communicate the findings to ACER and stakeholders.

RECOMMENDATIONS FOR ERAA 2022	
Topic	**Recommendations**
Demand-side response (section 6.4.7 of the Decision and section 2.4.2 of Technical annex)	General: • Provide a comprehensive description of the methodological approach and assumptions for the modelling of DSR. Explicit demand-side response: • Rely on a comprehensive methodology for assessing DSR potential and cost parameters in every Member State. As a minimum, rely on the best available information to model DSR, including detailed national studies on DSR. • Ensure consistency with the studies conducted by Member States to set their reliability standard (in particular regarding CONE and VOLL). • Fully reflect any existing capacity mechanism-related contracts for DSR. Implicit demand-side response: • Consider implicit DSR, including the potential to rely on the same methodological approach as the bidding zone review. • Capture the inherent flexibility of electric vehicles and heat pumps to the maximum extent in the central reference scenarios. Consider modelling sensitivities with different assumptions about the charging of electric vehicles and use of heat pumps to better understand their effects on resource adequacy.
Out-of-market capacity resources (section 6.4.8 of the Decision)	• Consider out-of-market capacities, including any capacity mechanism related resources held outside the market, measures explicitly defined in national legislation and any other resources that would likely be activated before consumer disconnections.
National implementation plans (section 6.4.9 of the Decision)	• Provide concrete and quantitative information about how the measures set out in the national implementation plans affect the assumptions or modelling, or both. • Include a sensitivity considering the implementation of shortage pricing function for balancing energy where it is already planned, but the details of the function have not yet been determined.

RECOMMENDATIONS FOR ERAA 2022	
Topic	**Recommendations**
Stakeholder engagement (section 6.4.10 of the Decision)	• Enhance stakeholder engagement and establish a formal process to engage and consult with relevant stakeholders and publicly inform them about upcoming ERAAs. • Consult on the scenarios and assumptions for ERAA 2022 in a timely manner and ensure that stakeholders' feedback can be considered before finalising them. • Engage closely with stakeholders regarding the ERAA 2022 methodology for EVA and DSR, as a minimum.
Transparency (general) (section 6.4.11 of the Decision)	• Provide a comprehensive description of the ERAA 2022 methodology, including explanations of the methodological choices made, and level of alignment with the ERAA methodology. • Offer complete information about the sources and analyses used to derive the assessment's assumptions and comprehensive and detailed explanation and interpretation of the results.
Non-explicitly modelled zones (Section 2.1.2 of Technical annex)	• Publish the assumptions about energy exchanges between non-explicitly and explicitly modelled zones and explain how these are assessed.
Demand (Section 2.4.1 of Technical annex)	• Enhance the description of demand in future assessments and demonstrate how the assessment complies with the NECPs and the targets related to energy efficiency measures. • Consider the most recent demand data, from 2016 up to 2019, to determine the relationship between demand and climate variables (the "Trapunta" model).
Generation (Section 2.4.3 of Technical annex)	• Explain how assumptions on installed capacity relate to policy decisions (e.g. phase-outs of capacities), other developments (e.g. commercial decisions) or TSOs' own assumptions. • Detail the methodological approach and assumptions related to modelling variable renewables. • Explain the underlying reasons for the assumptions on must-run units. • Publish complete information about the methodologies used to determine the assumptions for planned and unplanned outages, especially the planned and unplanned outage rates for different technologies. • Publish information about ENTSO-E's plan to extend the ex-ante optimisation modelling for scheduled maintenance, including the scope and timeline of this work.

RECOMMENDATIONS FOR ERAA 2022	
Topic	**Recommendations**
Storage (Section 2.4.4 of Technical annex)	• Describe the ex-ante optimisation methodological approach of hydro storage in more detail, how it reflects operational practices and considers environmental constraints. • Publish additional information for battery storage, including the basis for the assumptions on installed capacity and assumed operation for behind-the-meter storage.
Balancing reserves (Section 2.4.5 of Technical annex)	• Explain the methodology used to determine reserve requirements and the main drivers for any changes compared to present.
Climate change and climate dependent variables (Section 2.4.6 of Technical annex)	• Engage with relevant stakeholders (e.g. climate scientists beyond C3S) considering the pending update of the Pan-European Climate Database.
Price formation (maximum and minimum clearing prices) (Section 4.1.1 of Technical annex)	• Investigate the modelling of a dynamic maximum clearing price that follows the relevant ACER decisions. • Publish information about the level of variable renewables curtailment.
Price formation and balancing reserves (Section 4.1.2 of Technical annex)	• Treat balancing reserves outside the economic dispatch and not as added load, or equivalently allocate the reserve requirement to specific capacities.
Economic dispatch and technical constraints for generation (Section 4.1.3 of Technical annex)	• Investigate incorporating all technical constraints related to the operation of power plants in the economic dispatch that would not necessitate altering the current, linear optimisation approach.

RECOMMENDATIONS FOR SUBSEQUENT ERAAs (beyond ERAA 2022)	
Topic	**Recommendations**
Generation (Section 2.4.3 of Technical annex)	• Show differences in installed capacity from present. • Explain the underlying reasons for the assumptions related to the derating of capacity. • Develop a common methodology for determining the relevant assumptions to assess the planned and unplanned outage rates and further characteristics. • Investigate the use of a stochastic optimisation, considering as many climate years as possible, for the ex-ante optimisation methodology for planned outages. • Investigate the impact of pricing signals and tighter markets on forced outage rates for gas technologies.
Storage (Section 2.4.4 of Technical annex)	• Undertake post-evaluation of the results of the ex-ante optimisation tool to examine how these results compare with the expected use of hydro storage. • Offer granular information about the storage duration of batteries.
Economic viability assessment (Chapter 3 of Technical annex)	• Increase the time horizon of the EVA to cover the whole economic lifetime of resources, potentially moving beyond the ten-year horizon. • Introduce mothballing, re-entry of mothballed capacity, renewal and prolongation decisions for all relevant capacity resources. • Explore the incorporation of advanced risk modelling methods. • Ensure (either by introducing explicit constraints or by ex post verification) that market and regulatory constraints, such as CO_2 emission limits, have been properly taken into account in the scenario with capacity mechanisms.
Price formation and balancing reserves (Section 4.1.2 of Technical annex)	• Investigate the development of a forward-looking assessment that resembles the ancillary services market to determine the resources for meeting the balancing reserves requirements.
Economic dispatch and technical constraints for generation (Section 4.1.3 of Technical annex)	• Explore the implementation of unit commitment in the modelling (both the EVA and economic dispatch).

RECOMMENDATIONS FOR SUBSEQUENT ERAAs (beyond ERAA 2022)	
Topic	**Recommendations**
Cross-zonal capacity calculation (Chapter 5 of Technical annex)	Flow-based capacity calculation: • Detail the process leading to the detailed grid model. • Consider different grid models per season. • Align the definition of CNECs with the applicable DA CCM. • Use time-varying (at least seasonal) GSKs. • Reflect detailed variations of Fmax when dynamic line rating applies. • Assess the main drivers, which underlie the variation of flow-based domains, and explain the key choices made to select the situations used to build the various types of flow-based domains. • Publish the source code underlying the approach. NTC and flow-based capacity calculation: • Clarify the assumptions regarding any expected derogations to the minimum 70% target.