CREG

Commissie voor de Regulering
van de Elektriciteit en het Gas

Note

(Z)2263
1 July 2021

Analysis of Elia's Adequacy and Flexibility study for Belgium 2022-2032

drawn up pursuant to article 23, § 2, second paragraph, 2° and 19°, of the law of 29 April 1999 on the organisation of the electricity market

Non-confidential

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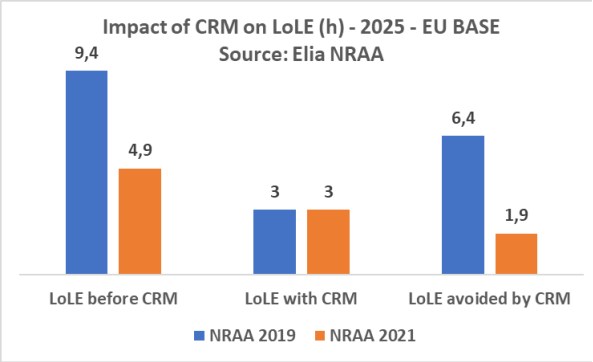
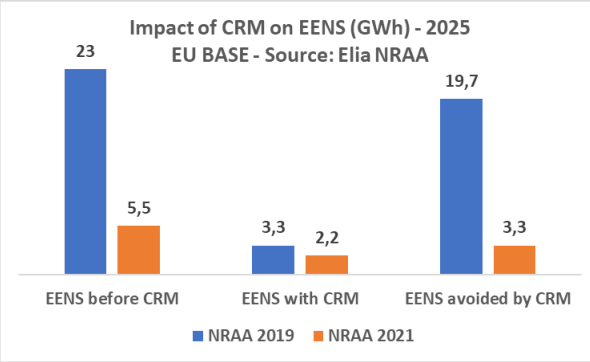
EXECUTIVE SUMMARY

Elia published on 25 June 2021 its new Adequacy and Flexibility study for Belgium[1]. This study covers the period from 2022 to2032. It updates earlier Elia Adequacy study from June 2019[2]. The Elia 2021 Adequacy study shows a much lower adequacy concern compared to the 2019 Adequacy study.

In the 2021 adequacy study, Elia estimated the **LoLE**[3] in 2025 at 4,9 hours on average in the EU BASE scenario, which is about half of the LoLE that was estimated by Elia in 2019 (9,4 hours). The decrease in **EENS**[4] is even more spectacular. In this years' adequacy study, Elia estimated a EENS of 5,5 GWh for 2025, whereas Elia estimated 23 GWh in 2019, or more than four times more.
The introduction of a CRM would lower the EENS in 2025 from 5,5 GWh to 2,2 GWh, thus a reduction of 3,3 GWh. In the simulation of 2019, a CRM would have lowered the EENS from 23 GWh to 3,3 GWh, thus a reduction of 19,7 GWh.





If one compares the results from Elia's recently published adequacy study with Elia's adequacy study from June 2019, the **benefits of the CRM in terms of avoided curtailment** have also decreased sharply. Based on the VoLL that the Minister has set and based on Elia's study from 2019, these benefits of a CRM could be estimated at around 350 M€ for 2025. Based on Elia's study from 2021 and with the same VoLL, these benefits are estimated at less than 60 M€ for 2025, or six times smaller.

Regarding **missing capacity**, the gap that remains in 2025 without a CRM in the EU-BASE scenario has halved from 4,1 GW to 2,2 GW, with also 500 MW of existing capacity that is leaving the market according to Elia and the possibility to decrease the need for capacity by another 500 MW if the electrification is efficiently managed. Taking these effects into account would bring the gap down to 1,2 GW. The CREG wants to remind that during the Belgian adequacy crisis at the end of 2018, market players developed about 1,2 GW of additional capacity in a few months' time[5].

[1] See Elia's Adequacy study from June 2021: https://www.elia.be/-/media/project/elia/shared/documents/elia-group/publications/studies-and-reports/20210701_adequacy-flexibility-study-2021_nl_v2.pdf?la=en
[2] See Elia's Adequacy study from June 2019: https://www.elia.be/-/media/project/elia/shared/documents/press-releases/2019/280619/20190628_elia_adequacy_and_flexibility_study_nl.pdf
[3] LoLE: Loss of Load Expectation: number of hours during which there will be curtailment
[4] EENS: Expected Energy Not Served: the energy that is expected to be curtailed. This indicator also measures the severity of the adequacy problem.
[5] See CREG's study n° 1950
French version: https://www.creg.be/sites/default/files/assets/Publications/Studies/F1950FR.pdf
Dutch version: https://www.creg.be/sites/default/files/assets/Publications/Studies/F1950NL.pdf

The CREG welcomes the improvements that Elia made to its methodology in this study compared to the previous adequacy study from 2019. However, there remain **a few important methodological elements to be improved**, such as on the use of the right level of the price cap. The CREG asked to use in the simulation, as a sensitivity (as this was done in the 2019 adequacy study), the same price cap that ACER is asking ENTSO-e to simulate in the European Resource Adequacy Assessment (ERAA) for this year, but Elia refused to do so.

Finally, the CREG reminds that in order to be compliant with ACER's ERAA methodology, all **transparency** requirements from that methodology should be followed by Elia, which is not the case.

INTRODUCTION

The objective of this note is to make a factual analysis of the Adequacy and Flexibility study 2022-2032 made by Elia and published on 25 June 2021.

This latest adequacy study can be considered as the National Resource Adequacy Assessment (NRAA) in the framework of chapter IV of the EU Regulation 2019/943. Given there is no European Resource Adequacy Assessment (ERRA) yet, this will be used to assess whether a capacity mechanism is necessary for Belgium to address the adequacy concerns.

The CREG welcomes the improvements that Elia made to its methodology in this study compared to the previous adequacy study from 2019. These improvements are mandatory given the ACER decision on the ERAA methodology from October 2020[6]. Although there remain a few important methodological elements to be improved in the NRAA, this note focuses on the results of the latest adequacy study by Elia.

1. EU-BASE VS EU-SAFE

1. Elia is simulating a "EU BASE" and a "EU SAFE" scenario. Elia stresses the dependence of the Belgian adequacy on foreign capacity and pleads for a "EU SAFE" scenario.

2. However, this dependence on foreign capacity is a logical consequence of the European integration and the big increase of the import capacity in Belgium (up to 7500 MW of import capacity). More specifically, Elia stresses the dependence on the French nuclear capacity. However, the relevant capacity is not the nuclear capacity, but the total capacity in France. Given the French capacity mechanism, a lower nuclear capacity in France will increase the offer of other types of capacities (possibly via a price increase), as seems to have happened in 2020 in France.

3. The CREG's point of view is that the NRAA should be compliant with Regulation 2019/943 and thus a NRAA can only adapt domestic parameters, and not parameters from other countries. Therefore, the central reference scenario EU-BASE should be considered.

4. The CREG wants to indicate that the HiLo-scenario from Elia's adequacy study from June 2019, which is very similar to the EU-SAFE scenario from this years' study, was not accepted by the European Commission in its opening decision from September 2020 to start an in-depth investigation into the Belgian CRM.

[6] See ACER ERAA methodology:
https://ec.europa.eu/energy/sites/default/files/methodology_for_the_european_resource_adequacy_assessment.pdf

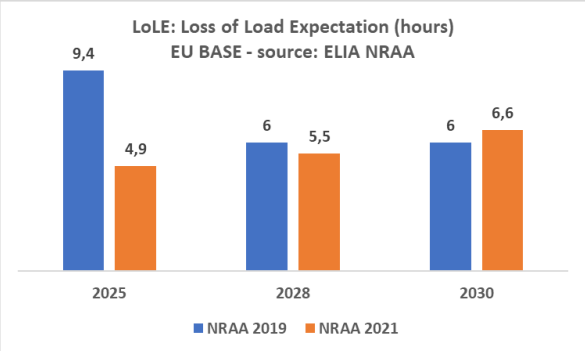
2. 2021 STUDY COMPARED TO 2019 STUDY

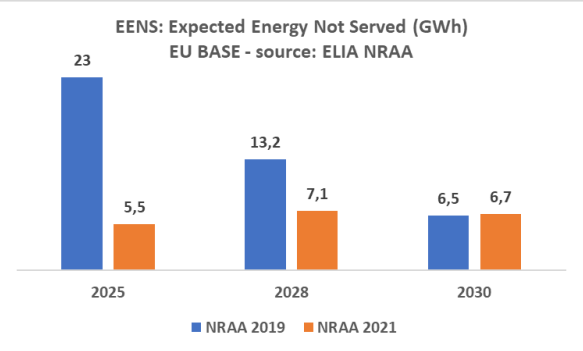
2.1. HOURS WITH CURTAILMENT (LOLE) AND ENERGY CURTAILED (EENS)

5. The results show a strong decrease of the adequacy concerns in Elia's study from 2021 compared to the 2019 study. This is illustrated in the figures below. These results are obtained in the absence of intervention (so without a capacity mechanism).

6. The **LoLE** in 2025 is estimated at 4,9 hours on average in the 2021 adequacy study, about half of the LoLE in 2019 (9,4 hours). Subsequently, in 2028, the estimated LoLE increases only slightly to 5,5 hours in the NRAA 2021, which is still lower than what was estimated in 2019 for this year.

7. The decrease in **EENS** is even more spectacular. Elia's 2021 adequacy study estimates a EENS of 5,5 GWh for 2025, whereas the NRAA 2019 estimated 23 GWh, or more than four times more. For 2028, the EENS increases to 7,1 GWh in the 2021 study, but still about half of what was estimated in 2019 for this year.





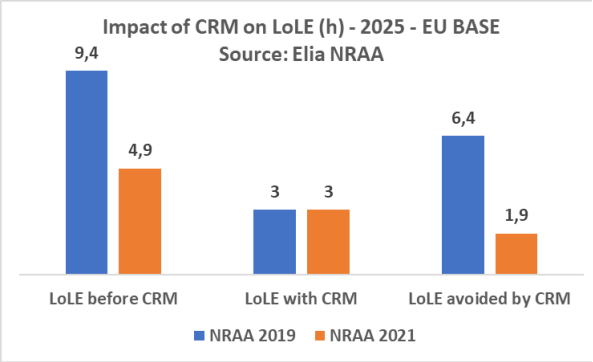
2.2. LOLE AND EENS AVOIDED BY THE CRM

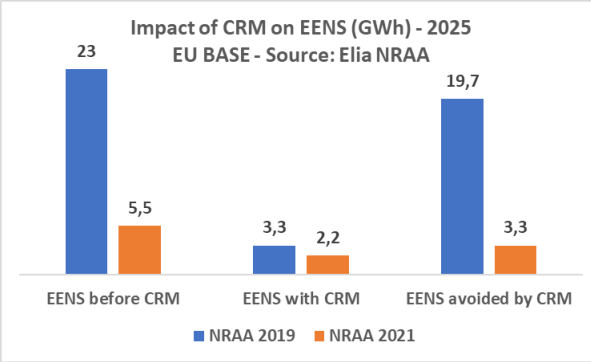
8. The values for LoLE and EENS in the previous section are the results from Elia's simulations when there is no intervention. With the introduction of a CRM, the LoLE and EENS will decrease, but will not drop to zero. There will still be LoLE and EENS that remain.

9. The figures below show the impact of a CRM on the LoLE and EENS. In Elia's study from 2019, the LoLE decreased from 9,4 hours on average to 3 hours on average, or a decrease of 6,4 hours. However, in Elia's study from this year, the LoLE decreases from 4,9 hours to 3 hours, or a decrease of 1,9 hours on average. Compared to the 2019 study, the Elia study from 2021 shows that introducing a CRM has an impact on LoLE that is more than three times less.

10. The effect of a CRM on EENS is even much lower. In 2019, Elia estimated that the EENS would decrease from 23 GWh to 3,3 GWh, meaning that introducing a CRM would avoid curtailment of 19,7 GWh. In this year's adequacy study, Elia estimates that the EENS would decrease from 5,5 GWh to 2,2 GWh, or a decrease of 3,3 GWh, meaning that a CRM avoids 3,3 GWh of curtailment. The impact of a CRM on EENS has decreased with a factor of six.

11. The results are shown hereunder.





12. As a consequence, the benefits of the CRM in terms of avoided curtailment has also decreased. With a VoLL that the Minister has set, these benefits from a CRM could be estimated at around 350 M€ for 2025[7] based on Elia's study from 2019. Based on Elia's study from 2021, these benefits can be estimated at less than 60 M€ for 2025, or six times smaller.

13. The calculated LoLE and EENS are so-called "market LoLE", namely the results obtained when taking only capacity on the market into account. However, there are also out-of-market capacities, like balancing reserves and implicit demand response. If these capacities were taken into account, the real LoLE and EENS would further decrease significantly (see also infra).

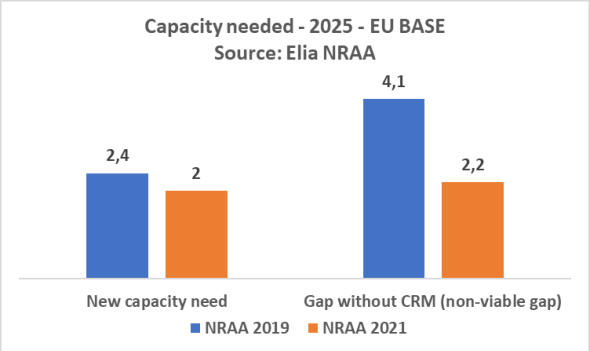
2.3. CAPACITY NEED

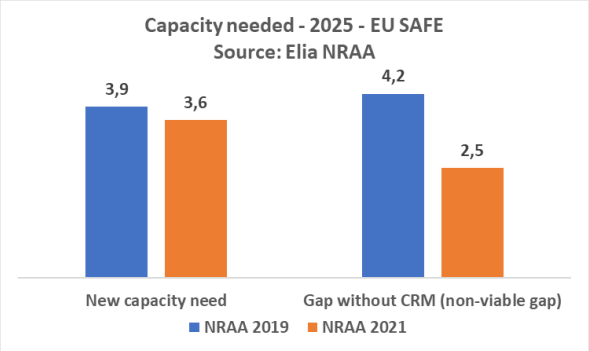
14. In its communications, Elia stressed the need for 3,6 GW of new capacity, only slightly less than the 3,9 GW of new capacity that was needed according to its adequacy study from 2019. Elia uses the EU-SAFE and EU-HiLo scenarios for this comparison. However, these capacities are not the relevant ones if one wants to assess potential adequacy concerns since the focus should be on the non-viable gap (i.e. the capacity that is missing and that the market cannot supply without intervention). In addition, as indicated above, the CREG considers the EU-BASE scenario as the relevant one.

15. The figures below show the new needed capacity for Elia's EU-BASE and EU-SAFE scenarios for 2025 (left columns), as well as the capacity that is missing when no CRM is introduced (right columns).

16. From these figures it is clear that the missing capacity, when no CRM is introduced, has almost halved compared to Elia's adequacy study from 2019. In the EU-SAFE scenario, 2,5 GW are missing (in 2019, this figure was 4,2 GW) while in the EU-BASE scenario, 2,2 GW are missing for 2025 (against 4,1 GW in 2019).

[7] The year 2025 is important because the capacity mechanism, currently developed in Belgium, will start in that year. If adequacy concerns would be expected only later on (from 2028 for example), the introduction of this capacity mechanism should be delayed.





17. As indicated by Elia, from the 2,2 GW missing in 2025 in the EU-BASE scenario, 500 MW of existing capacity is leaving the market. If this capacity remained in the system (for example via a strategic reserve), the missing capacity would be reduced to 1,7 GW. Additionally, Elia indicates the possibility to decrease the need for capacity by another 500 MW if the electrification is efficiently managed. This would bring the gap down to 1,2 GW. The CREG wants to remind that during the Belgian adequacy crisis at the end of 2018, market players developed about 1,2 GW of additional capacity in a few months' time[8].

3. METHODOLOGICAL ISSUES

18. The CREG welcomes the improvements that Elia made to its methodology in this study compared to the previous adequacy study from 2019. More specifically, the use of a different climate database and the use of expected prices (instead of median prices) are important improvements.

19. However, there remain important methodological elements to be improved in the NRAA.

20. The CREG asked Elia to simulate a higher bidding limit, in line with what ACER is asking for the ERAA 2021 (bidding limit at 15.000 €/MWh). This should be an alternative to Elia's approach, that keeps the bidding limit at 3.000 €/MWh until 2025 and slowly increases it afterwards, even though Elia expects frequent scarcity, not only in Belgium, but also in neighbouring countries (which would automatically increase the bidding limit). This approach is in clear contrast with the previous adequacy study in which Elia simulated as a sensitivity a bidding limit of 20.000 €/MWh. Elia not only discarded this sensitivity in the adequacy 2021 study but also refused to simulate a sensitivity with a bidding limit of 15.000 €/MWh, even though the CREG requested this. The CREG is convinced that this is an important omission that should be taken into account, as Elia did in 2019.

21. The CREG also asked to use 30 historical climate years to compare with the simulation results coming from the synthetic climate database. The reason for this request is that the synthetic climate database is created from complex and highly sophisticated statistics. In addition, due to confidentiality issues, insufficient information is available on the results of this complex approach. Comparing the results with 30 historical climate years, which is also an option in the ACER methodology, could highlight the important impact (or not) of this synthetic approach. CREG asked to do a sensitivity with the 30 historical years, but Elia refused to do so.

[8] See CREG's study 1950

22. Regarding the compensation for risk, Elia uses in its latest study WACCs that can go as high as 14 percent. This is based on a new methodology. The CREG acknowledges the improvements that have been made but regrets that her feedback on the revenue distribution (which heavily impacts the necessary compensation for risk and hence the WACC) has not been taken into account. In the CREG's view, the role of forward markets, an important hedging instrument, should be taken into account. This would lead to a more compact revenue distribution, which would result in a lower risk and thus a lower WACC. The CREG has explained this to Elia on several occasions, but without effect.

23. The impact of out-of-market capacities is ignored in the calculation of the LoLE. Elia only considers strategic reserves as out-of-market capacities, but also implicit demand response and balancing capacities are out-of-market capacities. Given the fact that Elia is a reactive TSO, there is still on average a considerable volume of balancing reserves left in real time. Using these capacities will decrease the real LoLE, which means that the real LoLE is lower than the estimated 4,9 hours for 2025 and the real EENS is lower than the estimated 5,5 GWh.

4. OTHER REMARKS

24. The federal Planning Bureau's latest forecast from last summer projected that in 2025, the electricicty consumption would not be higher than in 2019. Elia uses a higher forecast: 3,2 TWh additional electricity consumption for the central scenario.

25. The CREG reminds that in order to be compliant with ACER's ERAA methodology, all transparency requirements of article 11 of that methodology should be followed by Elia, which is not the case. This parameter is important for the CREG and all the stakeholders to be able to review the results of Elia's adequacy assessment.

For the Commission for Electricity and Gas Regulation:

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