



Volume determination of the strategic reserve for winter 2021-22:

Answers to the public consultation on input data

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1. Introduction

The consultation aimed to receive any comments of market parties on the input data to be used for the strategic reserve volume determination for winter 2021-2022. The consultation period was set from Monday August 24th to Monday September 21th 2020, 18h00.

Elia received 3 non-confidential or partially non-confidential answers to the public consultation from (in alphabetical order):

- ENGIE Electrabel (partially non-confidential)
- FEBEG
- FEBELIEC

The feedback and the answers by Elia System Operator (“Elia”) are grouped in four categories in this document:

- Demand assumptions
- Market response
- Generation assumptions
- Flow-based
- Various

All relevant information to this consultation can be found on the following Elia webpage:

https://www.elia.be/en/public-consultation/20200824_strategic-reserve-input-data-for-determining-the-volume-for-winter-2021-2022

The results of this consultation will also be presented during the Task Force implementation Strategic Reserve (TF iSR) on 30/11/2020.

2. Questions on the Demand assumptions

FEBEG:

[1] Elia expects the electricity demand to grow by 2.5 TWh between 2021 and 2023. The projections were made using the tool developed by Climact for the strategic reserve study. FEBEG wishes to refer to its answer to the methodology consultation¹ regarding the pertinency of this tool. Generally speaking, given the uncertainties around the speed of the economic recovery post COVID-19, it is obviously difficult to predict the evolution of the total demand and its main drivers in a precise manner. Nevertheless, FEBEG observes that the load in September has reached normal levels in Belgium and in many other European countries. In fact, in Great Britain, Italy, Denmark, Norway and Sweden, demand was ABOVE normal levels in recent weeks. The graph below published by Bloomberg clearly shows this trend. In the current context, FEBEG supports a stronger increase of the normalized total demand forecasted for the coming years. Indeed, FEBEG is of the opinion that the opportunities provided at European level in the framework of the relaunch measures will contribute to a further electrification of the system. France and Germany, for instance, have announced relaunch plans including a strong electrification of the vehicles. Also, the Belgian political parties currently negotiating a political agreement have clear ambitions on the development of electrical vehicles at 2026 horizon, especially for company cars. For these reasons, FEBEG proposes to use the demand projections of the NECP that were also integrated in the base-reference scenario of the 2020-30 adequacy study.

Finally, FEBEG regrets that projections on the expected peak demand have not been communicated in the consultation document, as this is crucial information for assessing the adequacy situation of a country. It is very likely that, in the future, the peak demand will increase more than the energy consumption due to, for example, an increasing share of electrical vehicles, heat pumps, etc. while more extreme weather conditions cannot be excluded.

Overall, it seems very risky to claim, today, that peak demand would be lower than expected in the coming years, given the fact that the correlation between peak demand and total yearly demand has not always been clear in the past, and, on top of this there is a limited visibility on the evolution on overall demand at the moment.

Febeliec :

[2] On the sheet 2.1 on demand, Febeliec is surprised to see that Elia estimates that in 2023 total electricity demand will be 87,5 TWh, or 1,8 TWh higher than 2019, despite the covid-19 crisis which has reduced Elia's estimate for 2020 to 82 TWh. Moreover, Febeliec can only observe that the value for 2023 between the presentation before the summer, where the covid-19 sanitary crisis had not yet been taken into account, and the values proposed in this consultation, has only decreased from 88,1 TWh to 87,5 TWh, so only an overall impact of 0,6 TWh in overall electricity demand (or an impact of the average annual growth rate of 2,5% to 1,8%), and this despite many signals (e.g. Federal Planning Bureau, National Bank, OECD, ...) that a V-shaped recovery seems ever less likely. Febeliec requests that at least a scenario is also included that foresees a much less pronounced recovery of total electricity demand in 2021 and the following years (as Elia now proposes an increase of 3,66% in 2021 and 2,03% for 2022), for example in line with the economic forecasts of the Federal Planning Bureau¹ of June 2020, which foresees a decrease of the energy end consumption of 0,4% on an annual basis in the period 2020-2025. Febeliec also requests that Elia provides a justification of the values it obtains, as no justification nor sources are provided (other than a slide referring to an "illustrative scenario" (*sic*) in the explanatory note).

ELIA:

¹ https://www.plan.be/uploaded/documents/202006231122450.FOR_MIDTERM_2025_12169_N.pdf

The different feedback received from the stakeholders, illustrates well the uncertainty of the current period. The final figures are based on the latest projections from the Federal planning Bureau from June 2020², accounting for the COVID crisis. These projections do represent a general recession in 2020, with a progressive recovery up to 2023. This is reflected in the activity and electricity consumption. In addition, electrification of transport and heat are taken into account from the 'WEM – With existing measures' scenario from the latest NECP of Belgium (which is the most conservative scenario with regards electrification).

There are several reasons to argue that those numbers can be seen as optimistic:

- The numbers from Plan Bureau do not take into account the possible effect of the 'second lockdown' in October/November 2020;
- The economic numbers are a picture of the known situation in June 2020, hence events that will happen after that date are not taken into account. It is also hard to estimate the impact of those events on the electricity consumption.

...or conservative:

- The projections for short term EV penetration is based on the 'With Existing Measures' scenario from the NECP (hence the lowest rate of electrification from the NECP scenarios which is not compliant to achieve the 2030 targets) which follow the most recent evolution of EV sales in Belgium. Several new measures/ambitions were announced which could lead to higher electrification rates in the short term;
- A more recent publication of the Plan Bureau in September³ expects a lower decrease of the economic indicators in the short term than the one taken for this study (based on the forecast of June 2020 from Plan Bureau). Unfortunately the granularity of the data of the publication in September was not sufficient to derive electricity consumption figures (requiring data per sector).

In any case, it is still unclear or uncertain how the whole pandemic situation will evolve and what will be the effect on the economy and the electricity consumption on the short run. This study bases itself on the latest available/usable economic projections and policy measures.

The electricity consumption is an input for the model which then derives the hourly consumption of Belgium and other countries in the simulation. The peak values distribution obtained is included in the final report.

² https://www.plan.be/publications/publication-2017-fr-budget_economique_2021_juin_2020

³ https://www.plan.be/databases/data-15-nl-economische_begroting_2021_september_2020_statistische_bijlage

3. Questions on Market Response

Febeliec:

[3] On sheet 2.3 on Market Response, Febeliec would like to reiterate its previous comment on storage. Moreover, Febeliec also regrets that Elia has opted to take a yearly annual increase of market response (which is much larger in scope than demand side response) of only 7%, whereas the last year according to the update of the study commissioned by Elia from E-Cube shows an increase of over 20%. While it can indeed be argued that the inclusion of an additional power exchange has a clear impact, it is also clear that even without the impact of this additional power exchange the growth rate has considerably accelerated (beyond the proposed 7%), while the impact of the roll-out of smart meters (being ever more accelerated), home batteries, ... are not taken into account by only looking at historical trend lines as these were not even present in the past and thus are not revealed at all in the trend lines. Febeliec thus urges to include at least an additional scenario with a higher growth rate of market response, in order to be able to assess the sensitivity of the outcome based on this input parameter. Moreover, Febeliec would like to point out that volumes available for market/demand response are essentially determined by the (expected) occurrence of peak prices, as most of these volumes are only triggered by high prices (typically above 450-500 €/MWh). Historic figures are thus definitively not the only reliable indication of available volumes of market response, unless they are clearly linked to the effective occurrence of peak prices. Last but not least, Febeliec would like to underline the impact of the accelerating roll-out of smart meters in the regions, which will allow increasing volumes of potential market response to enter the market.

FEBEG:

[4] Elia proposes to apply a growth rate of 7% in market response for the determination of the Strategic Reserve need for 2021-22 (which is line with the 7% growth used in the Strategic Study need for 2020-21), considering that the growth rate was of 6% based on observation of the last three years and of 8% based on observation of the whole data set (since winter 2015/2016)). While we acknowledge the strong dynamism around market response in Belgium in the last years, to which most of its members contribute, we question to which extent the same growth rate will be sustained in the medium term – pending the full roll-out of smart meters - and therefore invites to a cautious approach. For this reason, FEBEG supports Elia with the proposition to use an annual growth rate of 6% based on the observation of the last three years but recommends Elia to clearly highlight in the report the uncertainties around these projections.

ELIA:

For the current assessment, the methodology has been enhanced to capture block bids as well as the addition of a new NEMO (i.e. Nordpoolspot) in order to reflect the current reality and the bidding behavior of the market players. This addition contributed to a significant increase of the MR volume in this year's assessment, while it cannot be accounted for that a similar, extraordinary increase could be repeated year on year.

On the one hand taking into account the opinion of the different stakeholders and considering the various efforts on smart meter roll-out, the Internet Of Energy as well as the Transfer Of Energy projects, it is believed that a growing trend will continue. On the other hand, Elia acknowledges that despite an expected positive trend, it remains uncertain how and when this trend will unfold. Elia is hence still in favor to take 7% into account for the Strategic Reserve 2021-22 as this value ensures the continuity with the 2020-21 Strategic Reserve study and constitutes a tradeoff between the different stakeholders' opinions.

Febeliec:

[5] On sheet 3 on balancing volumes, Febeliec would like to reiterate a comment it has made during the Task Force of 31/08/2020 on the proposed values. Febeliec would rather have seen the absolute values of balancing reserves, so not only provided by production units, and at the same time increase the

values for market response with the corresponding volume that is now considered to be contributing to balancing reserves, as it would provide a much clearer indication. For example, market response, including market response participating to balancing reserves, was assessed by E-Cube as 1408 MW in winter 2019-2020, while Elia only takes 1041 MW into account in sheet 2.3. More correct, especially in light of future evolutions which according to Febeliec should be modelled individually in order to be able to assess them individually (e.g. on storage, demand side response, profiled generation, ...) would be to apply in sheet 2.3 the higher value of 1408 MW and in sheet 3 provide all balancing reserves, including market response, in order to avoid double or zero counting and thus unnecessarily introducing errors, especially further out in the future.

ELIA:

Elia takes note of Febeliec' requests on the presentation of market response and balancing reserve and will analyse its added value for further releases. Such approach is also the one used at ENTSO-E level for the MAF study for instance. Nevertheless Elia can assure that no double counting occurred in the assessment of market response and balancing reserves.

4. Questions on the Generation assumptions

Febeliec:

[6] On sheet 1.3 on renewable production, Febeliec has at this point no specific remarks on PV and wind capacity, but hopes these evolutions are monitored closely, even despite the sometimes very limited value from an adequacy perspective. With regard to the biofuel category, Febeliec is very surprised to see a very steep decline (almost 120 MW in the next three winters or more than 20% of installed capacity for profiled biofuel) and would like to get a quantitative argumentation for this proposal by Elia. When addressed during the Task Force of 31/08/2020, Elia argued that this steep decline was proposed in order to align the data with the values proposed in the (in the mean time outdated) NECP. Febeliec does not accept this approach and expects from Elia a reasoned and quantified analysis. Febeliec also refers to slide 8 of the explanatory document, where it is shown that the Elia database, looking at existing and operational installed capacity in the Regions, shows an extreme divergence with the numbers reported by the Regions (more than 350 MW higher), giving at least a reasonable doubt about the values known and used by the Regions and thus the values provided in the NECP.

[7] On sheet 1.5 on profiled thermal production, Febeliec would like to point out that the data in the spreadsheet does not correspond with the table provided in the explanatory note. Moreover, Febeliec is very surprised to see that for gas and other category between winter 2022-2023 and 2023-2024, no increases at all are expected, which seems rather strange in light of e.g. existing or discussed incentive schemes or tariff regimes for small (shared) cogeneration facilities. Moreover, Febeliec also wonders whether several industrial investment projects are taken into account also from the side of generation, as Febeliec does not see much new generation capacity at industrial location included in the data (either profiled or individually modelled thermal production), except for Borealis Kallo and Indaver E-wood. Does Elia not consider any additional capacity to be installed or does it estimate that it would only become available in the period post winter 2023-2024?

ELIA:

For today's installed capacity, and depending on the type of generation, either the values from the regions, or the values from the Elia PISA database are used.

- For Biofuel & Waste we believe the data of the regions to be an underestimation as they are based on a computation where running hours are involved, whereas the PISA database has reported capacities. Hence, Elia uses higher values than those reported by the regions. For the future evolution, such as done for the other RES capacities, the basis are the expected policies on the matter. In this case the future evolution is based on the NECP of Belgium where a decrease of Biomass capacity is foreseen. It is also worth noticing that the downward trend, aligned with the NECP, has been applied on the non-CIPU biofuel profiled units as no CIPU units are known to be closing in the coming years. Elia is following the official announcements concerning CIPU units. For in depth information on the constitution of the forecasts, one can contact the governing bodies directly.
- For CHP and other gas fired units, Elia relies on the PISA database as there is no reporting of the regions. The known projects with a status acquired, reserved capacity and under construction are taken into account to estimate the installed capacity for the coming winters. For CHP this typically shows an overestimation of the capacity present in the target winter of the volume assessment, hence it can be seen as an optimistic forecasts. Indeed, not all acquired & reserved capacity is commissioned in due time.

Febeliec:

[8] On sheet 1.4 on pumped storage, Febeliec has at this point no specific comments on the provided data. Febeliec appreciates that Elia has provided in the mean time an update of the spreadsheet with other storage is treated separately by Elia. Nevertheless, Febeliec regrets that it is still not yet clear how this data is correlated with the data on market response (where presumably part of the storage is integrated), while at the same time it is also unclear on which basis or analysis the newly provided data is based. This approach does not allow to evaluate the assumptions taken by Elia for storage. While one could argue that in the very near future (one year ahead) the impact might be small (although a

great number of parties are working on storage projects), the impact two or three winters ahead might be much larger, especially if certain technologies such as e.g. electric vehicles with vehicle2grid capabilities or home batteries (e.g. under new governmental incentive schemes or obligations) would show an increased available storage capacity.

ELIA:

Currently the installed capacity of storage is very limited, about 26 MW and will therefore not significantly overlap with the assessment of the market response volume.

The assumptions taken regarding the projections for storage are detailed on sheet 1.4. Large scale storage assumptions are based on the currently known projects. Small scale storage estimations are based on the assumption that each year 0.5% of the PV installations add a battery capacity of the size of the PV installation (with 3 hours of storage). Finally the assumed evolution for V2G is based on the number of registrations of new EVs. This trend has already been reviewed in the context of the Adequacy and Flexibility public consultation⁴.

Febeliec:

[9] On sheet 1.6 on forced outage rates, Febeliec remains surprised of the very high values for some categories (e.g. CCGT, GT, Classical), which seems to be shared also by some producers during the Task Force of 31/08/2020. Febeliec is also surprised that Elia for some categories between the last volume determination and this consultation increases the forced outage rate of almost all categories (e.g. waste, CHP, TJ, classical and CCGT). With the closure of assets, most of them presumably the oldest assets in their respective categories, it seems strange that by removing those older assets, which are presumably also more prone to outages due to aging of the asset, the forced outage rate would actually increase! As voiced during the Task Force of 31/08/2020, Febeliec strongly urges Elia to reconsider its current approach with a statistical quantification on historical data per category, as this approach could lead to ever increasing deviations towards the future, especially if in some categories in the future large volumes of newbuilt capacity were to be added. Febeliec suggest for example an approach where the historical data is filtered for those units that remain in the system, so excluding the outages of units that have been or will be closed in the timeframe of the current analysis, as the outage rates of those units presumably is less relevant for the analysis. Alternatively, but more complex, the outage rate of the remaining and new units could be taken into account with the application for each year of an aging factor on their outage rates (which could lead to higher outages for those units in the future compared to their outage rate in the past), although Febeliec doubts whether for an exercise looking towards three future winters the impact hereof would be significant (as compared to the impact of taking historical data into account of assets that are decades older than those retained in the system).

ELIA:

We thank Febeliec for the suggestions to improve the methodology. We would like to remind several points which can have an impact on the statistical representation of the data:

- The amount of units in the Belgian system for some categories is very limited. Hence the need to take 10 years of observations and to keep the units by category. Even though the Forced Outage rates can be influenced by 'exceptional' events or long lasting outages on a unit. Further splitting the different categories only worsen this aspect;
- The present study only looks mostly at existing capacities, (only a limited amount of power plants is foreseen to be commissioned in the analysed period);
- Only a few new gas units have been commissioned over the last decade, concerning decommissioning, only one 1 CCGT can be counted hence the argument stating that large amount of units are removed from the dataset with the 'rolling horizon' is not valid – it actually means that the fact that 10 years are taken it could be seen as optimistic as 10 years ago existing units were younger (if the age would have an impact on the forced outages).

⁴ https://www.elia.be/en/public-consultation/20201030_public-consultation-on-the-methodology-the-basis-data-and-scenarios-used

Nevertheless Elia believes that relying on data is a more sound and robust approach.

Finally on the forced outage rate evolution over the lifetime of a unit, an interesting analysis from the CREG ⁵ (point 22, page 18/112) states that: *“For CCGT units, decreased availability can be observed for older units, mainly linked to planned unavailabilities. No increased forced outage rate can clearly be detected for CCGTs”*

Febeliec:

[10] On the sheet 1.2 on the individually modelled thermal production, Febeliec understands that the granularity of the overview is on complete winter periods. Nevertheless, for example for Tihange 2, as the decommissioning according to the current law is foreseen from 01/02/2023, Tihange 2 will be available for a substantial part of winter 2022-2023. Febeliec strongly invites Elia to apply a more refined granularity in the volume determination calculations, taking into account availability of power plants (or all other sources of flexibility) during partial winter periods.

On nuclear availability, Febeliec does not see a data sheet, but the topic was covered in the explanatory note and Febeliec would like to reiterate a comment it has made last year on the outcome of the dimensioning exercise for strategic reserve (for winter 2020-2021). Elia states that for winter 2021-2022, the planned maintenance (REMIT) will be used for the nuclear availability, while it stated during the Task Force of 31/08/2020 that for the next winters it follows a “statistical projection”. While during the Task Force of 31/08/2020 a representative of the operator of the nuclear assets in Belgium stated that REMIT data also is available for periods in time further ahead, Febeliec strongly urges that a reality check be also performed on this data. Imagine the extreme scenario where the operator of the nuclear assets would indicate (e.g. in REMIT) unavailability of all of its nuclear assets during (a part of) the winter period, this would lead to a very high (and artificial) need for a strategic reserve and risk for the Belgian adequacy, while the likelihood of such situation occurring in reality would be extremely low. The same also applies to all other asset categories and the notifications in REMIT, although of course due to its size and weight this effect is most visible in the category of nuclear assets. Febeliec strongly urges Elia to take this element into account, also considering that Elia has the right to refuse or at least ask to amend the maintenance calendar of assets in light of its role to maintain a stable and reliable grid. Febeliec would strongly regret that such element would lead to a skewed outcome and thus unjustified additional costs for consumers.

ELIA:

Elia does take into account the exact decommissioning date for the thermal power plants in its adequacy assessments. Elia takes into account the latest data possible to perform its simulation when referred to planned maintenance (15/10/2020). Elia wishes to correct the statement made during the task force, when referred to REMIT, Elia takes into account the dates of the planned maintenance as indicated in REMIT for Belgium. Elia remains critical of the information received but remains confident in the regulatory framework provided by REMIT⁶ aiming for instance at avoiding market manipulation. In addition Elia would like to remind that no maintenance is assumed during winter for all the other categories of units in Belgium, which is also an optimistic assumption.

FEBEG:

[11] We note that Elia has updated the estimates for Solar PV and On-shore wind based on the latest updated estimates provided by the regions. First of all, we suggest Elia to provide estimates per region in order for market parties to better assess them. Secondly, FEBEG considers it uttermost

⁵ <https://www.creg.be/sites/default/files/assets/Publications/Studies/F1958EN.pdf>

⁶ <https://www.creg.be/fr/professionnels/fonctionnement-et-monitoring-du-marche/remit/contexte-et-reglement-remit>

important to ensure coherence between the figures used in different contexts (a.o. adequacy studies, MAF, CRM, SR....) to ensure overall consistency between the different assessments. Given the ambitious targets set in terms of RES development at the horizon 2030, it is important to carefully monitor the realization of the different projects to assess the adequacy situation in the next winters. We recommend Elia to carefully assess, on a regular basis, with the relevant authorities if these projections remain realistic in the short and medium term.

ELIA:

Elia strives for consistency between its studies nevertheless, as these studies are not performed at the same time, they would reflect different data snapshot. This point is also valid for other countries' data, mainly taken from the MAF or published national studies. Elia is aware of this aspect and carefully challenges the consistency of the data provided.

Elia remains aware of the short and medium term projects through its database containing the new projects for all type of generation. For the long term, Elia's scenario is aligned with national projections. Elia provides the data granularity as used in its analysis, the NECP can always be consulted for more accurate regional view. The renewable energy evolution is crosschecked at least yearly with the regions.

ENGIE:

[12]

- **Nuclear units availability in Q1 2024:** The refueling planning for our nuclear units on Q1-24 should still be validated. Engie will try, as much as possible, to avoid any maintenance during the winter period.
- **Coo:** the capacity of Coo should be limited to the value published on the ENGIE transparency website. The capacity is equal to 1.080 MW.
 - Coo I: 3x145 MW = 435 MW
 - Coo II: 3x215 MW = 645 MW
- **Turbojets:** the availability of assets will gradually decrease. For this reason, **we also recommend Elia to provide a sensitivity that not all TJs will be available in the coming years.**
- **Hydro RoR:** Engie wonders what is the origin of the increase of Hydro RoR.

ELIA:

Elia has adapted its assumption to take into account the comments provided. (see Excel published along the final study)⁷

5. Questions related to Flow Based modelling

Febeliec:

[13] On sheet 4 on flow-based domains, Febeliec wonders why the external constraint for Belgium in 2021 is not already further relaxed, as Alegro will have been taken into service and already part of the rest of the investment program of Elia will have been completed. Febeliec also wonders how Elia will incorporate the Belgian derogation plan in its calculations and asks that some additional information be provided on this element.

ELIA:

⁷ https://www.elia.be/en/public-consultation/20200824_strategic-reserve-input-data-for-determining-the-volume-for-winter-2021-2022

As already stated in the past, the external constraint will increase to 7500 MW as of winter 2022-23 thanks to the addition of voltage control elements.

Elia will apply the derogation on all the analysed winters as the derogation is based on an externality, being that loop flows on Belgian CNECs cannot be contained to an acceptable level, which is creating an operational security risk if the CEP70 requirement would be applied. Please consult the following document⁸ when looking for more details regarding the ground of the derogation.

6. Various

ENGIE:

[14] ENGIE fully supports the answer provided by FEBEG and, in particular, refer to the arguments brought forward regarding the evolution of the demand in Belgium in the context of an expected increased electrification of the system and the COVID-19 recovery plans.

Also, ENGIE fully supports the choice to consider 4 nuclear units unavailable in France on top of announced unavailability – referred as the HILO scenario. ENGIE is in the opinion that the uncertainty on the nuclear park in France can directly impact the security of supply in Belgium.

⁸ <https://www.creg.be/nl/openbare-raadplegingen/ontwerpbeslissing-2136-over-de-goedkeuringsaanvraag-van-de-nv-elia>