

**OPINION No 01/2021
OF THE EUROPEAN UNION AGENCY
FOR THE COOPERATION OF ENERGY REGULATORS**

of 9 March 2021

**ON THE ENTSO-E WINTER OUTLOOK 2020-2021
AND SUMMER REVIEW 2020**

THE EUROPEAN UNION AGENCY FOR THE COOPERATION OF ENERGY REGULATORS,

Having regard to Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators, and, in particular, Article 4(3)(b) thereof,

Having regard to Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity and, in particular, Articles 30(1)(m) and 32(2) thereof,

Having regard to Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC and, in particular, Article 9(2) thereof,

Having regard to the favourable opinion of the Board of Regulators of 25 February 2021, delivered pursuant to Article 22(5)(a) of Regulation (EU) 2019/942,

Whereas:

1. INTRODUCTION

- (1) On 30 November 2020, the European Network of Transmission System Operators for Electricity ('ENTSO-E') published its annual winter adequacy outlook report for 2020-2021 ('Winter Outlook 2020-2021') together with a review of the main events occurred during summer 2020 ('Summer Review 2020'). On 26 January 2021, ENTSO-E submitted the Winter Outlook 2020-2021 to ACER for its opinion, according to Articles 32(2) and 30(1) of Regulation (EU) 2019/943 (hereafter the

‘Electricity Regulation’). The document is entitled “Winter Outlook 2020-2021 - Summer Review 2020”¹ (the ‘Report’).

- (2) Pursuant to Article 4(3)(b) of Regulation (EU) 2019/942 (hereafter the ‘ACER Regulation’) and Article 30(1)(m) of Electricity Regulation, ACER may provide an opinion to ENTSO-E on their seasonal adequacy assessments, taking into account the objectives of non-discrimination, effective competition, and efficient and secure functioning of the internal market for electricity. In view of these objectives, and to steer the implementation of ACER Decision No. 08/2020 on the methodology for short-term and seasonal adequacy assessments (hereafter the ‘STSAA methodology’)² towards the desired outcomes, ACER considers it appropriate to issue this opinion (the ‘Opinion’) on the submitted Report.
- (3) The Report is accompanied by a document including country-specific comments on the expected security of supply situation in their system during winter 2020-2021 and analyses of events or operational challenges occurred during summer 2020. The document is entitled “Winter Outlook 2020-2021 – Summer Review 2020: Country Comments”³ (the ‘Country Comments Report’).
- (4) Moreover, the Report is complemented by data used for the Winter Outlook analysis:
 - a) a spreadsheet file providing relevant input information with respect to supply data⁴;
 - b) a spreadsheet file providing the expected transfer capacities between the studied zones⁵;

¹ ENTSO-E, “Winter Outlook 2020-2021 & Summer Review 2020”, 30 November 2020. https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/201130_Winter%20Outlook%202020-2021_Report.pdf.

² ACER Decision No. 08/2020 of 6 March 2020 on the methodology for short-term and seasonal adequacy assessments is available on: https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Individual%20decisions/ACER%20Decision%2008-2020%20on%20the%20short-term%20and%20seasonal%20adequacy%20assessments%20methodology_RPR8.pdf.

The accompanying annexes to the decision are available on: https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Pages/Annexes-to-the-DECISION-OF-THE-AGENCY-FOR-THE-COOPERATION-OF-ENERGY-REGULATORS-No-08-2020.aspx.

³ ENTSO-E, “Winter Outlook 2020-2021 & Summer Review 2020 – Country Comments”, 30 November 2020. https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/201130_Winter%20Outlook%202020-2021_country%20comments.pdf.

⁴ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/Supply_WOR_20-21.xlsx.

⁵ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/Transfer%20Capacities_WO_20-21.xlsx

- c) a spreadsheet file providing wind offshore generation time series from the ENTSO-E Pan-European Climate Database ('PECD')⁶;
- d) a spreadsheet file providing wind onshore generation time series from the ENTSO-E PECD⁷;
- e) a spreadsheet file providing solar generation time series from the ENTSO-E PECD⁸;
- f) a folder containing spreadsheet files per country providing relevant input with respect to hydroelectric power modelling⁹;
- g) a spreadsheet file providing projected electricity demand data for the concerned assessment period based on realised demand in different historical years¹⁰; and
- h) a spreadsheet file providing availability information for climate-dependent resources other than renewable sources¹¹.

2. ASSESSMENT OF THE WINTER OUTLOOK 2020-2021 AND SUMMER REVIEW 2019-2020

2.1. Legal Framework

- (5) Pursuant to Article 30(1)(m) and Article 32(2) of Electricity Regulation, ENTSO-E shall adopt seasonal adequacy assessments and submit them to ACER for an opinion. Seasonal adequacy assessments include a winter and a summer adequacy assessment, as specified in Article 9(2) of Regulation (EU) 2019/941 (hereafter the 'Risk Preparedness Regulation').
- (6) In providing its opinion, ACER takes into account the objectives of non-discrimination, effective competition, and efficient and secure functioning of the internal market for electricity, as required by Article 4(3)(b) of ACER Regulation.
- (7) Article 30(1)(m) and Article 32(2) of Electricity Regulation do not explicitly require ENTSO-E to adopt summer and winter reviews and submit to ACER for an opinion. However, such reviews are of utmost relevance for the preparation of future seasonal adequacy assessments, provide lessons learnt from the past and, equally, constitute a

⁶ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/PECD_2020_edition_2020_Offshore.zip.

⁷ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/PECD_2020_edition_2020_Onshore.zip.

⁸ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/PECD_2020_edition_2020_PV.zip.

⁹ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/Hydro_WOR%202020-2021.zip.

¹⁰ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/Demand_WOR_2020_2021.xlsx.

¹¹ https://eepublicdownloads.entsoe.eu/clean-documents/sdc-documents/seasonal/WOR2020/data/Availability_ClimateDependentOtherNonRES_WOR%202020-2021.xlsx.

long-standing practice of ENTSO-E. Therefore, in this Opinion, ACER deems it appropriate to consider not only the Winter Outlook 2020-2021, but also the Summer Review 2020.

2.2. Assessment against high-level requirements of STSAA methodology

- (8) ACER observes that the Winter Outlook 2020-2021 assessment is increasingly in line with the STSAA methodology and fully or partially meets the high-level requirements laid down in Article 3 of the methodology. At the same time, ACER considers there is scope for improvement for meeting all methodological requirements and enhancing the usefulness and clarity of the analysis and report. Table 1 presents ACER's assessment of the Winter Outlook 2020-2021 with regards to the high-level requirements of the STSAA methodology. The remainder of this section describes these requirements in more detail.

Table 1: Assessment of Winter Outlook 2020-2021 against high-level requirements of STSAA methodology

High-level requirements based on STSAA (Article 3)	Fulfilment	Comment
Probabilistic assessment		Complete: for example, Monte Carlo simulations reflecting weather variability and randomness of supply and transmission outages, temporal and spatial analysis
Analysis timeframe and timing of publication		Analysis covers core period of December – March and extends to November due to heightened risks; publication not in line with STSAA methodology deadline
Risk metrics		Incomplete: EENS and LOLP used for the assessment, but not LOLE
Sensitivity analysis with non-market measures		Non-market measures considered in complementary sensitivity, but list of measures appears not exhaustive

 In line with methodology  Largely in line with methodology  Partially in line with methodology

2.2.1. Probabilistic assessment

- (9) The Winter Outlook 2020-2021, like the Summer Outlook 2020, uses a probabilistic methodology to assess the risks for the season ahead, consistently with the STSAA methodology. This is in contrast to past Winter Outlooks that used a deterministic approach, and represents a significant improvement of the seasonal adequacy assessments, as introduced by the STSAA methodology.

2.2.2. Analysis timeframe and timing of publication

- (10) The Winter Outlook analysis covers the core period between 1 December and 31 March, pursuant to Article 3(4) of the STSAA methodology. In compliance with Article 3(4) and 3(6) of the methodology, the analysis extends to November, due to higher than normal planned maintenance.
- (11) ENTSO-E published the Report on 30 November 2020. The STSAA methodology sets the first day of the concerned seasonal assessment, 2 November in this case, as

the deadline for publication. Even though the publication's timing is not in line with the STSAA methodology, ACER recognises that ENTSO-E engaged closely with the Electricity Coordination Group to communicate the provisional results of the analysis in the run-up to the publication. This enabled Member States and Transmission System Operators ('TSOs') to consider mitigating measures for any identified adequacy risks. ACER also observes that the analysis for the Winter Outlook 2020-2021 took place in a context of heightened challenges and uncertainties due to the COVID-19 pandemic. Finally, ACER notes that the Report's publication was in time for the deadline set in Article 9(2) of Risk Preparedness Regulation, determined as 1 December.

- (12) ACER observes that meeting both aforementioned deadlines is the absolute minimum legal requirement. Publishing the seasonal assessment earlier than those would be beneficial, as it would allow market participants sufficient time to respond to any risks, especially for the initial period of the season under examination¹². ACER recognises that publishing earlier is a balancing exercise between using as accurate data as possible and providing timely information to the market and other participants. ACER encourages ENTSO-E to strive to publish in advance of these deadlines (e.g. few weeks to a month) to enhance the usefulness of the analysis.

2.2.3. Risk indicators

- (13) Pursuant to Article 3(7) of the STSAA methodology, seasonal adequacy assessments shall be based on any relevant metrics, including: Loss of Load Expectation ('LOLE'), Loss of Load Probability ('LOLP') and Expected Energy Non-Served ('EENS'). Like the Summer Outlook 2020, the Report does not include the LOLE metric. ACER observes that the calculation of LOLE (in a given modelled zone during a given time period) would allow to better assess the level of security of supply in the analysed area, as a complement to the LOLP and EENS. LOLE is one of the most recognised risk metrics across adequacy assessment studies. In addition, reliability standards, providing a reference point for the security of supply outlook, are commonly defined in LOLE terms.

2.2.4. Sensitivity analysis with non-market measures

- (14) Pursuant to Article 3(8)(e) of the STSAA methodology, seasonal adequacy assessments shall include a sensitivity analysis to assess possible measures to prevent

¹² Equivalent deadlines apply for the Summer Outlook assessments. The STSAA methodology defines the period between 1 June and 30 September as the core period for the Summer Outlook, extendable between 1 May and 31 October if specific and relevant risks are expected. The deadline for publication is the first day of the concerned assessment period, like for the Winter Outlook assessment. The RPR Regulation sets 1 June as the deadline for the Summer Outlook assessment.

or mitigate adequacy risks, in particular with respect to the use of non-market measures to mitigate an electricity crisis.

- (15) The Winter Outlook 2020-2021 report contains such a sensitivity. The Report usefully describes the non-market measures considered in the sensitivity and their impact on risk indicators. It places special focus on the modelled zones with identified adequacy risks, assuming normal market operations only.
- (16) ACER observes that the list of non-market measures considered appears not exhaustive however. The analysis seems to focus on strategic (or similar) reserves only¹³, while no other measures are analysed. There is a general lack of information about the type of measures examined for consideration in this analysis¹⁴. In the future, ACER expects the analysis to consider all non-market measures, as identified and developed in the risk preparedness plans of Member States, pursuant to Chapter III of Risk Preparedness Regulation. ACER observes that a proper characterisation of the resources modelled in seasonal assessments ensures a better understanding from relevant stakeholders.

2.3. Areas for improvement and assessment of specific issues of Winter Outlook 2020-2021 and Summer Review 2020

- (17) Overall, the Report represents an improvement on the Summer Outlook 2020. It describes the potential adequacy risks and mitigation actions in more detail and with enriched clarity. At the same time, ACER observes there is still significant scope for further improvement of the analysis and report; below, ACER presents a non-exhaustive list of areas for consideration for the improvement of future seasonal adequacy assessments.
- (18) ENTSO-E undertook the analysis for the Winter Outlook 2020-2021 in an environment of significant uncertainty due to the COVID-19 pandemic. The analysis recognises so and includes a dedicated section on the uncertainties related to the evolution of the pandemic. The results of the analysis refer to a scenario, drawn in August-September 2020, assuming no second wave of the pandemic. This assumption was already invalidated before the beginning of the core period concerning the assessment. In this context, ACER considers that a more detailed analysis of the uncertainties related to the pandemic, complemented with sensitivity analyses, would provide a more complete picture of the adequacy risks for the season ahead.

¹³ For example, according to the Country Comments Report, the non-market measures include strategic reserves that are available in Germany, Finland and Sweden and other types of out of market supply- and demand-side reserves that can be used for security of supply purposes. Similar to our comments on the Summer Outlook 2020, this report does not specify the kind of non-market measures in Malta.

¹⁴ For example, it is not clear whether the assessment has considered measures such as emergency assistance on interconnectors, voltage reduction and interruptibility schemes that could be considered non-market measures.

- (19) The seasonal adequacy assessment would also benefit from flow-based modelling for the relevant capacity calculation regions, as recognised in the Report. Flow-based modelling would enable a more accurate assessment of the transfer capacities between modelled zones, and therefore enhance the quality of the results.
- (20) In terms of clarity of the Report, ACER observes the following:
- a) In the case of generation, the Report contains information about the evolution of thermal capacity in winter 2020-2021, although it is not clear what the reference season or year for these changes is. To further aid understanding of these changes, the Report could also contain information about the relative changes in installed thermal capacity.
 - b) Moreover, the Report lacks equivalent information about the evolution of variable renewables in the system, as well as demand side response and storage. Given the increasing significance of these types of resources for security of supply, ACER believes that a more detailed description of their projected development (e.g. absolute and relative changes year-on-year) would increase understanding of the assessment. In particular, ACER notes that the Report and accompanying data files do not contain any information about storage, with the exception of pumped-storage hydro.
 - c) There is also scope to further clarify the definition of different availability parameters and enhance the Report's readability. Particularly, the definition of "further availability limitations" could be further detailed with specific definitions for different types of resources and concrete examples.
 - d) ACER observes that the Report does not contain any information about flows with non-explicitly modelled systems. ENTSO-E has clarified that the assessment considers all relevant such systems. ACER urges ENTSO-E to report the assessment's assumptions regarding non-explicitly modelled systems in future seasonal assessments.
 - e) The Report does not offer any information about how ENTSO-E and TSOs have derived the assessment's main underlying assumptions. It states that: "To ensure the highest quality of data used in assessments, they are prepared by experts working within dedicated teams". However, the Report provides no information about the work undertaken by these expert groups. For future seasonal adequacy assessments, ACER suggests that ENTSO-E develops a methodological appendix that summarises the main assumptions (e.g. data used for estimating the unplanned outages for thermal generation).
 - f) Finally, ACER is of the opinion that the Report would benefit from a summary sheet of the studied scenario and sensitivities. This sheet could contain key assumptions underlying the scenario, such as peak demand and installed capacities per resource type, and key differences for the considered sensitivities with regards to the main scenario. Such an addition would enable the reader to quickly obtain an overview of the studied scenario and sensitivities.
- (21) In relation to the Summer 2020 Review, ACER notes the following:

- a) The Report briefly describes the most significant challenges and events that occurred during the summer period. These contain challenges with voltage regulation and a particularly tight situation on 15 September, which led several TSOs to issue an Alert State in the European Awareness System.
- b) The Report offers limited information about the measures applied to overcome these situations. ACER considers it would benefit from a more detailed description of the measures and their impact on the market. For example, it would be useful to detail what was the impact on market prices and how market participants responded to the alerts in the European Awareness System. While TSOs have heightened responsibility for addressing adequacy risks, at and close to real-time, the market may also alleviate these risks.
- c) ACER observes that, according to the Report, TSOs had to “deplete all real-time measures” in order to address the challenging situation on 15 September. However, the Report does not describe how close TSOs were from implementing load shedding across the region facing system stress, or the scope of these “real-time measures”. Once again, ACER recommends that ENTSO-E describes in more detail this type of events in future reports.

3. CONCLUSION

- (22) ACER did not identify any elements in the Report that would suggest that the Winter Outlook 2020-2021 and the Summer Review 2020 have negative effects on non-discrimination, effective competition, and efficient and secure functioning of the internal market of electricity.
- (23) In line with the assessment provided in Section 2 above and with the STSAA methodology, ACER found that:
 - a) The Winter Outlook 2020-2021 represents an improvement on the Summer Outlook 2020 and past Winter Outlooks, increasingly in line with the STSAA methodology.
 - b) Nevertheless, the analysis is not fully in line with the STSAA methodology. Article 10(2) of the STSAA methodology stipulates the full implementation of the methodology by 6 March 2021, at the latest. ACER thus urges ENTSO-E to fully comply with the methodology as of the next seasonal assessment, the Summer Outlook 2021, expected by 1 June 2021.
 - c) Moreover, there is still significant scope to enhance the quality and completeness of the analysis, and usefulness and clarity of the report. ACER has offered a number of suggestions to this effect in the Opinion,

HAS ADOPTED THIS OPINION:

1. ACER considers that the Winter Outlook 2020-2021 and the Summer Review 2020 are in line with the requirements of Article 4(3)(b) of ACER Regulation.

2. This Opinion is addressed to the European Network of Transmission System Operators for Electricity.

Done at Ljubljana, on 9 March 2021.

- SIGNED -

*For the Agency
The Director*

C. ZINGLERSEN