

OPINION No 02/2020
OF THE EUROPEAN UNION AGENCY
FOR THE COOPERATION OF ENERGY REGULATORS

of 30 April 2020

on the ENTSO-E Winter Outlook 2019/2020
and Summer Review 2019 Report

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 Regulators¹, 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 electricity² and, in particular, Articles 30(1)(m) and 32(2) thereof,

Having regard to the favourable opinion of the Board of Regulators of 27 March 2020, delivered pursuant to Article 22(5)(a) of Regulation (EU) 2019/942,

Whereas:

1. INTRODUCTION

- (1) On 27 November 2019, the European Network of Transmission System Operators for Electricity ('ENTSO-E') published its annual winter generation adequacy outlook report for 2019/2020 together with the review of the main events, which occurred during summer 2019, and submitted it to the Agency for its opinion, according to Articles 8(3)(f) and 9(2) of Regulation (EC) No 714/2009³. The document submitted by ENTSO-E is entitled "Winter Outlook 2019/2020 and Summer Review 2019"⁴ (the

¹ OJ L158, 14.6.2019, p. 22.

² OJ L158, 14.6.2019, p. 54.

³ OJ L 211, 14.8.2009, p. 15, repealed and recast by Regulation (EU) 2019/943.

⁴ ENTSO-E, "Winter Outlook 2019/2020 and Summer Review 2019", November 2019. [https://www.entsoe.eu/Documents/SDC%20documents/seasonal/Winter%20Outlook%202019-2020_Report\(for%20publication\).pdf](https://www.entsoe.eu/Documents/SDC%20documents/seasonal/Winter%20Outlook%202019-2020_Report(for%20publication).pdf).

‘Report’). The Report is accompanied with a spreadsheet file providing relevant input information for the Winter Outlook 2019/2020 (‘WO 2019/2020’)⁵.

2. SUMMARY OF THE REPORT

- (2) The WO 2019/2020 covers the winter period from 25 November 2019 to 5 April 2020. It is based on data collected from TSOs through a questionnaire using a common methodology and weather data from the Pan-European Climate Database (‘PECD’). The WO 2019/2020 analyses the effect on system adequacy of climate conditions, evolution of demand, demand management, evolution of generation capacities, planned and forced outages and presents TSOs’ views both on risks to security of supply and on the planned counter measures. The objective of the WO 2019/2020 is twofold: firstly, to gather information from each TSO and share it within ENTSO-E, allowing a better planning of remedial actions; and, secondly, to inform stakeholders so that they can adapt their actions according to potential threats and reduce the risks incurred by them.
- (3) The WO 2019/2020 is performed first at country level and then at the pan-European level using a deterministic approach under normal and severe conditions⁶ during winter at pan-European synchronous peak time. Additional probabilistic analyses are performed for countries where a system adequacy risk has been found with the deterministic approach.
- (4) The results of the WO 2019/2020 upward adequacy assessment (Section 3 of the Report) show that:
 - While no inadequacy risk under normal conditions is foreseen, extreme cold-spells, combined with low renewable generation and unplanned outages of generation and transmission (“deterministic stress test”), indicate risk of supply shortages in Belgium, Germany, Finland and France at the beginning of 2020 if the contribution of existing out-of-market measures is not considered.
 - If existing out-of-market measures are considered available and can be shared between countries, the deterministic analyses show that available generation and interconnections would be sufficient to cover demand even under severe conditions.
 - The probabilistic analyses performed at pan-European level in week 3 of 2020 (period of time with the highest adequacy risk according to the deterministic analysis) conclude that there is approximately a 4% probability of having at least one hour with adequacy issues in at least one country on a typical Wednesday

⁵ https://www.entsoe.eu/Documents/SDC%20documents/seasonal/Winter-Outlook_2019-2020_data-for-publication.xlsx.

⁶ Definitions for normal and severe conditions are provided in Appendix 2 of the “Winter Outlook 2019/2020 and Summer Review 2019” report.

evening. In particular, the analyses confirm the risk of supply shortages in Belgium and France while no risk occurs in Germany and Finland.

- (5) The results of the WO 2019/2020 downward adequacy assessment (Section 4 of the Report) show that, for high wind and solar photovoltaic ('PV') generation⁷, curtailment of generation may be necessary in some countries (Germany, Ireland and Central-Southern Italy on Sunday at daytime hours; Belgium, Germany, Ireland, Southern Italy and Northern-Ireland on Sunday early morning) to ensure system stability.
- (6) Section 5 of the Report provides an overview of the reservoir level in major hydro-generating ENTSO-E countries at the end of September 2019: it shows that reservoir levels are consistent with historical averages in all countries with the exception of Italy, where levels settled slightly above historical minimum levels.
- (7) Section 6 of the Report describes the evolution of future seasonal adequacy assessments, in particular with respect to the implementation of Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on the risk-preparedness in the electricity sector⁸.
- (8) The Summer Review 2019 ('SR 2019') is described in Section 7 of the Report and compares the study results reported in the Summer Outlook 2019 with the most important events occurring during the past summer in terms of security of supply. Summer 2019 has experienced above-average temperatures throughout Europe and lower-than-average precipitations in Austria and France. Several events and unexpected situations have been recorded:
 - Three days with important imbalances occurred in Germany in June: TSO activated all interruptible loads and system reserves, with actions performed also by neighbouring TSOs. On one occasion, an extraordinary procedure ("50-100 mHz procedure") was activated to control the imbalance.
 - Supply disruptions have been experienced in Great Britain in August 2019 when the protection system disconnected a gas power plant and an offshore wind farm due to a lightning strike.
 - As a consequence of the combination of high renewable generation and low demand in Belgium and France, nuclear generation was modulated on some occasions as a reaction to market signals and, in a few cases, on the basis of a TSO request to ensure system operation security.

⁷ Wind and PV generation have been chosen as the 95th percentile values of data samples taken from PECD.

⁸ OJ L 158, 14.6.2019, p. 1.

3. ASSESSMENT OF THE WO 2019/2020 AND SR 2019

3.1. Legal framework

- (9) The Report has been submitted for Agency's opinion pursuant to Regulation (EC) No 714/2009, Article 9(2) in conjunction with Article 8(3)(f). This Regulation has been repealed and recast by Regulation (EU) 2019/943, which applies from 1 January 2020. The new provisions, corresponding to those referred above, are set out in Articles 30(1)(m) and 32(2) of Regulation (EU) 2019/943. According to them, ENTSO-E shall adopt seasonal adequacy assessments and submit them to the Agency for an opinion. Seasonal adequacy assessments include a winter adequacy assessment and a summer adequacy assessment, as specified in Article 9(2) of Regulation (EU) 2019/941.
- (10) In providing its opinion, the Agency takes into account the objectives of non-discrimination, effective competition and the efficient and secure functioning of the internal market for electricity, as required by Article 4(3)(b) Regulation (EU) 2019/942.

3.2. General remark

- (11) Articles 30(1)(m) and 32(2) of Regulation (EU) 2019/943 do not explicitly refer to summer and winter reviews to be adopted by ENTSO-E and to be submitted to the Agency for an opinion. However, such reviews are of utmost relevance for the preparation of future seasonal adequacy assessments and, equally, constitute a long-standing practice of ENTSO-E. Therefore, the Agency deems it appropriate to consider in this Opinion not only the WO 2019/2020, but also the SR 2019.

3.3. Assessment of specific issues of WO 2019/2020 and SR 2019

- (12) Although it is mentioned that the analysis for upward adequacy under severe conditions in the WO 2019/2020 should be considered as "*deterministic stress test*" (Section 3.3 of the Report), the approach considers unrealistic (perfect) correlations among wind generation, PV generation and temperatures time series, resulting in an overestimation of the upward adequacy risk. The same applies for the downward adequacy assessment in the WO 2019/2020, which is built by design as a downward adequacy analysis under severe conditions, resulting in an overestimation of the downward adequacy risk.
- (13) It is not clear if the time series for wind and PV generation developed in the PECD are developed at country level or a bidding zone level: in both cases, it is not clear to what extent the climate modelling takes into consideration a more detailed spatial granularity⁹ before the PECD time series are consolidated.

⁹ As an example, based on the Eurostat *Nomenclature of Territorial Units for Statistics*, <https://ec.europa.eu/eurostat/web/nuts/background>

- (14) The WO 2019/2020 mentions the potential usage of out-of-market measures to cover demand under severe conditions, but does not provide their assumed volume, location and type.
- (15) Severe weather conditions increase the frequency of transmission outages and may affect generation availability. The issue of outage dependency on severe weather is however not investigated in the WO 2019/2020.
- (16) The following elements found out by analysing the dataset accompanying the WO 2019/2020 are highlighted:
- The Forced Outage Rate ('FOR') values for Cyprus and France under normal and severe conditions are set to zero for all generation technologies.
 - The FOR values for Malta under normal and severe conditions are set to zero for gas power plants.
 - The FOR values for Lithuania are set to zero for all generation technologies, with the exception of onshore wind, where they are set to 7% and 6% for severe and normal conditions, respectively. By contrast, the FOR values for onshore wind plants in all the other countries are set to zero under both normal and severe conditions.
 - Although in the Report (p. 12) ENTSO-E highlights that severe conditions imply "*increased outages*", for many countries the FOR values under normal and severe conditions are the same.

It is noted that assuming a power plant outage rate equal to zero introduces a systematic error in the adequacy assessment, potentially increasing the inadequacy risk.

- (17) Although hydropower is of paramount importance in several European countries, especially for its flexibility, the WO 2019/2020 just adopts "*a deterministic approach considering power availability at one synchronous peak time in week*". As such, there is no immediate relationship between the energy-wise assessment of hydro-reservoir levels (Section 5 of the Report) and the results of the adequacy assessment.
- (18) Although the WO 2019/2020 states that "*that current gas and electricity networks are considered robust to any gas transit disruption*", the impact of the probability of a gas supply disruption scenario on the power system (for many countries, significantly dependent on gas imports) is not investigated.
- (19) For the downward adequacy part of the WO 2019/2020, no probabilistic assessment is provided.
- (20) The WO 2019/2020 does not include any assessment of how an adequacy concern would affect the cost of electricity generation.

4. CONCLUSION

- (21) The Agency did not identify such elements in the Report that would suggest that the WO 2019/2020 and the SR 2019 have negative effects on non-discrimination, effective competition, and efficient and secure functioning of the electricity market.
- (22) In conjunction with the new framework resulting with the implementation of Articles 8 and 9 of Regulation (EU) 2019/941¹⁰ and its impact on future seasonal adequacy assessments, the Agency found that the informative value of future seasonal adequacy assessments and reviews could be further enhanced as follows:
- Additional future deterministic analyses should take into consideration realistic correlations among time series of climate related variables.
 - Additional details on time series of climate related variables should be provided, taking into consideration recital (13).
 - The seasonal adequacy assessment should provide information about the volume of out-of-market measures, its location and type.
 - The impact of severe weather conditions on generation and transmission outage statistics and on the availability of cross-border capacities should be investigated and incorporated into future adequacy assessments.
 - Data quality in modelling outage rates should be further increased.
 - Additional future deterministic analyses should take into consideration the energy-wise assessment of hydro-reservoirs.
 - ENTSO-E should clarify in which framework (seasonal outlooks or other activities) they address the impact of scarce (upward) adequacy on the cost of electricity generation,

HAS ADOPTED THIS OPINION:

1. The Agency considers that the WO 2019/2020 and the SR 2019 are in line with the requirements of Article 4(3)(b) of Regulation (EU) 2019/942.
2. This Opinion is addressed to the European Network of Transmission System Operators for Electricity.

¹⁰ ACER Decision No. 08/2020 of 6 March 2020 on the methodology for short-term and seasonal adequacy assessments.

https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Individual%20decisions/ACER%20Decision%202008-2020%20on%20the%20short-term%20and%20seasonal%20adequacy%20assessments%20methodology_RPR8.pdf

Done at Ljubljana, on 30 April 2020.

- SIGNED -

For the Agency
The Director
C. ZINGLERSEN