



# Consultation report of the Public consultation on the scenario's, sensitivities and data for the CRM parameter calculation for the Y-4 Auction with Delivery Period 2026-27

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## Introduction

Elia organized a public consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-4 Auction with Delivery Period 2026-27. This public consultation took place in the framework of the Royal Decree laying down the method for calculating the required capacity volume and the parameters necessary for the organization of the auctions within the framework of the capacity compensation mechanism (hereinafter ‘the Royal Decree’).

Article 5, §2 of the Royal Decree sets out the topics to be submitted for public consultation, namely:

- the update of data and assumptions regarding the scenario(s), as well as any potentially selected sensitivities to be included in the reference scenario;
- the relevance of the sensitivities, including the data and assumptions on the basis of which they were established;
- the type of additional capacity;
- the public sources of the scenarios for the years subsequent to the year of delivery from which the input data are used to calculate inframarginal rents;
- the shortlist of existing technologies that will be reasonably available and which are eligible for the determination of the intermediate price cap.

The public consultation material consisted of an Excel file, containing all the data and assumptions regarding scenarios, sensitivities and parameters required by the Royal Decree, an explanatory nota in PDF format. Moreover, the slides presented during Task Force CRM meeting from Tuesday 6 May 2021<sup>1</sup> can also be considered as support.

The consultation aimed at receiving comments from market participants on these data and assumptions as well as suggestions for additional sensitivities in order for the Minister to decide the selection of a reference scenario. In line with the Royal Decree, this decision is to be taken on the basis of a proposal of the CREG, to be formulated taking into account this consultation report and after an advice on this proposal by the FPS Economy. It explicitly foresees that Elia should make a recommendation for the scenario to be taken.

The consultation period was set from Thursday 20 May to Sunday 20 June 2021, 6:00pm, was publicly announced on the Elia website and during the Task Force CRM meeting from Tuesday 6 May 2021.

In total 1 confidential reaction and 3 public reactions (FEBEG, Febeliec and an anonymous reaction) were received.

This document is structured as follows:

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<sup>1</sup> <https://www.elia.be/fr/users-group/crm-implementation/20210506-tf-crm-26>

- First, the legal and regulatory framework of this public consultation is reminded;
- Then, Elia's recommendation will be added in line with article 5, §3 of the Royal Decree;
- This public consultation report provides the overview of received questions, a justified answer from Elia and how these will be taken into account for the CRM calibration. This public consultation report will be published on Elia's website as well as all the non-confidential feedback received.

Finally, Elia would like to thank all the market parties for their contributions and for providing written feedback during the public consultation.

## 1. Legal and regulatory framework

The federal electricity law of 29 April 1999 foresees in its article 7undecies §2 that the Transmission System Operator (Elia) elaborates on a yearly basis and after public consultation, the reports providing the calculation for the necessary volume and a proposal of auction parameters. The procedure is further defined in a Royal Decree laying down the parameters with which the volume of capacity to be provided is determined, including their calculation methods, and the other parameters necessary for the organization of auctions, as well as the method for and the conditions for granting an individual exemption from the application of the intermediate price ceiling(s) in the context of the capacity compensation mechanism (the Royal Decree) setting out the method for calculating the required volume of capacity and the parameters necessary for the organization of auctions under the capacity remuneration mechanism.

A first collaboration meeting was organized with FPS Economy, in presence of CREG on 23 February 2021. A second collaboration meeting was organized with FPS Economy, in presence of CREG on 19 April 2021. A task force was organized to provide market parties preliminary information, subject to further comments from CREG, on 06 May 2021. On 07 May 2021, CREG sent its comments on Elia's proposal. On 18 May 2021, Elia replied to CREG's comments.

## 2. Elia's recommendation

This section will be updated after concertation/collaboration meeting with CREG and FPS economy.

### 3. Received feedback and Elia's answer

This chapter of the public consultation report provides the overview of received feedback, a justified answer from Elia and how these will be taken into account for the CRM calibration.

Regarding the received feedback from stakeholders, and before answering in details to all the comments, Elia would like to clarify one general point which is related to the framework of this public consultation on scenarios, sensitivities and data for the CRM auction volume and parameter calculation for the delivery year 2026-27 which follows the requirements of the Royal Decree.

The **CRM auction volume and parameters calculation will be performed on one single reference scenario** decided by the Minister, based on CREG's proposal, FPS' advice and Elia's recommendations, as stated in article 7undecies §2. This reference scenario will be constructed based on the steps described in article 7undecies, §2 to 7. This reference scenario can potentially integrate sensitivities that can have an impact on the Belgian security of supply and located inside or outside the Belgian market zone. If selected by the Minister, **those sensitivities will be integrated as part of one single reference scenario.**

Regarding the annexes provided by Febeliec, Elia refers to the answers provided in the framework of the previous public consultations to which those annexes were provided as feedback.

### 3.1 Methodology

In the framework of Y-4 auction for 2026-2027 delivery period of the CRM, Elia organized a public consultation on scenarios, sensitivities and data for the CRM auction volume and parameter calculation. This public consultation takes place in the framework of the Royal Decree laying down the method for calculating the required capacity volume and the parameters necessary for the organisation of the auctions. Elia strictly applies the methodology set in the Royal Decree and especially article 5, §2 regarding the content of the public consultation hence comments regarding the methodology or the ‘need for a CRM’ are to be analysed in the context described above.

#### 3.1.1 General remarks

Febeliec	<p>Febeliec will provide its input on the proposed excel-file by Elia, but this does not mean that Febeliec agrees with the applied methodology and should in no case be interpreted as such. Febeliec has understood that Elia is to apply the methodology it has developed unilaterally for its bi-annual Adequacy and Flexibility Study, this time for the period 2022-2032, on which Febeliec in the past has made ample comments and provided ample questions, many of which still have not been resolved or even have not been answered in detail, thus also leaving at least the same comments and questions on this consultation. Moreover, Febeliec very strongly regrets that Elia has put 20/06/2021 forward as a deadline for this consultation, where the outcome of its Adequacy and Flexibility Study 2022-2032, often referred to in the consultation, will only be presented after this date, implying that it is impossible to get a full picture of the implications. Febeliec insists that Elia could have made a better planning, in order to allow for respondents to get a better grasp of the intricate interactions between both studies and their methodologies, in particular because Elia itself links them to each other.</p>
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Elia takes note of the comment relating to the planning and understands that the planning remained difficult. However the scenario data used in the context of the Adequacy & Flexibility study were already consulted end of 2020 and a consultation report was also available in March 2021. This exercise concerns the scenario data for the DY2026-27 (this target year was also part of the previous consultation on the Adequacy & Flexibility study).

Nevertheless one needs to remind that the definition of scenario and sensitivities is performed in collaboration with FPS and in concertation with CREG. As explained in the legal framework section, the planning needs to fit all the stakeholders around the table and the followed planning was the best achievable this year, taking into account the deadlines set in the Royal Decree.

Febeliec	<p>On the scenario and sensitivities, Febeliec is already surprised to see that Elia states that the methodology related to the model and simulation will be in line with the latest Mid-Term Adequacy Forecast (MAF 20202) and Elia’s</p>
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	own Adequacy and Flexibility Study 2022-2032 (as mentioned above not yet presented), but still not entirely with the methodology for the European Resource Adequacy Assessment (ERAA), the latter already being approved for some time now. For Febeliec this is clearly not in line with the requirements written down in the Clean Energy Package (CEP).
Febeliec	Febeliec wonders to what extent the choice to apply MAF 2020 and whether this approach is compliant with ERAA (see also above).
	Febeliec, as in previous year, strongly regrets that Elia still, as for all other adequacy related studies and analyses, only conducts a consultation on the input data, now complemented with some sensitivities and scenarios, and does not conduct a consultation on the methodology itself. Febeliec continues to strongly regret that Elia has chosen yet again not to involve the stakeholders in the development of this methodology, other than the stakeholders imposed by the law (FPS Economy plus coordination with CREG). Even though no such legal obligation exists, Elia could (and according to Febeliec, should) have opted for a much larger involvement from all stakeholders, in order to obtain a much stronger buy-in from stakeholders in the methodology, the study and its results.

Elia understands that the CRM and its calibration is of interest to many actors and involves several parties. Elia therefore welcomes all reactions and wishes to remind that Elia fully respects and applies the applicable legal and regulatory framework, as explained in chapter 1. The objective of this public consultation is to gather feedback and input for the determination of the reference scenario for the calculation of the needed volume and parameters for the first auction in the CRM, in line with the Royal Decree and the electricity law.

On a larger scope, the task force scenario has been launched this year in order to further increase the stakeholder involvement in the definition of scenarios. The first two workshops will be held in September on "Storylines" and "Flexibility in consumption" and will hopefully be fruitful and increase the buy-in from stakeholders as they will be able to actively contribute by providing evidence to support the construction of such scenario.

Elia would like to remind that the methodology to be applied is the one prevailing in the legal framework according to Royal Decree, article 12, §2 and §3. Following this article, the simulation methodology that will be applied shall be therefore in line with the relevant sections of the 'European Resource Adequacy Assessment' methodology, as referenced in Article 23 of the EU Regulation 2019/943 of the European Parliament and of the council of 5 June 2019 on the internal market for electricity, provided that such an approved methodology exists at the time of performing the calculations and is implemented in the most recently published ENTSO-E ERAA report. Given that the methodology for the ERAA, has still to be used for the first time in an ERAA and that the CRM calibration runs in parallel to the ERAA, the latest published 'European adequacy

assessment' corresponds to the 'ENTSO-E Mid-Term Adequacy forecast report (MAF)' published end of 2020. Elia also wishes to indicate the articles referred to in the above mentioned European Regulation deal with the methodologies for adequacy assessments (ERAA, NRAA), which is to be clearly distinguished from the parameters calibration of a CRM which is dealt with here. Although the Royal Decree seeks alignment in terms of methodology with ongoing European developments and best practice (but also defines how to proceed in case this is not yet fully available), from a legal perspective, it does not imply, according to Elia, that those European rules (for ERAA and NRAA) are directly applicable in this case.

## 3.2 Scenario dataset

### 3.2.1 Data sources

Febeliec	Febeliec has following remarks and comments to the spreadsheet. In general, Febeliec already wants to indicate the lack of much actual data provided by Elia. Most spreadsheets provide hardly any data, almost no sources and in fact provide hardly any basis to provide input on. It is impossible to discern whether the values are based on external sources, internal estimates, or a mix of both, making it also nearly impossible to validate or falsify the data.
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Elia does not agree with Febeliec on this point. Elia provided at least all the data required by article 5, §2 of the Royal Decree for the delivery year 2026-27.

The Excel file presented all the necessary data and assumptions required for calculating the required capacity volume and the parameters necessary for the organization of the Y-4 auction. This dataset is based on the latest Mid-term Adequacy Forecast (MAF 2020) performed at ENTSO-E and is has been further updated for the Adequacy and Flexibility 2022-2032 public consultation<sup>2</sup> to account for the latest information as defined in article 3, §2 of the Royal Decree. A link to this dataset was also provided in the document. Moreover, the Excel file refers for each sheet to a particular section of the explanatory note providing additional information on the dataset (including sources). Finally, the whole scenario dataset as well as the proposed sensitivities had been presented during the Task Force from the 6<sup>th</sup> of May 2021<sup>3</sup>. Elia clearly mentioned on its website that the slides presented could be considered as a support for this public consultation.

As a conclusion, Elia believes it has performed its commitment to the Belgian authorities in line with the current legal framework and as requested by the Minister instruction.

### 3.2.2 RES

FEBEG	The figures regarding renewables are overly optimistic and not in line with the actual evolution of these capacities. In addition the societal acceptance is not considered at all and the impacts of the various and long appeal procedures against these kind of projects are simply ignored
FEBEG	Fort de 450 mâts, le parc éolien wallon devrait doubler en dix ans.

<sup>2</sup>[https://www.elia.be/fr/consultations-publiques/20201030\\_public-consultation-on-the-methodology-the-basis-data-and-scenarios-used](https://www.elia.be/fr/consultations-publiques/20201030_public-consultation-on-the-methodology-the-basis-data-and-scenarios-used)

<sup>3</sup><https://www.elia.be/fr/users-group/crm-implementation/20210506-tf-crm-26>

	<p>Beaucoup de communes sont proches de l'asphyxie et entrent en résistance. [...] Plus de 450 éoliennes sont actuellement déployées sur le sol wallon, même si aucune cartographie précise n'est disponible. Un nombre qui devrait doubler d'ici à 2030. [...] La fédération du secteur des énergies renouvelables (Edora) considère néanmoins que les choses ne vont pas assez vite : en 2020, seuls 24 nouveaux mâts sont sortis de terre pour une puissance totale de 70 MW, largement sous la barre des 100 MW qu'il faudrait atteindre chaque année pour rencontrer les objectifs fixés à la Région. L'opposition gagne du terrain, l'insécurité juridique aussi. [...] Sans compter, les dossiers en rade au Conseil d'Etat: « La Wallonie souhaite évidemment rencontrer ses objectifs de production d'énergie renouvelable. Mais les projets qui vont dans ce sens font l'objet de plus en plus de litiges. Un dossier se retrouve devant le Conseil d'Etat pour la septième fois », explique le ministre Borsus. [...] le ministre qui assure «vouloir rencontrer très prochainement les bourgmestres tant l'exaspération est croissante par rapport à des dépôts nombreux, en cascade et à répétition.» (Le Soir 16/06/21 éd. Wallonie p. 6 – <u>we underline</u>)</p> <ul style="list-style-type: none"> <li>• Dit najaar komt er in Vlaanderen een grote informatiecampagne over de energietransitie. Die campagne moet de burger er onder meer van overtuigen dat het plaatsen van zonnepanelen een aantrekkelijke investering blijft. [...]</li> </ul> <p>De cijfers van enkele weken geleden lieten weinig aan de verbeelding over. Het aantal nieuwe installaties van zonnepanelen is in de eerste maanden van dit jaar met 60 procent gedaald tegenover 2019. Het ging weliswaar om voorlopige cijfers, maar de commotie over de terugdraaiende teller heeft nu eenmaal voor een deuk in het consumentenvertrouwen gezorgd, zo zei minister Demir eerder.</p>
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Elia takes note of the remarks of FEBEG. Nevertheless Elia has validated once again that the targets remained the objectives to pursue with the authorities. Elia hence rely on the RES objectives in the framework of the 'National Energy and Climate Plan' such as submitted to the EC end of 2019. On the public acceptance, while it is true there is some discussions with stakeholders, the public authorities did not updated their RES objectives at this stage.

Febeliec	For renewables, as only aggregated numbers are given without any explanation, it is impossible to provide any meaningful information (e.g. applied annual growth rates by Elia are missing as well as the starting points on which to apply such growth rates)
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Elia does not understand this comment. The renewable capacities for the delivery period 2026-27 are presented in the Excel file for every category (wind onshore, wind offshore, solar, hydro run-of-river, biomass and waste). This information can be found on the sheet '1.1 Summary' from line 17 to 27. These numbers are fully aligned with the assumptions presented in the public consultation of the Adequacy and Flexibility study that provides an overview until 2032 which are in-line with the final NECP of Belgium.

Those numbers are also presented in the explanatory note and were presented during the TF from 6<sup>th</sup> May 2021.

FEBEG	It furthermore should be noted that for the offshore wind growth ambitions – i.e. the second offshore zone-, the execution of the project will also depend on the timely execution of infrastructure projects. Experience has demonstrated that such large-scale projects will face challenges before they can be realized as perfectly illustrated by the Boucle du Hainaut project. For this reason, FEBEG strongly recommends to not integrate, in the reference scenario for the next T-4 auction, the additional 700 MW wind offshore parcs at the 2026 horizon as the most probable scenario is a commissioning of these parcs at the 2027-2028 horizon.
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Elia takes note of the received feedback on offshore wind.

Looking at the current official information<sup>4</sup>, the additional offshore connection capacity of 700 MW is expected by 2026-2027. This coincides with the target delivery period, and it is proposed to consider it in the Y-4 auction for the delivery year 2026-27. Nevertheless as this additional capacity is strongly related to the commissioning of the Ventilus project, Elia suggests to re-assess this element in the framework of the next auctions' reference scenario. If the project finally appears to suffer from delays, the capacity would have to be dealt with in the Y-1 auction. As the identified derating factor in the CRM 2025-26 was 15%, the extra capacity (100% available) to be auctioned would amount for about 100 MW in Y-1.

### 3.2.3 Thermal

Febeliec	Febeliec has no comments on the specific units presented, but reiterates a longstanding comment on the lack of transparency on the
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<sup>4</sup> <https://economie.fgov.be/nl/themas/energie/energiebronnen/hernieuwbare-energieen/hernieuwbare-energiebronnen-de/belgische-offshore-windenergie>

	announced (temporary) closure of power plants in Belgium. Moreover, Febeliec also notices that Elia does not consider any additional units in Belgium in the period till 2026 and wonders whether this is realistic.
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On the first point, Elia can only refer to the legal procedure related to the closure announcement of power plants in Belgium (article 4bis of the Electricity Law).

On the second point, Elia took into account all the available information regarding the units in the market for the delivery period 2026-27.

On the one hand, it might happen that additional capacities will enter the market before this delivery period. In that case, those will be taken into account in the 'reference scenario' to be defined for the calibration of the Y-1 auction. Concerning the Y-4 auction, the reference scenario selected by the Minister will be made adequate by adding new capacities if needed from preselected capacity types. Then, the reference scenario will be used in order to define among others the volume parameters of the demand curve. The capacity mix used in the calibrated reference scenario does not imply that this capacity will be the one (or a forecast from Elia of the one) resulting from the auction, as mentioned in the general disclaimer described on §3.

On the other hand, it might happen that some units referenced by Elia in its dataset will not be any more in the market for the delivery period depending on e.g. investment decision from the producers or CRM Y-4 auction results or the absence of economic support. In this case, the calibration of the Y-1 auction will be adapted to not underestimate the total volume to be procured.

Therefore, Elia believes that the proposed dataset can be considered as the best available information on the existing thermal units that would be in the market with a CRM for the delivery year 2026-27.

Febeliec	Febeliec regrets that no methodology for the calculation has been provided, making it difficult to assess the information (e.g. are forced outages uniformly spread over the year or are there periods with higher/lower forced outage rates, e.g. due to preventive maintenance before winter period with on average higher prices).
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The forced outages rates are calculated on rolling 10 years window of observations (Elia data base until 2014 and the ENTSO-E transparency platform afterwards) and grouped by category of units in order to have a statistically representative data set. 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 worsens this aspect.

As for the second comment, on one hand, by definition a 'forced' outage is not something one can predict or which is driven by prices. It is not possible to completely avoid any forced outage, the risk is always present. Arguing that planning preventive interventions

just before the scarcity period will avoid any forced outages is not being precautionary as any intervention includes a risk of misintervention, that can, o. a. lead to unplanned outage that day or shortly after the intervention. Such risk is inherent to any intervention and when prices are high, no market player is willing to take those avoidable risks.

The forced outage rates are included in the ANTARES model via a built-in thermal time series generator relying on a Markov chain. The forced outage rate is hence an input to this Markov chain that draws the availability time series.

Febeliec	Febeliec regrets that it is not completely clear which power plants are included here, in particular diesel generators , emergency generators (all considered market response?) and process generators. Because of a lack of breakdown (only aggregated data is shown), it is even more impossible than last year (as profile information was removed) to identify which periods these categories are available/producing and to have a view on their contribution to system adequacy.
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In order to answer to Febeliec's concerns, Elia refers to the Excel file submitted to public consultation. The sheet '1.1 Summary' provides a clear overview of the split between the different categories and the associated generation capacity.

Regarding gas-CHP, biomass and waste, a part of the units are individually modelled in the simulation and the details are presented on the sheet '1.2 Ind. mod. thermal gen.' and for the other part a thermal generation profile based on historical data is used and is presented on the sheet '1.5 Renewable and non-CIPU. This last sheet mentioned that 1379 MW of profiled generation capacity is taken into account. Diesels generators are part of this category.

Indeed, for modelling purposes, there is a need to distinguish the 'large' units which are individually modelled (with an associated forced outage) and the 'smaller' units which are taken into account with an historical average generation profile.

In order to perform this split, Elia maintains a database of centralized and decentralized generation units, which is updated on a monthly basis following exchanges with DSOs and grid users directly connected to the Elia grid. The database includes both units with and without a CIPU contract.

The profiled generation time series are constructed on the basis of available historical data. Further analyses can be found in the appendix G.2 of the Adequacy and Flexibility study 2022-32.

Emergency generators are not explicitly taken into account in the profiled thermal generation but are included in the market response shedding and shifting categories.

### 3.2.4 Nuclear

Febeliec	Febeliec wonders which assumptions Elia will apply for its sensitivities including a nuclear extension. Moreover, Febeliec also wonders which
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	data Elia will use to model nuclear availability in other countries, knowing that Elia refers several times to such scenarios as having a major impact, yet does not provide any quantitative insight on its methodology.
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As mentioned in the explanatory note, the data for the simulated countries come from the latest Mid-term Adequacy Forecast performed at ENTSO-E level. A link to the ENTSO-E study and database is presented in the Excel (section 5). This database provides also data regarding the availabilities for each technology. Additional sensitivities on those technical parameters or capacities that can have an impact of the Belgian security of supply might then be integrated in the reference scenario, as defined in the Royal Decree. See paragraph 3.3.1 on the nuclear sensitivity in France and 3.3.5 on the Febeliec's enquiry for a 2 GW nuclear extension for more explanation.

### 3.2.5 Storage

<p>FEBEG</p>	<p>The hypotheses regarding batteries, in particular home batteries and V2G, are not based on any factual market evolution but are derived from arbitral assumptions. FEBEG notes that the figures in this consultation are significantly lower than those used for the delivery year 2025. While we welcome the downward adaptation as we considered the previous figures much too optimistic, we still believe that the assumptions used by ELIA are overestimated both in terms of small and large-scale storage and V2G.</p> <p>Regarding the potential of small &amp; large-scale storage: it is unlikely that this capacity would enter the market with the current market conditions and regulatory framework (cf. levels of derating factors in the CRM), without additional visibility on their business cases in the coming years. Furthermore, we assume that the market depth (estimated around 2-300 MW) does not permit for the figure proposed in the study.</p> <p>Regarding the potential of V2G: the volume not only highly depends on the number of electric vehicles in Belgium but also on the roll-out of the available technology to make them active market participants in the electricity market (smart meters roll-out but also compatibility of cars to being smartly charged). FEBEG has strong doubts that this latter will be generally available by 2026. Currently very few models are '2VG ready' and we expect a very slow uptake of this technology (currently less than 1 MW) only from 2022/2023 onwards, when Volkswagen will start to work with this type of technology (note that V2G charging infrastructure is also more expensive than normal "smart" charging infrastructure). Next to the availability/compatibility issue, it should be noted that the (financial) added value for the consumer remains very marginal and will probably not be impacting enough to drive a behavioral change.</p> <p>Next to the currently non-availability of the technology in the market, we would like to underline the need for a clear and stable regulatory framework and a positive business case, which are both completely absent at the moment. Considering all the above uncertainties and hurdles, we think the figure of 129 MW of V2G by 2026 is overly optimistic.</p>
<p>Febeliec</p>	<p>For storage no source is available (e.g. for the storage capacity estimates) nor a full methodology describing volumes for small scale storage (e.g. number of installations) or V2G (e.g. number of vehicles in each year) the increase of storage, making it impossible to provide any meaningful comments to the proposed data. This comment has been voiced before and still has not been addressed by Elia in a complete way.</p>

First, Elia would like to remind that, regarding all the data and assumptions for every

technology mentioned in the Excel file for the public consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2026-27, it is assumed that a CRM is implemented for the delivery period and provides the required support for each capacity contributing to the Belgian's security of supply to be available in the market.

Elia relies on the authorities to activate the necessary levers to achieve the storage objectives proposed by the authorities in the framework of the 'Energy Pact'. If those storage capacities contribute to the Belgian security of supply and meet the eligibility criteria, they could be supported by the CRM.

Elia agrees with FEBEG's remark on V2G uptake, hence the EV charging profiles are a mix of two types of profiles as specified in the e-mobility study<sup>5</sup>, further details are available in the Adequacy and Flexibility 2022-32 study Section 3.3.1.1:

- 1) 'Natural' charging: the electric vehicle profile overlaps with the evening electricity consumption peak. No smart meter nor incentives are present to optimise the charging of the vehicle. The observed pattern is one in which people charge their EVs when needed, mostly after work. It results that it coincides with doing it at the same time as they use other electric appliances (for cooking, entertainment, etc.);
- 2) 'Optimised charging' V1G: electric vehicles are combined with unidirectional smart charging technology (without the possibility of injections into the network) to optimise charging during off-peak periods;

For the batteries, Elia presented in the Excel file and in the associated explanatory note the reservoir volume and capacity for this category, in line with the 'Energy Pact' figures which were also the ones used in the public consultation '10-year Adequacy and Flexibility study 2022-32'. The split between the different categories (small scale storage, large scale storage and vehicle-to-grid) is also presented in the Excel file and the assumptions are further detailed in the explanation note. It is true that the total number of EV was not provided in this public consultation, nevertheless as the assumptions are in line with the last public consultation of the Adequacy and Flexibility study, the number of EV per year is accessible on the sheet "2.1 Tot. elec. demand".

### 3.2.6 Demand-side response

FEBEG	The market response capacity are very high and overly optimistic when comparing with the potential of DSR in other countries. Shedding capacity: FEBEG considers that applying a yearly increase of 7% for the coming years is too ambitious for the reference scenario. While FEBEG is convinced about the role that Demand Side
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<sup>5</sup> [https://www.elia.be/fr/actualites/communiqués-de-presse/2020/11/20201120\\_publication-vision-paper-on-e-mobility](https://www.elia.be/fr/actualites/communiqués-de-presse/2020/11/20201120_publication-vision-paper-on-e-mobility)

	<p>Response will play in the market in the coming years, we estimate that the strong increase observed in the last few years (cf. E-cube study) may not necessarily continue to materialize in the following decade – pending the full roll-out of the smart meters - as the additional DSM potential for certain types of grid users will be limited. In addition, FEBEG would like to remind that the methodology applied by E-Cube cannot ensure that the identified potential corresponds to market response only (e.g. at 150 €/MWh or more blocks could also be linked to super-peakers under some circumstances). In addition, the volume expected in terms of market response are highly different from ENTSO-E assumptions in their Mid-Term Adequacy Forecasts.</p> <p>FEBEG doubts that the DSM potential expected by Elia would become effective without additional support at the 2026 horizon: very high ambitions regarding DSM are expressed in the framework of the CRM given the significant volume that is left open for the T-1 auction but energy-limited capacities have low derating factors in the CRM. In comparison, in France where a capacity market is in place, FEBEG observes that “only” 35 GW of DSR6 have been certified, in a market where the load is much more thermo-sensitive. Furthermore, the potential for DSR is function of the peak load; the UK Association of Decentralized Energy (ADE) assumes that about 16% of the peak could be covered by DSR7. In comparison, about 2 GW of DSR in Belgium would amount to about 15% of the 13.8 GW Belgian peak load, almost reaching its maximum potential.</p> <p>Shifting capacity: FEBEG considers that the figures presented are also very ambitious.</p>
Febeliec	<p>Febeliec continues as in previous years to voice important questions and comments towards the values used for demand side response, which are based on the Belgian Energy Pact, which first of all pre-dates the current covid-19 crisis, but also does not provide a quantitative background for the provided numbers. Febeliec is thus unsure how for example to evaluate the impact of the on-going roll-out of smart meters for a.o. residential consumers or the introduction of dynamic price contracts (per CEP) or the introduction of new grid tariff structures and incentives (in particular on the distribution grids, as can already be seen in Flanders). Febeliec also wonders how emergency generators (see also above) are treated, as before they were included in the category market response, but that has now been abolished and replaced by demand side response, where it is unsure if and how such generators are taken into account, if at all). Febeliec wants to stress that in Belgium literally 100s of MWs of emergency generators are installed, with its own members already having massive volumes of emergency generators (in at least one case even</p>

	<p>100s of MWs for certain grid users), not even taking into account the 100s of MWs installed at a.o. hospitals, where a CREG study indicated an installed capacity of at least 200 MW. Due to the lack of any quantitative (or even qualitative) breakdown or background of the proposed values Febeliec can thus not validate any of them, but can only indicate that it is very concerned that the provided values underestimate reality.</p> <p>Febeliec is also surprised to see that Elia applies its own methodology, developed by E-Cube (where Febeliec also refers to the numerous comments it made to this methodology and its reservations it has towards this methodology) only till 2023, after which it states to do an interpolation till 2030 based on the (quantitatively non-substantiated) Energy Pact, which is every year more outdated (and in any case has as stated before no quantitative foundation). Febeliec does not understand why Elia decided to divert from its own methodology, in order to take an outdated value and an interpolation as basis for such an important component. Moreover, as in previous years Febeliec strongly wants to contest the base value that Elia is using for the determination of demand response in the future. It is unclear on which source Elia bases its initial starting point and refers to its previous comments on this, in particular related to winter 2018-2019, with a.o. announcements by two of the largest BRPs in the Belgian system of substantial volumes (+500MW and +200MW) of contracted market response, apart from what all other actors such as aggregators still had contracted in their portfolios. Febeliec reiterates its longstanding request for Elia to finally provide a detailed breakdown of its data in order to be able to analyse this element. Febeliec is convinced that Elia underestimates the market response for the period 2025, as it does in the table not even provide any future data, but only a (non-detailed) overview of the (current?) capacity that it considers.</p> <p>In general, it is very difficult to provide any useful input on the data presented by Elia, as any detailed breakdown is missing.</p>
Febeliec	<p>Moreover, Febeliec strongly wants to contest that base value that Elia is using for the determination of demand response in the future. It is unclear on which source Elia bases its initial starting point and refers to its previous comments on this, in particular related to winter 2018-2019, with a.o. announcements by two of the largest BRPs in the Belgian system of substantial volumes (+500MW and +200MW) of contracted market response, apart from what all other actors such as aggregators still had contracted in their portfolios. Febeliec reiterates its longstanding request for Elia to finally provide a detailed breakdown of its data in order to be able to analyse this element. Febeliec is convinced that Elia underestimates the market response</p>

	for the period 2025, as it does in the table not even provide any future data, but only a (non-detailed) overview of the (current?) capacity that it considers.
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First of all, Elia would like to remind that the scenario dataset provided in the framework of the public consultation consists of the ambition set in the NECP and the 'Energy Pact'<sup>6</sup>. In the latter one, the authorities have set the following targets/ambitions for market response for 2030 in the Energy Pact:

- 2.0 GW demand shedding;
- 1.5 GWh demand shifting.

Elia would like to remind that the methodology used in Belgium to quantify demand response volumes was developed by ECUBE in 2017 based on a collaboration with Belgian market stakeholders in the framework of the dimensioning of the Strategic Reserve needs. This developed methodology included as well a benchmarking study with various countries (France, UK, Norway, PJM, ...). Nowadays, the methodology developed remains the best way available to determine demand response volumes for which no real alternatives exist or have been suggested by stakeholders. Moreover, Elia would like to insist on the fact that this methodology has been adapted in the meantime to cope with the latest market evolutions by including Nord Pool Spot as NEMO and complex block orders as well to the volumes analyzed to determine demand response volumes.

The E-cube methodology aims at assessing the current level of demand-side response offered in Belgium based on historical data. Therefore starting at the amount of MW identified during the winter 2019-2020 applying hence the 7% growth rate on the short term and then interpolate to the Energy Pact values which are setting Belgium's ambitions. These numbers have been validated with the authorities and Elia relies on them to make the necessary arrangements to support the evolution towards the target. Moreover, as stated in Article 11, §5 of the Royal Decree a volume will be reserved from Y-4 auction to Y-1 auction. This will also allow to assess more precisely a.o. the impact of the roll-out of smart meters for residential consumers, the introduction of dynamic price contracts (per CEP) or the introduction of new grid tariff structures and incentives. The Y-1 auction will hence cover any over or under estimate of such volumes the year before delivery.

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<sup>6</sup> [https://www.tommelein.com/wp-content/uploads/bsk-pdf-manager/Visienota\\_-\\_BE\\_Interfederaal\\_Energiepact\\_209.pdf](https://www.tommelein.com/wp-content/uploads/bsk-pdf-manager/Visienota_-_BE_Interfederaal_Energiepact_209.pdf)

Elia would also like to remind Febeliec that the volume of market response accounted for in the reference scenario for the Y-4 auction for delivery year 2026-27 in no way limits the amount of market response offered into the CRM auctions. The reference scenario will be used in order to define among others the volume parameters of the demand curve. The capacity mix used in the calibrated reference scenario does not imply that this capacity will be the one (or a forecast from Elia of the one) clearing in the auction results, as mentioned in the general disclaimer described on §3.

Regarding the announcements for winter 2018-2019 by two of the largest BRPs in the Belgian system of substantial volumes (+500MW and +200MW) of contracted market response, apart from what all other actors such as aggregators still had contracted in their portfolios, those volume are allowed to participate in the CRM auction, as any other technology. This volume can be interpreted as a part of the market response volume forecasted by the authorities in the Energy Pact. If the owner of those capacities assesses those to be suitable for participating in the CRM auction, there is no reason they will not take part in the auction. As described in the CRM design, in the end, the optimal set of bids will be selected in the auction process, leading to the lowest-cost CRM for the consumers. Moreover, if those capacities are already available, they could already take part in the Y-4 auction.

Moreover, as answered by Elia in the framework of the latest strategic reserve public consultation on input data<sup>7</sup>, Elia wishes to reiterate that it remains open to update or revise the methodology and that, besides feedback, it welcomes proposals from stakeholders for such improvements in the methodology. Note that in this respect Elia has already updated the methodology to include both complex orders as well as any volumes from Nordpool Spot. However, it should be understood that the current methodology, being based on a thorough research effort and bearing in mind experiences with alternative methodologies in the past, cannot be abandoned without having a better alternative at hand. Elia is interested in learning and open to discuss how referred to volume could be objectively quantified and integrated in a yearly recurring assessment other than by looking at market data such as the offer curves. In that respect also the integration of a potential impact of the increased balancing price cap seems difficult to isolate from the market response as observed in the analyzed curves, as this represents 'the' market, including how anticipates on the balancing time frame.

Regarding the emergency generators, as explained in §3.2.3, those are considered in the market response volume.

As already mentioned in the previous CRM public consultation report, Elia believes emergency generators that want to respond to market signals can only do so by participating in the market, and therefore should be assumed covered in the 'E-cube

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<sup>7</sup> [https://www.elia.be/-/media/project/elia/elia-site/public-consultations/2019/20191202\\_sr-2020-21-elia-answers\\_public-consultation\\_inputdata\\_20191127.pdf?la=en](https://www.elia.be/-/media/project/elia/elia-site/public-consultations/2019/20191202_sr-2020-21-elia-answers_public-consultation_inputdata_20191127.pdf?la=en)

methodology’. Elia cannot predict how emergency generators, which are not in any way active in the market would act on a scarcity market signal, the very first question would be why they are then not in the market and whether it would be wise to take them into account in the context of this market response analysis.

For the same reasons, emergency generators are allowed to offer into strategic reserves, a product specifically for out-of-the-market capacity (i.e. capacity that will not react to any price signal).

### 3.2.7 Balancing capacity

Febeliec	Febeliec regrets that Elia takes ever higher volumes of balancing capacity to be reserved, while at the same time watering down certain balancing obligations for BRPs (e.g. Day Ahead balancing obligation). If Elia considers needs for balancing capacity to rise over time (not even yet taking into account the possible impact of the second wave of offshore wind), it should rather strengthen balancing obligations, in order to ensure that not evermore capacity needs to be contracted and paid for by consumers.
Febeliec	Febeliec and other stakeholders have already many times voiced concerns about the non-inclusion of balancing capacity in adequacy assessment, most in particular in extreme scenarios (such as Elia’s high impact low probability scenarios), which exacerbate the already very conservative approach by Elia for the base scenarios and create extremely high needs for additional capacity (as can be seen in all recent Elia adequacy assessments, where through such extreme scenarios several GWs of required capacity are artificially added). Especially in the latter type of scenarios, which are supposed to have low probability, balancing reserves should be taken into account for adequacy concerns, as would also be the case in real time as a non-adequacy event would become visible through BRP-portfolios simultaneously becoming unbalanced and thus Elia balancing reserves being applied for restoration of the system imbalance. Put in another way, for such extreme and very unlikely scenarios, Febeliec finds it inconceivable that a TSO ponders to have over a GW of capacity available yet not throw this into the balance to avoid curtailment of consumers, capacity that has been paid for by the consumers.

For the amount of balancing capacity taking into account, Elia relies on its best estimations to fulfill the legal requirements on the need to dispose of sufficient reserve capacity. On the DA balancing obligation, Elia refers to the discussions, studies and consultations in the context of this specific dossier where the necessary nuances in relation to Febeliec’s statement have already been extensively discussed.

Concerning the use of balancing resources for adequacy purposes, in line with Article 157 of the SOGL, ELIA always needs to dispose of sufficient reserve capacity to cover the dimensioning incident and at least 99% of the expected LFC block imbalances. Despite that this capacity can be used in practice for adequacy purposes (any adequacy issue will finally result in an LFC block imbalance), accounting this as such in the dimensioning will start from the premise that ELIA should not cover its dimensioning incident during periods with scarcity. This would be unacceptable.

The approach proposed by ELIA is also compliant with the ERAA-guidelines:

- The full article specifies “unless the modelling framework described in paragraph 1(g) is able to model the use of balancing reserves in relation to unforeseen imbalances, FCR and/or FRR (or a part of these balancing reserves) may be deducted from the available capacity resources in the ED, ...”
- Paragraph 1(g) specifies that “Unless the modelling framework allows for a proper characterisation of unforeseen imbalances, the ED shall rely on a “perfect foresight” principle: [...]”

Hence, as ELIA’s model is a perfect foresight model, and does not allow a proper characterisation of unforeseen imbalances, ELIA may deduct the full FCR and FRR from the available capacity resources, as proposed in the ERAA methodology.

ELIA also reminds that full FRR needs need to be deducted from the assets modelled in ANTARES. Indeed, even if ELIA is able to count on reserve sharing or non-contracted balancing energy bids to reduce its balancing capacity to be procured, this capacity still needs to be considered ‘firm’, i.e. availability is guaranteed.

### 3.2.8 Consumption

The comments on the electricity consumption and the ‘low demand’ sensitivity have been commented in §3.3.4 (Reactions on ‘BE load stable’ sensitivity) as they are strongly interconnected.

### 3.2.9 Cross-border & Flow-based

<p>FEBEG</p>	<p>FEBEG considers that Force Outage Rate of the Network Elements of the grid (besides HVDC cables) should also be applied as those elements are equally subjects to failure (even with the N-1 dimensioning rule). We see no reason why such FOR is not considered in Elia’s adequacy simulation as those elements have a major impact on the SoS of the zone.</p>
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When building the Flow-based domains, the unavailability of the links is endogenously taken into account through the definition of CNECS. These CNECS cover both the N state of the system as well as taking into account possible contingencies. This approach is also used in studies at European level. As such, they indeed do not fully take into account the possibility of having simultaneous independent unavailability of elements,

which could result in optimistic domains.

Febeliec	Febeliec agrees that for the minimum minRAM 70% is chosen (although Febeliec insists that this value is a legal minimum and TSOs should strive to do better as consumers pay for 100% of the (cross-border) infrastructure). Febeliec wonders why in the table Belgium comes with an asterisk, as no explanation is provided (the same applies to PSTs with double asterisks)
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Elia takes note of Febeliec's remark and will answer it in detail in the sensitivity section 3.3.2. Concerning the asterisks, Belgium should not have any and it will be corrected in the final version. For PST, the explanation is the following: The set point will be determined based on the nodal flow estimation and base case simulation in order to maximize the size of the Flow-Based domain in the expected market direction – hence they are optimized in order to maximize the exchanges and the welfare. PST's are today nor used in the capacity allocation nor are there concrete plans to do so in the coming years.

### 3.2.10 Economic parameters

FEBEG	Elia proposes to use a CO <sub>2</sub> price of 31 €/tCO <sub>2</sub> , based on W.E.O. 202013, which is very low compared to the levels that have been observed since early 2021. This needs to be adapted.
Febeliec	Febeliec refers to its previous comments on these and hopes Elia will at least conduct some sensitivity analyses on these parameters, as they will have an enormous impact on the outcome. Febeliec can only observe that covid-19 seems, apart from CO <sub>2</sub> , to have had a dampening effect, as oil/gas/coal prices have dropped compared to last year with 10 to 20% (and thus have an important impact)

Elia notes the comment from Febeliec that the covid-19 will certainly have an impact on the fuel and CO<sub>2</sub> prices. However, article 5, §2 mentions that the data and assumptions used to define the sensitivities need to be based on justified and quantified sources. Regarding fuel and CO<sub>2</sub> prices, there is an absence of quantified data or scenarios providing numbers on the long run assessing the impact of covid-19 until for the 2026-27 delivery period. Unless a report from a renowned association provides relevant information for the targeted period, Elia will work with the information at hand.

Nevertheless, an intermediary scenario based on the WEO 2020 numbers has been built for CO<sub>2</sub> in the context of the Adequacy and Flexibility study. The carbon price was constructed as follows:

- the **‘Central price’ scenario** was based on the average of the IEA-WEO2020 SDS (Sustainable Development Scenario) and STEPS (Stated Policies Scenario) scenarios;
- the **‘Low price’ scenario** was based on the STEPS scenario;
- the **‘High price’ scenario** was based on the SDS scenario.

Elia suggests to use the central price scenario as reference to reflect the uncertainty.

Concerning fuel prices, those are changing on a daily basis. The spot gas price for instance is above levels observed in the past 5 years, hence stating those will be lower is incorrect (so as stating those will be higher). A certain assumption needs to be made, Elia believes that using a public source and report such as the WEO, updated on a yearly basis, is a good approach (unless there are other more updated or relevant sources).

### 3.3 Reactions on proposed sensitivities

In the framework of the public consultation, Elia submitted a set of sensitivities to stakeholders, including the source of the data and assumptions used. The purpose is to potentially include in the reference scenario one or multiple sensitivities that can have an impact on the Belgian security of supply and located inside or outside the Belgian market zone, as described in article 3, §4 of the Royal Decree. Those sensitivities will be integrated in the reference scenario (i.e. only one scenario will therefore be constructed). The Minister will therefore decide on the data and assumptions that will be selected as reference scenario, including the potentially selected sensitivities, based on a proposal from CREG, the advice from FPS on this proposal and Elia’s recommendations.

The set of sensitivities proposed during the public consultation is presented on Figure 3.1.

<b>French nuclear availability 1</b>	<b>Decreased French nuclear availability in continuity of last year’s reference scenario</b> Lower availability by 2 units on average during winter
<b>French nuclear availability 2</b>	<b>Decreased French nuclear availability based on historical figures</b> Lower availability by 4 units on average during winter
<b>FB CEP rules</b>	<b>Non achievements of the CEP rules for 2026 to reflect the uncertainty on capacity calculation.</b> 50 % RAM instead of 70% <u>minRAM</u>
<b>BE unit at risk</b>	<b>Closure of turbojets due to aging and economics + <u>Vilvoorde</u> GT (officially closed in the meantime)</b> -158 MW
<b>BE load stable</b>	<b>In order to reflect a slower growth on the demand side, CREG proposes to integrate a sensitivity where the total demand is equal to the one considered in the 2025-26 calibration report</b> 88.9 <u>TWh</u> instead of 90.2 <u>TWh</u>

Figure 3.1: Sensitivities proposed in the framework of the public consultation

### 3.3.1 French nuclear availability 1 & 2

Febeliec	<p>On the French nuclear availability 1 and 2, as already discussed in the past, Febeliec is surprised that this is even included, as France already has a CRM in place, guaranteeing the adequacy of France (unless Elia would claim that the French existing CRM is performing badly, in which case Febeliec would like to see a full analysis of this) and according to the ERAA methodology, NRAAs can only take into account national impacts and not those happening across the border, such as French nuclear availability (as opposed potentially to a Belgian Royal Decree, in which case European legislation takes precedence). Febeliec is also surprised that Elia now again includes a lower availability of 4 nuclear units in France, which was discarded during the previous CRM calibration report.</p>
FEBEG	<p>The availability of French Nuclear assets: Historical data show that variations over the winter months between announced availability and actual availability go up to more than -15 GW. The variations are on average at least -6 GW between the planned and actual figures over the last 4 years. Data on the French CRM, in particular, reveals that the view on the reliably nuclear capacity has consistently been overestimated over the past years. At the end of a delivery year, at least 5 to 6 GW were missing compared to initial certification. Next to this, one must be very cautious about the commissioning of Flamanville EPR, which keeps being delayed from year to year (delayed till 2022 in 2019 and till 2024 in March 2020). FEBEG strongly recommends authorities to consider 4 nuclear units unavailable in the reference scenario. FEBEG therefore recommends to Elia to integrate in the reference scenario the risk associated with the unavailability of capacities located in neighboring countries, and in particular the unavailability of some French nuclear units.</p>
FEBEG	<p>Coal phase out across Europe (in particular in Germany and in the Netherlands): given the expected reinforcement of the GHG emission reduction targets by 2030 (EC proposal of minimum -55% compared to 1990 levels) the additional decommissioning of coal/lignite capacities to meet these targets should be embarked as a clear additional risk factor.</p> <p>- In the U.K. a recent announcement also highlights the important risk of over-estimating the contribution from foreign capacity to Belgium. According to Bloomberg news: Electricité de France SA is shutting its Dungeness nuclear power station with immediate effect, seven years</p>

	<p>sooner than planned. The shutdown of Dungeness means that by 2024 five of the U.K.'s eight nuclear plants will be halted permanently, adding to a list that includes Hunterston B, Hinkley Point B, Heysham-1 and Hartlepool-1. FEBEG therefore recommends to Elia to integrate in the reference scenario the risk associated with the unavailability of capacities located in neighboring countries, and in particular the unavailability of some French nuclear units..</p>
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In the framework of the CRM calibration, Elia is only looking at what capacity would be available in France in the 2026-27 delivery period. This capacity is based on the data and assumptions provided by RTE in the dataset of the Mid-Term Adequacy Forecast 2020, as presented in the explanatory note, §2.1.5. This is in line with article 3, §2 of the Royal Decree.

This sensitivity on the nuclear availability in France is proposed in order for the Belgian authorities to cover themselves against lower nuclear availabilities in France as experienced in the most recent winters. Such reasoning is compliant as it is justified and quantified as described in the explanatory note, in line with article 3, §4 of the Royal Decree.

### **Availability of the French nuclear fleet**

The scenario started from the assumption that the French nuclear fleet will follow either the published forecast of the French producer (when available) or will be similar to the observed past 10 year average availability over the year. Indeed, the model used by Elia is fed with historical availability data that allows to draw the unavailability in a probabilistic manner, to fall within the historical observed range while keeping the historical average the same. Such an assumption was also taken in the MAF2020 report, although in that study, only one planned availability profile is used. Such deterministic approach has the drawback to underestimate situations where one or more nuclear units would be unavailable at the same time.

Figure 3.2 illustrates this historical range over the past 10 years compared to the deterministic availability used in the MAF2020. As can be observed, the availability of the MAF2020 follows the 10 year average. The future expected availabilities for the next 3 winters of the French nuclear fleet are also indicated on the same figure. The experience of the past years have shown important discrepancies which justify a more prudent and realistic approach.

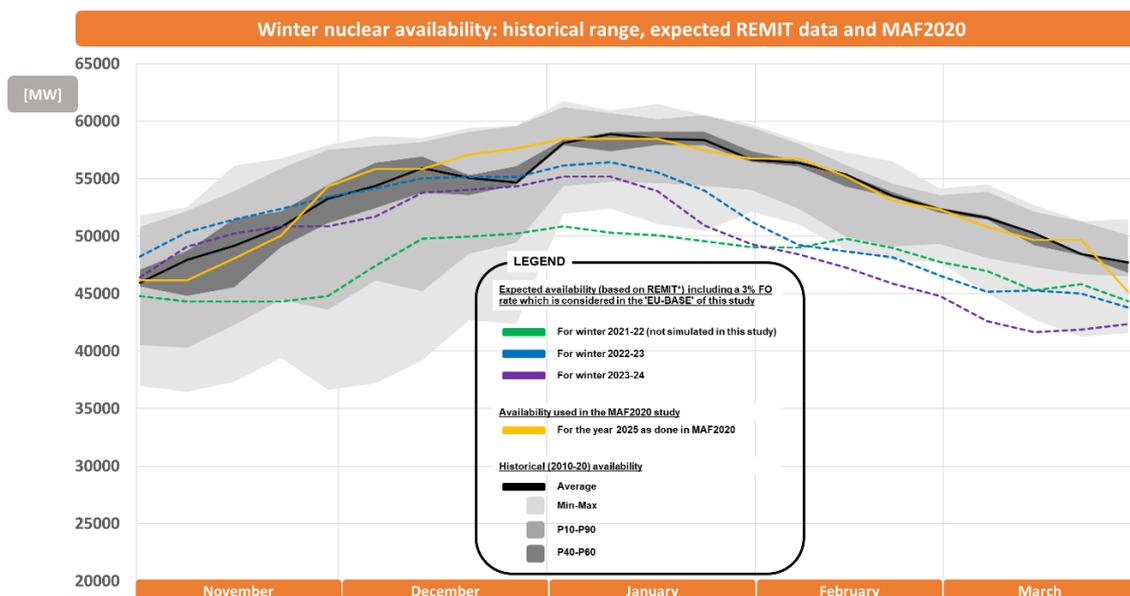


Figure 3.2

Despite efforts from French nuclear producers to maximise availability of their units, and to perform the necessary works in due time, there are several reasons to consider a more prudent and realistic approach with regards to French nuclear availability. These are listed below, alongside analysis which justifies the approach taken.

**The ageing nuclear fleet might require additional maintenance works that could lead to longer unavailabilities than initially expected.**

Several reasons can explain such unforeseen planned outages or unexpected prolongations of planned outages: for example some ‘common mode failures’ due to discoveries of anomalies in one or several reactors, life-extension works that require more time than initially planned, the COVID-19 pandemic which has led to a heavy rescheduling of maintenances over the coming years, etc.

The oldest French nuclear units are reaching 40 years of operation. Every decade, each nuclear unit needs to undergo a major inspection called ‘visite décennale – VD’. The duration of these inspections is always uncertain, given increased safety measures and depending on the issues detected during it. The inspections could also lead to required life-extension works that can last several months. The 4<sup>th</sup> VD (after 40 years of operation) could result in longer inspections. In addition ‘common mode failures’ are not to be neglected as those reactors were all built with the same technology meaning that any defect discovered in one reactor could also be present in many others.

**Over the past 5 years, the availability of the French nuclear fleet significantly decreased during winter periods.**

As can be seen in Figure 3.3, the French nuclear fleet has experienced significantly higher unavailability rates when compared with the deterministic maintenance profiles used centrally by ENTSO-E. This discrepancy justifies the sensitivities proposal for the reference scenario.

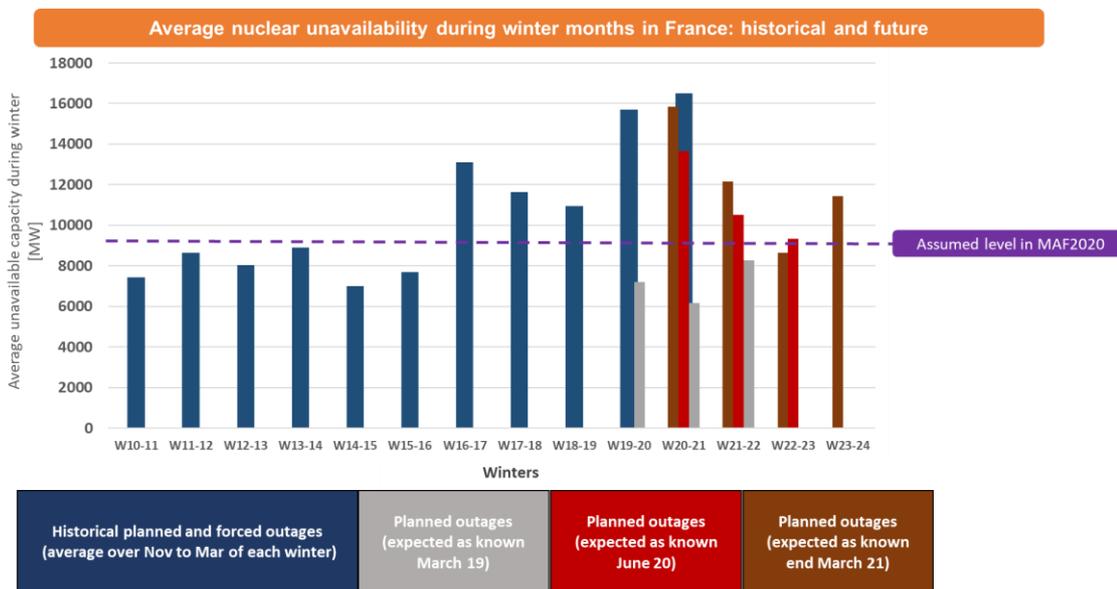


Figure 3.3

**The nuclear unavailability was underestimated the past 5 years.**

When looking at REMIT availability data from the past 5 years (which provides information related to the expected unavailability of each nuclear unit), it is clear that unavailability rates were consistently underestimated when published one or two years in advance. In order to perform the analysis, publicly available data from EDF was used. This data contains the announcements of planned unavailabilities for each unit. Figure 3.4 illustrates the expected planned unavailability for each month based on REMIT data, which was published at the beginning of each calendar year.

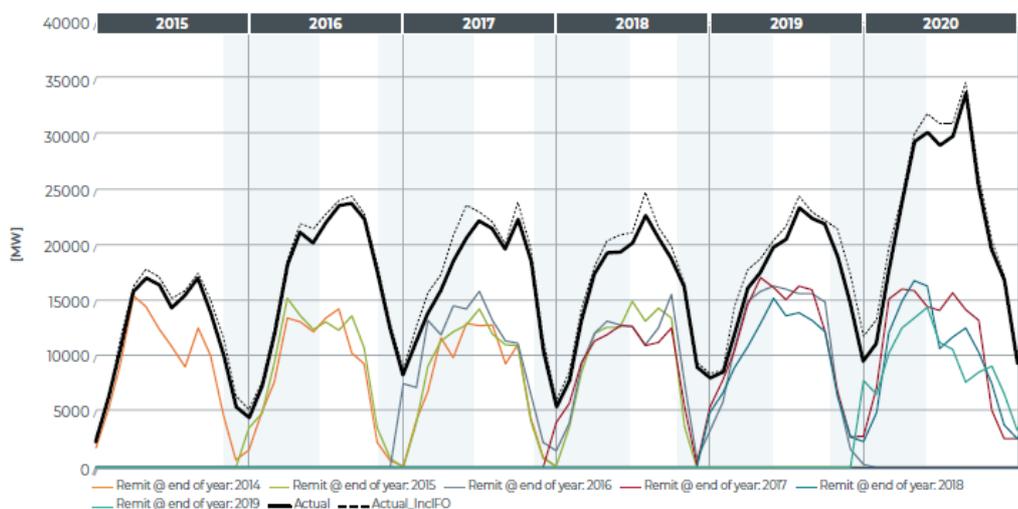
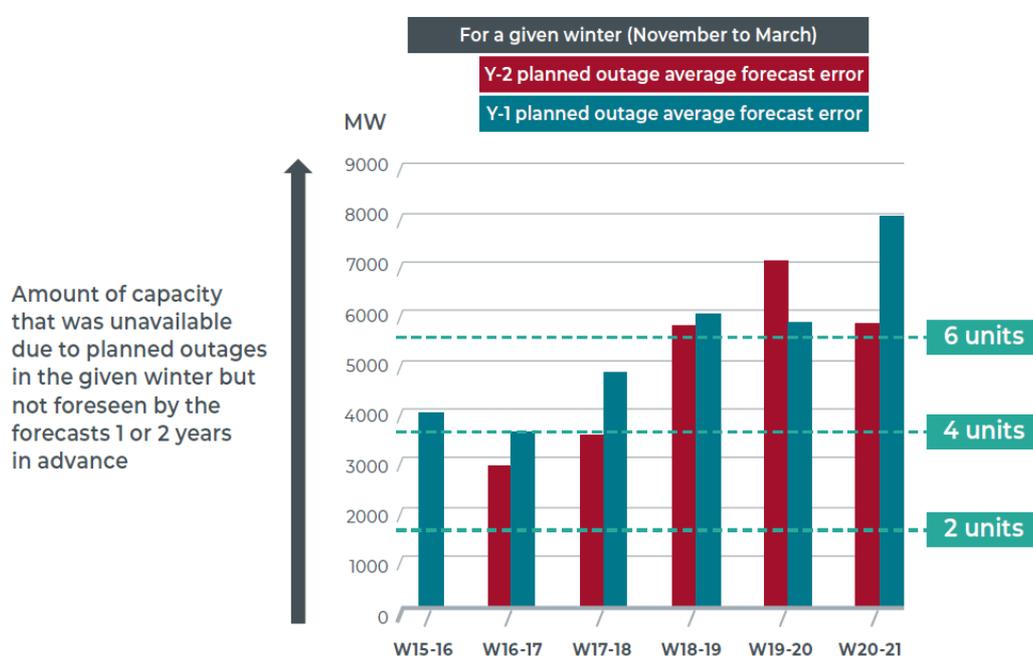


Figure 3.4

Each curve (in colour) relates to the predictions made at the end of a specific year in terms of expected planned outages for the upcoming 3 years. The black curve represents the realised planned unavailability across the years. The dotted black curve includes the forced outages (on top of the planned outages already included in the black curve). It is obvious from the graph that the planned unavailabilities were severely underestimated.

This underestimation was worse during the summer months, although a very significant amount of capacity was also unavailable during the winter months, due to outages that were not predicted.

In order to illustrate the average amount of capacity that was unavailable but not predicted as part of planned outages, the average difference between actual planned unavailabilities was calculated, focusing solely on the winter months (November to March included). Figure 3.5 illustrates this ‘forecasting error’. The figure also indicates how many units these differences correspond to. Over the last 6 winters, the underestimations have amounted to at least 4 units. This underestimation further increased over the last three winters to reach an equivalent of more than 6 units.



Based on REMIT data published by EDF

Figure 3.5

### The French TSO takes into account additional unavailabilities compared to those included in public unavailability forecasts published by EDF.

The same observation is made by RTE when looking at the past availability data, concluding that maintenances last longer than previously observed.

The French nuclear safety authority (ASN – Autorité de sûreté nucléaire) has taken a position concerning the prolongation beyond 40 years of operation of the 32 reactors of 900 MW under several conditions. Besides major improvements in safety measures already planned by EDF, additional requirements were also prescribed by the ASN. Those will be applied on a unit per unit basis taking into account unit specificities [ASN-1]. Some of the improvements will be carried out after their VD and could lead to additional unavailabilities for the reactors that had their VD planned prior to 2022.

While not explicitly mentioned in their last ‘Bilan Prévisionnel’ of 2021, there are indications that RTE does take additional outages (or an extension of planned outages) into account in its scenarios. Indeed, when comparing the publically available data from EDF (of 29 March 2021) and the range as published by RTE in its Bilan Prévisionnel for

the winters 2022-23 and 2023-24, it results that the range taken into account is less optimistic than the published data under the REMIT regulation. It is important to note that the expected REMIT availability data used by RTE is already several months old, hence some differences could be explained by the different date for the upcoming availability taken. Moreover, RTE uses a range of scenarios for the nuclear availability. This confirms that modelling the nuclear fleet with only deterministic planned outages such as done in the MAF2020 or by using REMIT data for the upcoming winters is not realistic based on the observations done on the historical availability data. Indeed, RTE has also written in the framework of the MAF2020 (country comments) the following: *“In the MAF, the simulated availability of nuclear power plants do not model the uncertainty on the extension of duration of outages, but take it into account only in a deterministic manner instead of probabilistically. This can lead to underestimate the occurrence of some simulated situations with very low availability of the nuclear generating fleet” [...]*

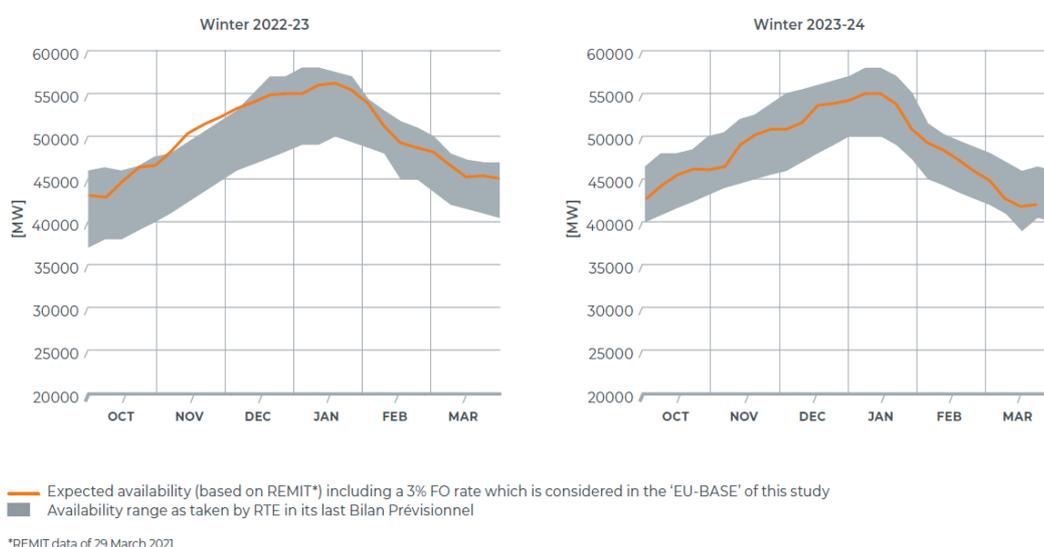


Figure 3.6

### Despite having a market-wide CRM, the French TSO expects that its reliability standard would not be met in the coming 3 winters

The latest 'Bilan Prévisionnel' of RTE published in 2021 has identified in its reference scenario that the system would not be adequate according to their reliability standard. Such results indicate that even though the country has put in place a mechanism to guarantee a certain level of reliability, it is not always guaranteed that the system will be able to cover it. Indeed, there might be externalities that are not covered by the design of the mechanism or the development of new capacities might not be feasible in the required timeframe.

### Additional uncertainties around the French nuclear fleet commissionings/decommissionings could arise

All scenarios explored in this study assumed that the new 'European Pressurized Reactor' (EPR) in Flamanville would be online for beginning of 2023 and would be available at 50% from winter 2032-24. The go-live date of this unit was originally planned

for 2012, and has been postponed several times over the past years. If any further delays in the commissioning of the unit arise, this could lead to a 1.6 GW drop in French nuclear capacity. Note that for winter 2024-25, the unit was assumed unavailable for maintenance works and would come back as from winter 2025-26. This could create an additional risk for winter 2026-27 if any other delays appear.

In addition, the PPE considers the possibility to close two additional nuclear reactors between 2025 and 2026 (under certain conditions). This could also lower the availability assumed in this study as no closures were assumed for those years.

### Base assumptions and sensitivities related to the French nuclear fleet

The assumptions made in the scenario regarding the availability of French nuclear generation were based on a 10-year average availability distribution when REMIT forecasts were not available (these correspond to the MAF2020 assumptions on average). This is modelled in a probabilistic way by recreating the same distribution as the one obtained on the 10-year average availability data.

The nuclear sensitivities proposed to be applied to the French nuclear availability (to reflect the situation observed over the last 5 winters and take into account the consistent underestimation of French nuclear outages in the forecasts) are as follows:

- 2 units to be considered 'additionally unavailable' for the whole winter
- 4 units to be considered 'additionally unavailable' for the whole winter

### 3.3.2 Flow-based CEP rules

Febeliec	On the flow-based CEP rules sensitivity, Febeliec is, just as last year, surprised to see that Elia proposes to diminish the capacity, although the finalisation date for the minimum 70% minRAM has legally been determined as 01/01/2026, meaning that Elia considers that the law will not be respected. Moreover, in the period of the framework of this study the legal deadline will already be almost two years in the past and the minRAM criterion should thus be considered compliant, with all action plans concluded.
FEBEG	FEBEG considers that there remain uncertainties on whether the ambition of minRAM 70%10 will really be achieved by 2026. For instance, we observe that derogations are still claimed by some countries, while for others action plans are put in place to reach the minRAM (e.g.: Germany). Without doubting on the goodwill of the concerned countries, we consider that a minRAM set at 70% would represent the absolute best-case scenario <sup>11</sup> . Given that the goal of the reference scenario and its sensitivities is the SoS of Belgian zone, it is of the utmost importance to avoid overly optimistic hypotheses. Currently, prior to SDAC, FB domains are extended to reach 70% minRAM criteria. After SDAC, FB domains are reduced to meet the real physical limitations of the interconnections, leading to redispatching actions (at the cost of the TSO not reaching minRAM

	criteria) and therefore limiting the real cross-border capacity available during times of scarcity.
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Several reasons can be put forward to justify the addition of sensitivities on the applied cross-border exchange capacities in the context of this study, both focusing on events that might happen at relative short notice, making it difficult for the market, or for countries to handle these short notice risks in a reactive way, and hence requiring some form of anticipation.

The first part of the explanation will focus on the assumptions related to the available RAM for the cross-border market in the flow-based region. The impact of delays to planned grid investments throughout Europe completes the justification that support to use a sensitivity in the context of this study. Finally, as mentioned earlier, in determining the flow-based domains for winter periods, the optimistic assumption that the transmission grid is always fully available was made for this study. While covering the potential impact of any single contingency taking place, prior to such a contingency, a European transmission grid without planned outages and without forced outages that cannot be quickly repaired was assumed.

The first rationale is the following: in exceptional circumstances, the minRAM factor can however be set below the targeted legal threshold by a TSO if required to maintain operational security (see CEP article 16.3<sup>8</sup> [EUR-1]). This type of event cannot be excluded and a 70% minRAM can therefore not be guaranteed at every hour and on every CNEC.

The complexity and uncertainties linked to the forecasting of remedial actions (RA) are one of the main factors justifying that such operational security exceptions could occur during the period covered by this study. Such exceptional circumstances might arise during near-scarcity periods. Such a situation was observed during the cold wave that hit Central Europe in 2020, leading to a reduction in cross-border capacities by Tennet NL<sup>9</sup>.

Sensitivities related to the applied flow-based domain could be further justified in order to capture the potential delay in meeting the 70% minRAM target. Any country that would be facing unforeseen difficulties to meet the legal target, could still legally request an exemption after 2025.

Furthermore, the current legislation does not exclude the inclusion of grid elements internal to a bidding zone in the CNE list, if it is demonstrated through a Cost Benefit Analysis (CBA) that adding the internal grid element is a more economically efficient

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<sup>8</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R1222&from=EN>

<sup>9</sup> <https://www.jao.eu/news/cwe-flow-based-market-coupling-information-23>

solution in comparison to a bidding zone reconfiguration (amongst other solutions). Given that the flow-based domains calculated in this study only consider cross-border CNECs, decreasing the available margin on those cross-border CNECs can be considered as a proxy to the inclusion of internal constraints in the market coupling.

If a country is facing systemic difficulties in meeting the CEP requirements, a bidding zone split could be used as a solution. It can be expected that such a bidding zone split will neither be decided upon nor be applied overnight. As an example, the split of the German-Austrian bidding zone took about 2 years to implement, starting in November 2016 when ACER issued a legally binding decision for the German-Austrian border, followed by an agreement between the German and Austrian regulatory authorities (BNetzA and E-Control) in May 2017; the split between Germany and Austria took effect on 1 October 2018<sup>10</sup>). The impact of such a bidding zone split would be difficult to estimate: while it might have a mitigating impact on initial flows affecting the flow-based domain, in general splitting bidding zones will lead to additional constraints to market coupling, as former internal grid elements will become cross-border elements.

Finally, in determining the flow-based domains for winter periods, the optimistic assumption that the transmission grid is always fully available was made for this study. While covering the potential impact of any single contingency taking place, prior to such a contingency, a European transmission grid without planned outages and without forced outages that cannot be quickly repaired was assumed.

Secondly, European transmission grids are continuously being developed. New interconnectors are constructed, existing cross-border links are reinforced, and transmission grids internal to the bidding zones must be upgraded as well in order not to create internal bottlenecks. Especially the latter is key in the context of EU Regulation 2019/943, and the agreements concluded related to the Core capacity calculation region.

Cross-border transmission capacities are obviously key parameters for assessing the adequacy of an interconnected system. The base assumption applied throughout this study contains the timely realisation of all planned grid projects as communicated to ENTSO-E by all concerned TSOs. Many of these projects have not been confirmed yet, and even in cases when they have, several reasons could lead to delays, such as permitting delays.

Additionally, and in line with the legal arrangements described above, focus is placed on the elimination of bottlenecks internal to a bidding zone. As further cross-border reinforcements generally increase potential internal bottlenecks, TSOs could be incited to delay interconnector projects in order to first reinforce the internal grids.

Some of the projects already assumed for the different time horizons are not yet under

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<sup>10</sup> <https://www.apg.at/en/Energiezukunft/Strompreiszone>

construction. Recent history has indicated that some projects were already delayed by their promoter (for diverse reasons). This second aspect could reinforce the need to apply such a sensitivity on cross border exchanges.

### 3.3.3 BE units @ Risk

Febeliec	On the BE units at risk scenario, Febeliec wonders in general whether Elia will take into account every slightest possibility on unavailability of assets based on (non-formal) notifications by asset owners, as this could lead to the perverse effect where they (non-formally) announce closures, which would impact volumes to contract under the CRM ,which could benefit those asset owners.
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This sensitivity was discussed in collaboration with FPS and concertation with CREG. As reminded earlier, this sensitivity is only a part of a sensitivity menu for the Minister to take her decision on the reference scenario for the delivery period 2026-27. It is important to remind that the scenario will be made 'adequate' in-line with the RD, hence removal of capacity in Belgium will need to be replaced (if the scenario is not adequate) in order to comply with the reliability standard.

### 3.3.4 BE load stable

This section integrates both remarks on consumption data considered in the scenario dataset and the remarks on the 'BE load stable' sensitivity as they are strongly linked.

FEBEG	FEBEG does not support the proposal to introduce a slower growth on the demand in the reference scenario.
FEBEG	<p>Elia does not provide any information regarding the peak assumptions for Belgium or for the surrounding countries in the explanatory note to the public consultation. Particular caution should be considered for the forecasts of peak demand (MW). While on one hand some might put forward that the electricity consumption could be reduced post-COVID due to reduced economic activities, the re-launch plan and the fact that the momentum could be used to accelerate the green-deal objectives with an increased rate for further electrification could on the other hand increase the peak demand and the energy consumption more than expected. Also, the short-term negative effects on power consumption (annual TWh) of the COVID19 crisis did not necessarily translate in the same proportional decrease of peak demand, which is the relevant dimension to consider for assessing adequacy.</p> <p>FEBEG would like to highlight some evolutions that Elia also needs to consider when determining the peak demand:</p> <ul style="list-style-type: none"> <li>• E-mobility (cf. comment above). This is also demonstrated in the study<sup>8</sup> performed by E-Cube and EWI.</li> <li>• Increase of heat pumps heating (air-to-air): as explained in the study<sup>9</sup> performed by E-Cube and EWI, "Heat pumps are critical since their performance (COP) and power output significantly decrease with low temperatures, which results in higher electricity demand". As demonstrated in this study, the impact on security of supply of more heat pumps is a lot more significant than the e-mobility phenomenon. Those arguments should be enough to plead for a Higher Thermo-sensitivity in the proposed Sensitivities.</li> <li>• Development of Electrolysers</li> </ul>
Febeliec	As can be seen from this data, the 2008 financial crisis, which was the major economic crisis in the current millennium with substantial global economic impact, shows a clear drop of more than 6TWh (or around 7% of Belgian consumption) in the wake of this crisis. A decade later, Belgian electricity demand has still not regained pre-2008 levels (with a.o. 2019 showing even a continued decrease in overall demand, reaching a level that was last seen in 2002, despite a substantial increase in Belgian GDP over that period). While the underlying reasons for this observation are beyond the scope of this consultation (e.g. impact of energy-intensity of GDP-growth, impact of energy-

	<p>efficiency measures, ...), the trend can be clearly observed. Febeliec is surprised to see that Elia nevertheless for 2026 predicts an even higher overall electricity consumption in Belgium than it did last year (and this mostly based on exactly the same data, as the outdated NECP and Federal Planning Bureau projections of June 2020 are still applied).</p>
Febeliec	<ul style="list-style-type: none"> <li>o Febeliec is surprised to see that only one absolute value is provided, without any curve before and after 2026, making it impossible to provide any meaningful comments by lack of data.</li> <li>o On demand, it remains unclear on which basis the values are determined. Elia is referring to the latest forecast from the final (yet not approved by the European Commission) National Energy and Climate Plan (NECP), which was published end of 2019, based on additional measures, as well as economic projections from the Federal Planning Bureau dating back to June 2020 (so over one year outdated, while since 2020 the world has entered in presumably the worst global economic crisis in over a century (Covid-19 crisis), without any of the latest information since June 2020 being taken into account at all.</li> <li>o Febeliec in this context wants to refer again to data that was provided by Elia on Belgian overall electricity demand in the period 2000-2019 (both non-normalised and normalised data).</li> </ul>
Febeliec	<p>On the BE load stable sensitivity, Febeliec welcomes the fact that at least such stable scenario is taken into account, where electricity demand in Belgium is not continuously increase to all-time high new records. However, Febeliec is surprised that no scenario is included with a decrease in demand, taking into account the covid-19 crisis but also many other steps taken, not in the least a.o. with regards to energy efficiency.</p>

Elia notes the remarks regarding consumption data, mainly related to the potential future impact of the covid-19, the recovery and the uptake of the electrification.

First of all, Elia bases itself on official publications in order to calculate its demand projections, namely the NECP and the projections from the Federal Planning Bureau. The later just published new macro-economic projections<sup>11</sup> on the 24th June. These new projections will be analysed before the end of the September in order to assess the impact of taking into account the latest information known (among others, the increased

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<sup>11</sup> [https://www.plan.be/publications/publication-2130-fr-perspectives\\_economiques\\_2021\\_2026\\_version\\_de\\_juin\\_2021](https://www.plan.be/publications/publication-2130-fr-perspectives_economiques_2021_2026_version_de_juin_2021)

understanding of the impact of covid-19 and Belgium's re-launch plan).

Regarding Febeliec’s comment on the ‘2008 crisis’, it can be observed that the electricity consumption two years after 2008 was nearly back to its level before the crisis, which can suppose that the levers explaining the electricity consumption evolution after 2010 are not only driven by the ‘2008 crisis’. Elia would like to point out the limits of an extrapolation exercise. The extrapolation of past data is not necessarily the best indicator for future state of a parameter. Regarding this point, even if the potential impact on economic parameters is justified, it does not mean that the same trend can be applied for other parameters. Additional electrification regarding among others transport or heating is not foreseen in such an extrapolation.

Elia takes note of FEBEG's remark on the impact of electrification drivers, in particular heat-pumps on the peak demand. These aspects are already accounted for in the construction of the demand profiles and will hence affect the peak demand. Elia relies on the authorities to activate the necessary levers to achieve the objectives proposed by the authorities in the framework of the ‘National Energy and Climate Plan’ or the ‘Energy Pact’. If those capacities contribute to the Belgian security of supply and meet the eligibility criteria, they could be supported by the CRM. Therefore the electrifications drivers are taken into account based on the public information available today for the delivery period 2026-27.

### 3.3.5 Other: Extension of 2 GW nuclear capacity in Belgium

Febeliec	<p>Febeliec is very surprised to see that no sensitivity is included regarding a possible extension of 2GW nuclear capacity in Belgium, as this option is still on the table. Febeliec believes that such sensitivity would provide extremely valuable additional information for stakeholders and decision makers and would find it irresponsible not to include such information in light of the major change the activation of a CRM would bring to the Belgian market and the potentially very high additional costs for consumers.</p> <p>Febeliec wonders which assumptions Elia will apply for its sensitivities including a nuclear extension.</p>
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As mentioned in the public consultation’s explanatory note, the sensitivity list aims at defining one reference scenario in order to derive the CRM parameters. Elia is in line with the current legal framework governing the nuclear phase-out. Elia considers that the choice of this sensitivity is a political choice and intends to follow the choice made by the Belgian authorities. The scenario data provided in the public consultation followed the current law and were discussed in collaboration with the FPS and concertation with the CREG. If ever a 2 GW nuclear extension sensitivity would be chosen by the Minister, the parameters related to the extended nuclear assets should be assessed and defined as part of the scenario, such as forced outage and planned outage rates.

### 3.4 Preselected capacity types

Febeliec	On the preselected capacity types, Febeliec takes note of the selection decided by Elia of relevant technologies (yet continues to wonder whether current technological options are relevant for a CRM that could easily cover 15 years in case this duration were to be selected for subsidies to certain capacity provider). Febeliec is however very surprised to see that demand side response is in this update of the analysis completely omitted, as opposed to last year. Febeliec wonders whether this approach is in line with the least cost criterion in the Belgian law.
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First, Elia would like to remind the purpose of the preselected capacity types. Once the reference scenario will be defined by the Minister, it does not mean that this reference scenario will be compliant with the legal security of supply criteria, as defined in article 7undecies, §3 of the electricity law. The next step in the methodology is therefore to calibrate the scenario to the security of supply criteria in order to reach the right volume to be procured for the Y-4 auction of 2026-27 delivery period. It does not constitute a best estimate of Elia concerning the future installed capacity in the Belgian market area but is rather the result of an economic optimization loop. It does mean that the energy mix determined with the preselected capacity types is only valid for one delivery year and for one auction, depending on the data and assumptions defined in the reference scenario. The purpose is not to select capacities for the next 15 years.

Regarding the remark on the demand-side response, Elia does not understand Febeliec's comment as the category is both present in the excel and explanatory note.

FEBEG	As mentioned last year, it is questionable whether IC engines are relevant technologies to ensure the long-term adequacy in Belgium in (i) a European green deal context and (ii) a context where the additional capacity to ensure the security of supply is expected to replace baseload capacity.
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Elia takes note of FEBEG's arguments regarding the IC engines category as part of the preselected capacity types.

Firstly, Elia would like to remind that 'IC engines' could also refer to gas assets which could be compliant with the Electricity regulation. Moreover, if the asset uses biofuel or synthetic fuel from renewable energy excess, this could also lead to compliance with the Electricity regulation.

Secondly, the preselected capacity types will only be used in order to calibrate the reference scenario, as mentioned in article 5, §1 of the Royal Decree. This calibration is only applicable for a particular delivery year. Looking at long-term adequacy is not the

purpose of this step. According to Elia, this technology could be representative for the delivery year 2026-27 and should therefore be kept as preselected capacity type.

### 3.5 Post-delivery scenarios

Febeliec	Febeliec cannot make any comments on this point, as it refers to a study that Elia has not yet published (see also above).
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The timing of the different studies are defined by law, and Elia is trying its best to accommodate it. Elia will nevertheless try to pay attention to these planning aspects for further releases, taking into account the deadlines set in the law. Elia's proposal to use the Adequacy and Flexibility study 2022-2032 was made in order to use the most recent information available and to ensure consistency over the lifetime of units, especially concerning the economic indicators considered.

### 3.6 IPC

#### 3.6.1 Shortlist of Technologies

Febeliec	(On the Technology List) Febeliec refers to its abovementioned comments on this topic
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Elia thanks Febeliec for its input but would like to point out the fact that this section of the document publicly consulted upon relates to the proposal made by Elia for the *shortlist* of technologies to be considered as reasonably available and eligible for the determination of the IPC.

According to Elia, the comments made by Febeliec relate to the hypotheses taken by Elia on the different technologies considered for the calibration of the parameters for the Y-4 Auction of the Delivery Period 2026-27. This input does not contain any elements which may impact the inclusion (or not) of technologies in the proposal made by Elia for the shortlist of technologies for the calibration of the IPC.

A respondent	<p>(On the Fixed O&amp;M costs)</p> <p>In fact, we do not agree with the assumption followed by Afry that the fixed O&amp;M cost would significantly decrease (-30%) in case the running hours would be divided by 2. This is not in line with the reality. Given the fact that the capacity needs to be available at all times, most of the costs still need to be supported (insurance, staff, ...): this is the reason why those costs are categorized under 'fixed'. In addition, even if the running hours decrease, the number of start-ups may likely remain or even increase, which would imply that some overhauls cannot be postponed.</p>
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Elia takes note of the respondent's comment. However, Elia would like to highlight the fact that a study on the costs of the different technologies considered as relevant for the determination of the IPC was already published last year by Fichtner<sup>12</sup>, an independent expert as foreseen at article 17 of the Royal Decree Methodology. This study was realized in concertation with CREG.

Moreover, a peer review of the Fichtner study on the above mentioned costs was realized by AFRY<sup>13</sup>, another independent expert, following feedback from various market stakeholders in an earlier public consultation. The data related to the costs published by Fichtner and considered for the determination of the IPC were thus already double-checked and challenged by AFRY.

Given that these two studies published by independent experts were already published on the matter and given that both studies highlighted quantified data and referenced assumptions and is based on clear argumentations that are not in line with the respondent's statement, Elia does not consider that the comment raised should lead to a different approach for the costs taken into account for the determination of the IPC. Indeed, taking into account the thoroughly studied assumptions from independent experts and the fact that the input from the respondent lacks further concrete supporting evidence drives Elia to maintain its initially proposed way of working for the time being.

### 3.6.2 Cost components

Febeliec	(on Activation cost availability test) Febeliec , as already mentioned before, wonders whether the referred value, coming from the totally different context of the Strategic Reserve, is the correct reference in this context
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Elia takes note of the comment made by Febeliec. Still, Elia would like to remind that this value linked to the average SDR activation price from the winter 2015-16 remains the latest most relevant data point available. Elia remains persuaded that it can be considered as a reasonable proxy for the cost of activation of an availability test for technologies with high short run marginal costs. Moreover, Elia would like to add that this average SDR activation price was used for Strategic Reserve purposes and is therefore relevant in terms of Adequacy since it represents a cost during adequacy relevant moments despite of a different context.

<sup>12</sup> [https://www.elia.be/-/media/project/elia/elia-site/public-consultations/2020/20200505\\_fichtner-report-cost-of-capacity-crm\\_en.pdf](https://www.elia.be/-/media/project/elia/elia-site/public-consultations/2020/20200505_fichtner-report-cost-of-capacity-crm_en.pdf)

<sup>13</sup> <https://www.elia.be/-/media/project/elia/elia-site/ug/crm/2020/20201030afryreview-of-annual-om-costs-for-belgian-crmv100.pdf>

Also, Elia would like to remind that this cost figure has benefitted in the past from the assessment by CREG in the context of its assessment of manifest unreasonability of costs offered in the SR tenders.

Finally, Elia repeats that it remains open to concrete alternatives or suggestions from market parties.

### 3.6.3 Net revenues from balancing services

Febeliec	<p>With respect to the net revenues from the provision of balancing services, Febeliec continues to be surprised that Elia does not yet include these for a.o. CCGTs, as at the very least the reservation cost of balancing reserves, well-known by Elia as it is Elia who is paying this and invoicing it to consumers, is not taken into account. Moreover, in case scarcity situations would occur, it can be expected that these revenues for all asset types would increase. Indeed, in winter 2018-2019 where several nuclear power plants were unexpectedly unavailable, even the potential risk for adequacy (which never materialized, that winter at any point in time always have substantially reserve margin as identified by the CREG) resulted in a substantial increase in the reservation cost of balancing reserves for Elia, clearly implying that when adequacy concerns would start to appear, market parties could expect to see an increase in their revenues from balancing services (and alternatively, if no scarcity situations occur, this revenue stream would not occur, but would also indicate ample capacity in the market and thus no need for a CRM). In any case, based on the information provided in the explanatory note, it is impossible for Febeliec to provide any meaningful input as any quantitative and monetary data is lacking.</p>
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Elia thanks Febeliec for its input but would like to refer to the Royal Decree published in April 2021<sup>14</sup> on which the methodology for the calibration of the IPC is based to answer this comment.

Indeed, the methodology states that net revenues from balancing services must be taken into account as part of the calculation of the missing money of the technologies eligible for the IPC and must take into account opportunity costs linked to the participation to these services in this assessment.

Taking this element into account, Elia makes therefore the assumption that all technologies consider these opportunity costs as well and make an arbitrage between

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<sup>14</sup> [LOI - WET \(fgov.be\)](https://www.fgov.be/loi-wet)

their participation to energy or balancing markets. Elia assumes, when estimating revenues of CCGTs that CCGTs consider these opportunity costs linked to the participation to balancing markets when making their arbitrage. Regarding the comment made, Elia is of the opinion that Febeliec seems not to consider this arbitrage and the resulting opportunity cost between the participation to energy markets compared to balancing markets for CCGTs in its comment. For instance, Febeliec refers to the winter 2018/19 for which potential adequacy issues were initially expected and during which balancing reservation costs were increasing as well. In Elia's view, the consideration of the cost of opportunity is key in this context: indeed, Elia thinks that reservation costs increased among others due to the arbitrage made by market parties between energy and balancing markets (linked to the above mentioned cost of opportunity). As a consequence, Elia considers its approach as meeting the requirements of the Royal Decree, particularly also taking into account the opportunity cost.

On the absence of quantified data to be publicly consulted upon, Elia would like to remind that the goal of the public consultation for the net revenues from balancing services was to consult on the methodology on how consider them in the IPC calibration, not to consult on quantified data as such.

However, if quantified data are required by Febeliec or any other market party, Elia reminds that in the CRM Calibration Report linked to the Y-4 Auction of the Delivery Period 2025-26 the methodology has already been applied. The figures presented there may offer a useful insight.

A respondent	<p>It is impossible to predict the revenues on balancing markets at the 2026-27 horizon. First of all, the design features of these markets will still evolve in the coming years, potentially impacting the competitive positions of some assets. Secondly, the offer on these markets might completely change by then, potentially impacting the revenues for conventional assets. For instance, should important share of DSM be contracted in the CRM for the DY 2025-26, this may impact the positioning of other assets on the mFRR market if this extra DSM also partly participates to this market. Thirdly, the maturity of these markets (becoming shorter and shorter in terms of procurement) and integration of balancing markets on regional/multi-zones' platforms does not allow to properly estimate the revenues four years in advance.</p> <p>For these reasons, it is not opportune to consider balancing revenues for conventional assets for the computation of the IPC that will be applicable for the T-4 auction in 2022 (with delivery year 2026-27).</p>
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Elia takes note of the comment made by this anonymous respondent. Nevertheless, Elia would like to come back first to the methodology foreseen by the Royal Decree Methodology stating that net revenues from balancing services must be estimated:

- For every technology included in the shortlist of technologies ;
- Thanks to historical average reservation costs linked to balancing for the last 36 months ;
- Taking into account costs (including opportunity costs) linked to the participation to these balancing services in order to avoid double counting between inframarginal rents and net revenues from balancing services.

All the elements from the Royal Decree Methodology mentioned above point out the fact that Elia must make a proposal for the IPC, including a quantified estimation of the net revenues from balancing services for all technologies from the shortlist.

Elia takes good note of the additional comment made by the anonymous respondent stating that balancing markets are indeed currently evolving on several aspects (integration into an EU framework, procurement and timing). Still Elia wants to highlight the fact that these factors do not prevent Elia from the obligation of making an estimation as requested by the Royal Decree Methodology.

Finally, Elia concludes by repeating that the suggestion of non-consideration of net revenues from balancing services for conventional assets for the Y-4 auction in 2022 for the Delivery Period 2026-27 is not in line with the Royal Decree Methodology and cannot therefore be seen as a solution.