

## Febeleric answer to the Elia public consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2026-2027

Febeleric would like to thank Elia for this consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2026-2027. Febeleric, 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. Febeleric 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 Febeleric, 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.

Febeleric will provide its input on the proposed excel-file by Elia, but this does not mean that Febeleric agrees with the applied methodology and should in no case be interpreted as such. Febeleric 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 Febeleric 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, Febeleric 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. Febeleric 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.

Febeleric has comments both on the excel spreadsheet as well as the explanatory note.

### Febeleric comments to the explanatory note from Elia.

Febeleric takes note that Elia states that there is an *“intensive stakeholder involvement process”*, it remains, as previous year, very important to note that none of the topics, scenarios, sensitivities and data have been discussed at all during the aforementioned stakeholder involvement process, nor has any methodology for the determination of the need for a CRM ever been discussed or consulted up until this point in time. Febeleric thus continues to voice its strongest concern but also opposition to the way Elia frames the context of this consultation and reiterates its major concerns on the lack of real stakeholder involvement.

On the general scope of this input for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2025-2026, Febeleric strongly wonders how such an analysis can be performed knowing that the calculations leading to the according to some presumed need for a CRM nor the CRM design and corresponding functioning rules of the proposed CRM have still not been approved by the European Commission based on compatibility and compliance with European legislation and validated by the relevant authorities in their respective decision domains.

On the scenario and sensitivities, Febeleric 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 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 Febeleric this is clearly not in line with the requirements written down in the Clean Energy Package (CEP).

### Febeleric comments to the spreadsheet provided by Elia.

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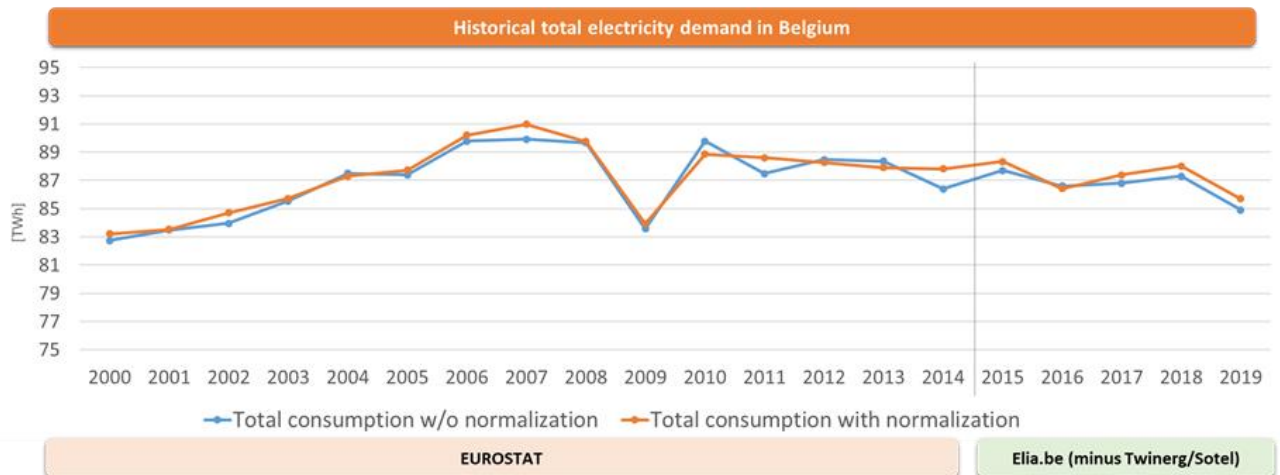
*Febeleric vertegenwoordigt de industriële energieverbruikers in België. Zij ijvert voor competitieve prijzen voor elektriciteit en aardgas voor industriële activiteiten in België, en voor een verbeterde bevoorradingszekerheid in energie. Febeleric telt als leden 5 sectorfederaties (Chemie en life sciences, Glas, papierdeeg & papier en karton, Ontginningsbedrijven, Textiel en houtverwerking, Baksteen) en 36 bedrijven (Air Liquide, Air Products, Aperam, ArcelorMittal, Arlanxco Belgium, Aurubis Belgium, BASF Antwerpen, Bayer Agriculture, Bekaert, Borealis, Brussels Airport Company, Covestro, Dow Belgium, Evonik Antwerpen, Glaxosmithkline Biologicals, Google, Ineos, Infrabel, Inovyn Belgium, Kaneka Belgium, Kronos, Lanxess, Nippon Gases Belgium, Nippon Shokubai Europe, NLMK Belgium, Nyrstar Belgium, Oleon, Proximus, Sol, Tessenderlo Group, Thy-Marcinelle, Total Petrochemicals & Refining, Umicore, Unilin, Vynova en Yara). Samen vertegenwoordigen zij ruim 80% van het industriële verbruik van elektriciteit en aardgas in België en zo'n 230.000 industriële jobs.*

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. On the different tab sheets, Febeliec has following comments:

- 1.2 Individually modelled thermal generation
  - Febeliec has no comments on the specific units presented, but reiterates a longstanding comment on the lack of transparency on the 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.
  - Febeliec wonders which assumptions Elia will apply for its sensitivities including a nuclear extension. Moreover, Febeliec also wonders which 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.
- 1.3 Storage
  - 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.
- 1.4 Renewable and on-CIPU
  - Febeliec regrets that it is not completely clear which power plants are included here, in particular diesel generators<sup>1</sup>, 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.
  - 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)
- 1.5 Forced outage rates
  - 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).
- 2.1 Demand
  - 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.
  - 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.
  - 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).

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<sup>1</sup> Diesel generators (and similar technologies) seem despite previous comment on this topic by Febeliec still completely missing in the file from Elia. CREG studies have shown that for example only the (aggregated) Belgian hospitals already have up to 200MW of diesel generators and this is not taking into account all the other emergency generators (accounting for several hundreds of MWs of installed capacity, from industrial sites over public services, office buildings to even residential consumers) that are operational in Belgium. Moreover, winter 2018-2019 shows that even large BRPs install more than substantial volumes of diesel generators to cover their positions (diesel generators which cannot be formally accounted for as “emergency” generators as they are not connected to specific consumption processes). Febeliec reiterates its request to Elia to introduce this category of diesel generators (and similar technologies) to the analysis.



The historical data sources are indicated on the chart.  
 For the normalization, Elia applies a simple linear method based on the equivalent HDD, 'jours ouvrés' and amount of days in the year (correction for leap years).

The normalization methodology is currently under review at Elia and could lead to slight differences in the historical normalization values. It is also important to note that the data above were never normalized before 2010 and that the same impact is used for the whole horizon.

In past studies other sources have been also used for historical data (ENTSOE.net for instance) where the same definition of consumption was used across all countries. Since the introduction of a common tool at ENTSO-E (since MAF2019), the consumption source for future studies will be the one published on the Elia.be website which represents an estimation of the 'total electricity consumption' of Belgium.

Figure 1: Belgian electricity demand 2000-2019 (source: Elia, received 27/05/2020)

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-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).

- 2.2 Demand Side response
  - 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 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.

- 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.
- In general, it is very difficult to provide any useful input on the data presented by Elia, as any detailed breakdown is missing.
- 3. Balancing capacity
  - 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 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.
- 4. Flow-based domains
  - 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)
- 5. Other countries data
  - Febeliec wonders to what extent the choice to apply MAF 2020 and whether this approach is compliant with ERAA (see also above).
- 6. Economic parameters
  - 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)
- 7. Sensitivities menu
  - 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.
- 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.
  - 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.
  - 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.
  - 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.
- 8. Preselected capacity types
    - 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.
  - 9. Scenarios post DY
    - Febeliec cannot make any comments on this point, as it refers to a study that Elia has not yet published (see also above).
  - 10.1 Technology list
    - Febeliec refers to its abovementioned comments on this topic
  - 10.2 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
  - 10.3 Net revenues from balancing services
    - 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.

## General Conclusion

Febeliec as always remains available to discuss its comments to this consultation and the input data, but also still remains available to discuss the methodology. Febeliec is looking forward to the qualitative and especially quantitative results of the adequacy study from Elia and hopes that these will be presented and discussed.

Febeliec also includes in annexe its answer to the consultation on the same topic of last year:

## **Febeliec answer to the Elia public consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2025-2026**

Febeliec would like to thank Elia for this consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2025-2026. Febeliec 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 that it will apply for this extremely crucial decision on the instauration of a CRM in Belgium. 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.

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, on which Febeliec 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.

Febeliec has comments both on the excel spreadsheet as well as the two accompanying documents, the explanatory note and the cost of capacity for calibration of the Belgian CRM study.

### **Febeliec comments to the explanatory note from Elia.**

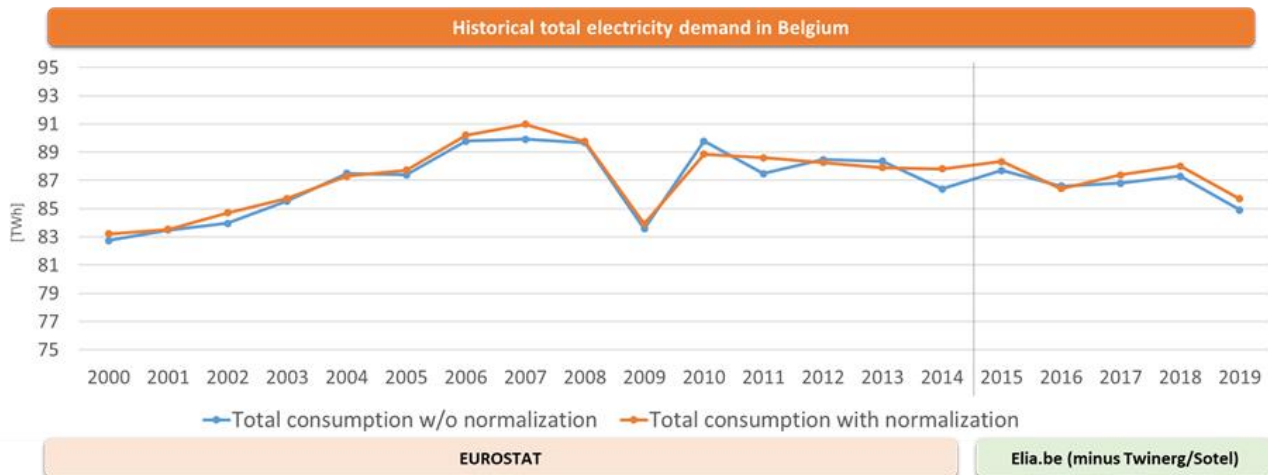
Febeliec takes note that Elia states that *“as from the start, Elia, together with the FPS Economy and the CREG have set up an intensive stakeholder involvement process”*, and while not even going into the point that this stakeholder involvement process with respect to the design of the CRM has a myriad of issues that render it less than up to the level for such an important decision in the Belgian energy landscape, for this consultation at hand it is very important to note that none of the topics, scenarios, sensitivities and data, have been discussed at all during the aforementioned stakeholder involvement process, nor has any methodology for the determination of the need for a CRM ever been discussed or consulted upon during this period. Febeliec thus, as mentioned above, voices its strongest concern but also opposition to the way Elia frames the context of this consultation and reiterates its major concerns on the lack of real stakeholder involvement.

On the general scope of an analysis on the need for a CRM or this input for the CRM parameter calculation for the Y-4 Auction for Delivery Period 2025-2026, Febeliec strongly wonders how such an analyses, including least cost of the CRM analysis (as defined in the Belgian Electricity Law) as well as an economic viability analysis can be performed knowing that the design and corresponding functioning rules of the proposed CRM has not even been finalised yet, let alone approved by the European Commission based on compatibility and compliance with European legislation and validated by the relevant authorities in their respective decision domains. The explanatory note itself indicates that an (incomplete, as e.g. the financing aspect is missing) file has been provided to the European DG Competition, and that as far as Febeliec knows as of yet no approval has been received. Febeliec also notes that the very tight timing also foresees only ten days for Elia to rework its proposal based on the input from stakeholders, which reinforces Febeliec in its belief that this consultation is mainly done because it is required and not in order to get real interaction with stakeholders (also shown by the fact that none of these topics have been addressed before in the stakeholder involvement process), while the timing also allows for only two weeks for the CREG to elaborate a proposal (without any further consultation) and two weeks for the FPS Economy to provide and advice and one week for the Minister to take a decision by July 21<sup>st</sup> (already 3 weeks behind the initial schedule). Febeliec remains under the impression that while the involved parties in preparing the required steps for the instauration of a Belgian CRM are always citing urgency, they have not taken appropriate measures to ensure that all relevant documents were prepared and time and duly discussed and consulted with all stakeholders, thus creating a substantial risk for a poorly prepared and validated CRM (if any were already actually required for security of supply in Belgium), to the detriment of cost for consumers.

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 2019), and not with the methodology for the European Resource Adequacy Assessment (ERAA). While some might argue that the latter is not finalised and approved (to a large extent due to the transmission system operators not being ready on time), for Febeliec the proposed approach is extremely insufficient as the ERAA methodology has to be consulted upon, as compared to the MAF (or even Elia's own Adequacy and Flexibility Study). For Febeliec this is clearly not in line with the requirements written down in the Clean Energy Package (CEP) that has entered into force since this year, while this could have been circumvented by conducting a (non-mandatory but therefore not less necessary) consultation on the methodology on a Belgian level, to respect at the very least the intent of the CEP.

On the data and assumptions for the scenario, Febeliec will provide its comments in more detail on the different sheets of the spreadsheet, but already wants to voice some more general concerns here. Elia states that for example generation and storage have been updated according to the most recent available information sources, yet does not disclose which those sources are, making it very difficult to validate the Elia's choices. This comment has already been made by stakeholders on other adequacy assessments by Elia, yet has still not been addressed. Febeliec is also surprised to see that Elia discards the 2500 MW of new capacity in Belgium that is considered by the MAF 2019 (which Elia itself refers to as the methodology to apply in this analysis), thus not only creating a large gap in the Belgian adequacy situation which of course will lead to a need for new capacity but even more questionable is thus the omission of already planned generation (and storage/flexibility) projects for which the completion is not necessarily linked to the introduction of a CRM in Belgium. For Febeliec, such approach is a gross underestimate of reality and as such will artificially create a sense of urgency. As stated, Febeliec will make punctual comments on the spreadsheet below, but one element strikes Febeliec on the forced outage rates, in particular with respect to the HVDC force outage rate (which will be quite important in light of NEMO and Alegro and potential future HVDC interconnectors), where Elia states that "*a consensus was reached with 5% of forced outage*", which makes Febeliec wonder between which parties such consensus was reached, as the methodology has not been consulted upon and thus this decision rather seems to be an arbitrary decision by Elia and in any case not based on a broad stakeholder consensus, as would be implied by the Elia statement. Febeliec is concerned that many more implicit and explicit decisions have been taken that are presented as a consensus yet are in essence the mere decision of Elia itself, for the already mentioned lack of any stakeholder involvement on the methodology.

On consumption (or demand, as the terminology is in the spreadsheet), Febeliec is even more concerned. Not only is it unclear on which basis this demand is 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. However, and as already commented by Febeliec and not yet taken into account by Elia, as of 2020 the world has entered in presumably the worst global economic crisis in over a century (Covid-19 crisis), with definitely a major impact on electricity demand in the short term (Elia itself presenting values that drop up to 25% at some points) and which presumably will also continue to wreak havoc in future years, both in the level of growth (or lack thereof) as well as the starting point for the growth curve (if the crisis indeed severely impacts the basis of the economic tissue of the world economy). Elia for example states that "*there is an increase in the numbers between the draft and the final NECP (WAM scenario) which is mainly due to additional industrial consumption in Flanders considered by the authorities*", which should at least also include an assessment of the additional generation capacities linked to these projects. Febeliec in this context wants to refer to data that was provided by Elia on Belgian overall electricity demand in the period 2000-2019 (both non-normalised and normalised data).



The historical data sources are indicated on the chart.  
 For the normalization, Elia applies a simple linear method based on the equivalent HDD, 'jours ouvrés' and amount of days in the year (correction for leap years).

The normalization methodology is currently under review at Elia and could lead to slight differences in the historical normalization values. It is also important to note that the data above were never normalized before 2010 and that the same impact is used for the whole horizon.

In past studies other sources have been also used for historical data (ENTSOE.net for instance) where the same definition of consumption was used across all countries. Since the introduction of a common tool at ENTSO-E (since MAF2019), the consumption source for future studies will be the one published on the Elia.be website which represents an estimation of the 'total electricity consumption' of Belgium.

Figure 2: Belgian electricity demand 2000-2019 (source: Elia, received 27/05/2020)

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-efficiency measures, ...), the trend can be clearly observed. Important in the light of the current covid-19 crisis, which will presumably have a much more pronounced effect on the global economy, is that it would be imprudent to not take into account such impact on Belgian electricity demand, also when looking at 2025 and beyond. Febeliec asks that at the very least additional sensitivities are included (see below) in case this impact would not be considered in the central reference scenario, and this in particular to avoid that the analysis would indicate a potential need for a CRM, based on outdated data sets, leading to a very costly<sup>2</sup> yet unnecessary subsidy scheme to be financed by consumers.

Febeliec also continues to voice important questions and comments towards the values used for market 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 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). Elia for example refers to emergency generators as being part of market response, yet a breakdown of the overall value in categories is not provided. Febeliec can only reiterate that there is a very substantial volume of emergency generators installed in Belgium, both at industrial sites (Febeliec has knowledge of several hundreds of MWs of industrial emergency generators connected to the Elia grid) but also at other sites such as hospitals (where a CREG study indicated an installed capacity of at least 200 MW). Due to the lack of any quantitative (or even qualitative)

<sup>2</sup> Febeliec refers to several studies on the total cost of the CRM in Belgium, with a.o. the federal regulator CREG indicating a potential yearly cost of up to 940 MEUR per year, and this for a very long period, indicating a tremendous additional cost (clarity on the financing mechanism has still not been provided, but could have a more than substantial impact on the cost for consumers). Moreover, in all discussions on the Belgian CRM, it remains to date very unclear how this subsidy mechanism ever could be removed again from the Belgian electricity market.



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.

Concerning the balancing capacity, Febeliec wants to reiterate its longstanding comments on this topic. The approach by Elia to totally exclude cross-border reserve capacity continues to seem very arbitrary to Febeliec, especially in light of the fact that important efforts are made on the European level for an integrated balancing market, with both the IGCC and the integrated FCR market as very nice examples of the positive impact of such integration. Febeliec is a.o. surprised to see that Elia refers to the MAF 2019 study for the technology split of the volume of aFRR and mFRR in Belgium, yet in the same document discards the results of the MAF by excluding 2,5GW of thermal capacity, leaving Febeliec with questions regarding the consistency of this approach. Moreover, Febeliec and other stakeholders have already voiced concerns several times 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.

Concerning the cross-border market capacities, Febeliec welcomes that Elia will not base this on historical data, as this would be a non-relevant framework in light of the important changes that are continuously being made, not in the least related to the minimum cross-border capacity that will have to be given to the market (at least 70% by 01/01/2026 at the latest). Febeliec however regrets that the generation adequacy assessments made in the framework of the Pentalateral Energy Forum (PLEF) is presented as a valid base for the analysis (just as the Elia Adequacy and Flexibility study, for which no consultation was ever conducted on the methodology, as Febeliec has already mentioned before), as Febeliec nor consumers in general are allowed to participate in the discussions, as opposed to generators (represented by a.o. the Market Parties Platform (MPP), which does not represent nor allow any consumers), thus at the least indicating a potential bias as in particular generators are non-neutral parties with respect to any CRM, as this would represent a potentially very substantial additional revenue stream, which from the viewpoint of consumers might actually result in windfall profits to the detriment of cost for consumers. With respect to the calculation of PTDFs, Febeliec takes note that a 2018 reference grid will be used in a 2020 study, regretting that no updates are considered, and also wonders if the "hundreds of CNECS" referred to are all cross-border CNECs, as internal lines are in the future not to be used for cross-border market capacity calculation. Febeliec also observes that for the flow-based perimeter, reference is made to the extension towards the CORE region as well as reference towards the treatment of external flows (for Belgium the flows with the UK being very relevant), yet also sees that it is merely a short description without any real explanation on which impacts are expected nor how the impact of these aspects will be calculated. Febeliec also does not support a very strict application of the 70% minRAM obligation for each future year. While this could be a relevant assumption for 2025 or 2026, Febeliec hopes that TSOs are not intending to develop their grids in the next decades to only barely reaching the 70% threshold, but hopes that bottlenecks will continue to be treated by additional investments in cross-border capacity, as can also be discerned from their own extensive and expensive investment programs (for which Febeliec also hopes that these investments will be taken into account in the modelling).

On the economic parameters, Febeliec can only observe that Elia is basing its analysis on the IEA World Energy Outlook 2019, pre covid-19 crisis, and that the impact of covid-19 should be taken into account, not only on demand (as mentioned before) but also on oil, gas, coal, CO2 prices, which have all fallen to consistently lower levels, and their impact. The IEA has in the mean time already published its Global Energy Review 2020 with the impacts of the covid-19 crisis on global energy demand CO2 emissions, which clearly shows the extreme impact, far beyond the scope of a.o. the 2008 financial crisis.

On the sensitivities, Febeliec is already surprised that Elia states "*sensitivities that could be integrated in the reference scenario*", not making any reference to the high impact low probability scenario it is also using in its other adequacy assessments, which are referred to in this consultation as the methodological framework. While Febeliec could provide again a lot of feedback on the proposed sensitivities, as it has done in the past, it mostly wants to focus on the specific described sensitivities and propose a range of new sensitivities.

- On the French nuclear availability, 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). Moreover, in the scope of a potential activated Belgian CRM as of 2025, Febeliec wonders why Elia, taking into account the French CRM, is still considering French nuclear maintenance issues in a.o. winter 2019-2020 as relevant (without providing any justification nor data in a graph beyond winter 2022-2023), other than merely qualitatively and without any details mentioning the 4<sup>th</sup> decennial inspections.

- On the flow-based CEP rules sensitivity, Febeliec is 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.
- On the PLEF “Low Gas” sensitivity, again Febeliec is surprised that a.o. France is included in this, despite having an operational CRM. Febeliec refers to its above comment on this. Moreover, Febeliec wants to reiterate its comment on the PLEF, as for the adequacy studies a.o. consumers are not represented (by choice of the governments and despite numerous requests from Febeliec to be included) in the relevant working groups, while parties with vested interests in CRMs, such as producers, of course have a bias towards subsidies for their installations, whether warranted or not. Moreover, as gas prices, even before the covid-19 crisis but definitely since the beginning of this crisis, have dropped to absolute lows (with gas in Europe even being cheaper than in the US), Febeliec cannot imagine that commercial viability of gas plants would be at risk and leading to mothballing and/or decommissioning for economic reasons. If however Elia were to retain this sensitivity, Febeliec urges to include a “high gas” alternative too, taking into account exactly the current gas (and coal/...) prices and an even higher availability of gas plants (e.g. through less mothballing and/or decommissioning than in the base scenario), as this scenario could also well become reality.
- On the PLEF “Low NUC” sensitivity, Febeliec wants to reiterate this comment about the PLEF as well as the French CRM as well as the relevance in 2025. On the coal acceleration phase-out scenario Febeliec is also quite surprised to see that Spain is mentioned (where it is unclear what any impact would be for Belgium, as France has an operational CRM and thus is to be considered adequate at any point in time), the Netherlands (mentioning the legal ban for coal-fired generation as of 2030, but without clear indication what would be the impact in 2025 other than that *“the three most recent coal-fired plants could be closed earlier than expected”* especially in combination with previous adequacy studies by Elia that showed a clearly decreasing potential capacity gap for adequacy in Belgium in the years after 2025) and Italy (for which again the direct impact on Belgium is unclear, especially with a non-binding coal phase-out and an operational CRM in place, which according to Elia should be effective as Elia is always referring to the Italian CRM as a relevant reference for Belgium).
- On the “no new thermal units or delays” scenario, Febeliec wants to reiterate its comment on the French, ensuring viability of at least those plants needed for French adequacy. On Germany, Febeliec takes note that Elia states that “Germany has no market wide CRM and economic viability of new units could be at risk”, yet Germany has a wide range of different strategic reserves, including some reserves that contain purpose-built new gas plants, while Germany also has to ensure that it can comply with the minimum 70% minRAM cross-border capacity stipulation in the CEP, and thus has to ensure either sufficient internal lines and/or sufficient internal redispatch capacity, the latter currently already being applied as a solution and this capacity being additional (dispatchable and thus presumably gas-fired) capacity near consumption centres in the southern part of Germany. On the comment on the commissioning of Flamanville in France, Febeliec is surprised that Elia is considering this will still not be operational in 2025. In any case, Febeliec also in this context reiterates its comment about the French CRM, which would then guarantee alternative means to ensure at the least French adequacy.
- On the NECP Low Demand sensitivity, Febeliec has no comments as such, except that this is based on the NECP published end of 2019, in pre-covid-19 times. Febeliec refers to its abovementioned comments on the impact of covid-19; according to Febeliec it would be unrealistic to imagine that covid-19 would not have any effect on Belgian electricity demand in light of the unprecedented drop in global economic activity in recent times and in light of Elia’s own public statements and data on the more than substantial drop in electricity demand in the recent months<sup>3</sup>. As can be seen from the Belgian electricity demand data 2000-2019 provided by Elia (with very little fundamental differences between normalised and non-normalised data, other than that in the data set normalised data on average slightly overestimates real electricity demand), electricity demand dropped very sharply in the aftermath of the 2008 financial crisis (minus 6 TWh or around 7%), which showed a less pronounced reduction in economic activity than can now already be observed by the non-ended covid-

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<sup>3</sup> Febeliec also would like to refer to Elia’s own yearly discussions with its clients, both industrial and grid operators, on a.o. load management. If Febeliec is not mistaken, this yearly process should currently be on-going and results of it should be available in the near future. This information could potentially already provide some first additional aggregated insights in the impact of covid-19, insofar already known by the contacted actors for an on-going crisis.

19 crisis, with a recovery afterwards that still has not reached in 2019 the pre-2008 level (still more than 3,5 TWh down compared to 2008 levels). Febeliec would thus propose to add two times two new sensitivities. A first additional sensitivity set could be to take the impact of the 2008 financial crisis as a proxy (so a drop of 6TWh in overall Belgian electricity demand based on the provided demand data from Elia) and then have two variations on this, one with a V-shaped recovery (as after the financial crisis of 2008, yet also there with even a decade later still electricity demand levels that are several percent lower) and one with a much slower recovery (to mimic a second wave of covid-19 or other effects that could generate additional damage to the economic tissue, with increased ripple-through effects in 2025 and beyond). A second sensitivity set would then contain two similar sensitivities, but based on a much more pronounced drop in electricity demand in 2020 (e.g. -10 TWh). Febeliec proposes these four additional sensitivities as the current proposed sensitivity based on the NECP of end 2019 does not take into account any scenario with a decrease in electricity demand, a scenario that in any case should be analysed unless one would to consider the covid-19 crisis as irrelevant.

- On the extension of 2GW nuclear capacity in Belgium, Febeliec does not have any objections to this sensitivity but would like to see an additional sensitivity, guaranteeing 2 GW of nuclear capacity being available in Belgium after 2025. Febeliec believes that such sensitivity, as all the other sensitivities, 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.

On the other parameters, Febeliec takes note of the statement that a.o. *“this includes the sources of scenarios for periods after the delivery period in order to calculate the market revenues”* and in this framework clearly wants to refer to all its above mentioned comments on this topic, as well as comments made during previous consultations on adequacy studies by Elia. On the preselected capacity types, Febeliec takes note by the selection decided by Elia of relevant technologies, yet wonders 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 providers. Febeliec is however very surprised to see that for market response, *“incremental capacity is added to each of the categories already defined for the Belgian market zone proportionally to each market response category size”*, without any qualitative nor quantitative justification. While Febeliec has continuously voiced many concerns regarding the way Elia treats market response in its adequacy studies, as also referred to above, Febeliec is even more surprised to see that Elia expects that on-going evolutions will have no impact whatsoever on the categorisation and related volumes of market response (e.g. smart meter roll-out or heat pump or electric vehicles penetration, which is on-going and should have not only a substantial impact on the overall potential volume of demand response, but also presumably on the relative position of the different categories of market response). Also on the 100MW steps Elia applies in the framework of its adequacy studies, Febeliec refers to its numerous comments that have still not been duly answered on the need for such a large step. On the scenario post-delivery period, Febeliec is surprised that Elia will still not provide an overview for each individual year, while all previous adequacy studies by Elia, and in particular its Adequacy and Flexibility study of 2019, show that their analysis provides substantially different results for each of the analysed years. Moreover and even more important, the identified need for a CRM by the Elia study, to which Febeliec continues to have more than substantial questions, also clearly indicates a substantially diminishing need for such a CRM over time; by excluding individual years from the analysis, it is impossible to clearly identify which elements are determining year after year and get a more deep understanding of the intrinsic underlying effects. Febeliec even wonders whether the proposed approach is in line with the stipulations in the CEP (Cf. ERAA), in line with which (see comments above) Elia should conduct its assessment according to Febeliec to the largest possible extent.

On the intermediate price cap parameters, Febeliec refers to its comments on the expert study by Fichtner, but with respect to the comment by Elia on decentralised CHP technology that these are not considered to be characterized by high levels of missing money because they derive a significant part of their revenues from other sources than selling energy, this aspect should also definitely be incorporated in Elia’s economic viability analysis. For market response technology with a high short-run marginal cost, Febeliec takes note that Elia refers to the SDR average activation price for winter period 2015-2016, but wonders whether these results are representative, as such and even more specific in light of market and other evolutions. With respect to the net revenues from the provision of balancing services, Febeliec continues to be surprised that Elia does not yet include these, 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 providers 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, Febeliec is surprised that Elia does not at all take into account these revenues, on which Elia has almost perfect view.

Concerning the economic viability assessment that Elia conducts, Febeliec is surprised that Elia does not provide more data. Febeliec has in the past (a.o. on the Elia Adequacy and Flexibility study 2019) provided many comments (as have many other stakeholders). Febeliec would have expected to get more insight in how Elia will conduct such assessment as well as the underlying data (especially when looking towards market prices for a horizon 15 years beyond 2025, as is the scope of the proposed Belgian CRM), yet also this part of the methodology is not consulted upon nor clarified. Febeliec wants to voice in any case one particular comment, that was also discussed during the Task Force CRM of 05/05/2020 on which electricity price data Elia will take into account. Elia stated, as can also be seen in the minutes of this meeting, that it does not intend to use any forward market prices, but will only apply one price reference (also thus not covering a.o. intraday prices), while according to consecutive yearly analyses of the CREG up to 80% of electricity in Belgium is sold on the forward market. While a day-ahead price might be a relevant reference for certain calculation, in case of looking at economic viability it would be incorrect to not look at the revenues generated on the forward market, especially because of its volume-based dominance. Moreover, market actors selling their electricity production on the forward market should apply a full costing logic, in order to cover their full cost, as alternatively they would reduce their own revenue artificially and create missing money by their own volition (e.g. to gain market share), in which case such missing money would be covered by the concerned market player and not by the overall market, in particular not through a subsidised CRM paid by consumers. Especially if liquidity (in all dimensions) would be lower in such CRM, the overall outcome would be less efficient and thus unnecessarily more costly to consumers.

#### **Febeliec comments to the spreadsheet provided by Elia.**

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. On the different tab sheets, Febeliec has following comments:

- 1.2 Individually modelled thermal generation
  - Febeliec has no comments on the specific units presented, but reiterates a longstanding comment on the lack of transparency on the 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 2025 and wonders whether this is realistic.
- 1.3 Storage
  - For storage no source is available for the information nor a detailed quantitative breakdown (e.g. in number of batteries, technologies, vehicles, ... or e.g. the capacity increase in Coö) nor a methodology describing 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.
- 1.4 Profiled thermal generation
  - Febeliec regrets that it is not clarified which power plants are included here, in particular what with CHPs (large and small), diesel generators<sup>4</sup>, emergency generators (all considered market response?) etcetera. Because of a lack of breakdown (only aggregated data is shown), it is also impossible to identify why certain periods (in particular in middle of the winter and beyond the Christmas Holiday period) show a much reduced generation pattern. As such, it is impossible to provide any meaningful comments to the proposed data.
- 1.5 Forced outage rates
  - Febeliec regrets that no sources have been provided, making it difficult to assess the information. For example for DC links, Febeliec wonders on which historical data this is based and which technologies

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<sup>4</sup> Diesel generators (and similar technologies) seem despite previous comment on this topic by Febeliec still completely missing in the file from Elia. CREG studies have shown that for example only the (aggregated) Belgian hospitals already have up to 200MW of diesel generators and this is not taking into account all the other emergency generators (accounting for several hundreds of MWs of installed capacity, from industrial sites over public services, office buildings to even residential consumers) that are operational in Belgium. Moreover, winter 2018-2019 shows that even large BRPs install more than substantial volumes of diesel generators to cover their positions (diesel generators which cannot be formally accounted for as “emergency” generators as they are not connected to specific consumption processes). Febeliec reiterates its request to Elia to introduce this category of diesel generators (and similar technologies) to the analysis.

have been taken into account; Febeliec has always understood that the applied technology for at least NEMO and Alegro is new should thus not lead to important outage rates.

- 1.x Renewables
  - Febeliec is surprised that based on the spreadsheet renewables seem to be no longer considered whatsoever by Elia, despite the tremendous cost for consumers for this renewable capacity. While Febeliec could still understand discarding solar capacity, it is now observing that also all other types of renewables, including wind, run of river etcetera do not seem to be taken into account anymore.
- 1.xx Nuclear
  - Febeliec wonders which assumptions Elia will apply for its sensitivities including a nuclear extension. Moreover, Febeliec also wonders which 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.
- 2.1 Demand
  - Febeliec refers to its extensive comments on demand above, including the request for additional sensitivities in light of the covid-19 crisis
  - Febeliec is also surprised to see that only one absolute value is provided, without any curve before and after 2025, making it impossible to provide any meaningful comments by lack of data.
- 2.2 Market response
  - Febeliec refers to its extensive comments on market response above, including the request for additional sensitivities in light of the covid-19 crisis
  - Febeliec refers to the numerous comments it made to the methodology developed by E-Cube in the recent past and its reservations it has towards this methodology; no new data has been provided based on an updated study and thus Febeliec cannot comment this (while the spreadsheet in any case does not provide any details whatsoever)
  - 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 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.
  - Moreover, Febeliec refers to its comment on the introduction of smart meters and variable price contracts and the fact that this will unlock a vast volume of currently untapped (untappable) flexibility in the residential and SME segments. Febeliec wonders whether, how and from when onwards this is taken into account in the Elia proposed values.
  - In case Elia would account for diesel generators in the category “market response”, Febeliec would want to see a clear breakdown of the different constituting elements (in order to be able to assess the expected evolution over time by Elia) and also wonders whether the category of non-emergency diesel generators would be accounted for as they do not constitute negative offtake. Moreover, if Elia would count diesel generators (and similar technologies) as market response, the volume of market response is an even large underestimate than described above.
  - In general, it is very difficult to provide any useful input on the data presented by Elia, as any detailed breakdown is missing.
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- 3. Balancing capacity
  - Febeliec refers to its comments above, but also here regrets the lack of data provided by Elia.
- 4. Flow-based domains
  - The provided data, without any clarification, does not provide any information. It is even not specified what the values on the spreadsheet are supposed to represent, nor for which years these are supposed to be. Febeliec regrets the lack of data and clarity.
  - For Febeliec it is unclear how for example Alegro will be taken into account in the model and what will be the impact. Moreover, as the study looks 10 years ahead, Febeliec wonders how potential projects proposed in the Elia TYNDP (Nautilus, Alegro II) should be taken into account (making even abstraction of all other interconnectors with for example the UK and the Nordics will be realised from CWE in the

- next decade). The same applies to all the enormous grid improvement and extension projects Elia has planned on the backbone grid as well as the underlying grids in the next decade.
- With respect to the flow-base domain, it is very unclear how Elia will take into account the proposed modifications as well as certain clarifications and specifications that have been added in the Clean Energy Package, more precisely in the Energy Directive and Regulation, with respect to the cross-border market coupling and loopflows.
  - 6. Economic parameters
    - 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, but regrets that Elia has not included any data for such sensitivities (e.g. based on other IEA scenarios or scenarios from other sources)
  - 7. Sensitivities menu
    - Febeliec refers to its extensive comments on the sensitivities as well as its request for additional sensitivities, many of which clearly warranted by the lack of impact of the covid-19 crisis in the proposed menu
  - 8. Preselected capacity types
    - Febeliec refers to its abovementioned and previous comments on this topic
  - 9. Scenarios post DY
    - Febeliec refers to its abovementioned comments on this topic and reiterates that it regrets that not all individual years are modelled, especially in the period up to 2030, in light of results of previous Elia adequacy studies showing a clear reduction in the need for a CRM over time.
  - 10.1 Technology list
    - Febeliec refers to its abovementioned comments on this topic
  - 10.2 Activation cost availability test
    - Febeliec refers to its abovementioned comments on this topic
  - 10.3 Net revenues from balancing services
    - Febeliec strongly refers to its abovementioned comments on this topic, and regrets that Elia does not seem to take these in account or at least not provide any quantitative nor qualitative input here

#### **Febeliec comments to the cost of capacity for calibration of the Belgian CRM report by Fichtner.**

On the Fichtner study in general, Febeliec is negatively surprised that in the whole calculation always very conservative estimations are used, which always result in a negative effect from the point of view from consumers who will have to pay for the CRM. Moreover, in light of the covid-19 crisis, it would according to Febeliec be very advisable to update the calculations, as in many case the input data will have changed considerably (see below for more detailed comments), which could lead to an entirely different overall outcome. In case the Belgian CRM would be activated, this will be the largest modification of the Belgian electricity market since the liberalisation and the calibration of the CRM will be a crucial cornerstone to limit the overall cost of the CRM, which is a legal obligation. As such, all elements of this calibration, including the cost of capacity, should extensively be scrutinised and updated in light of evolutions during the current phase in order to avoid an undue cost for consumers.

On the methodology (point 2.1), Febeliec takes note that Fichtner assumes an investment period of 20 years, for which Fichtner includes both the *“economic lifetime of an asset and its construction period”*; Febeliec wonders whether 20 years is not an underestimate in that case, as in the case of the CRM with some new assets (such as a.o. CCTGT) might be subsidized for 15 years after a construction period, yet in the example of CCGTs it is clear that most if not all of these assets have an economic lifetime that extends well beyond 15 years (especially with lifetime extension programs). By this only looking at 20 years, it should at the very least be noted that the results of the analysis give a lower range for revenues for the assets types investigated, yet could well be much above the result.

On the nominal long-term interest rate (10 years), Febeliec takes note of figure 4, yet wonders whether the proposed rates are realistic, in the pre-covid-19 but also and especially in the post-covid-19 financial climate, with virtually unlimited financing via central banks in the foreseeable future (as per their official communications), making Febeliec wonder whether a 3,2% nominal rate in 2024 is not a clear overestimate (and thus greatly influencing the outcome of the study). As the conclusion of 2.2.1.1 clearly refers to the Belgian Federal Planning Bureau expectations, maybe the results should be updated based on the new expectations that the FPB will publish in the very near future.

On the equity risk premium (2.2.1.2), Febeliec wonders why a risk premium of 6,1% is taken into account. Such premium seems very steep for an asset that is covered by a CRM, which should reduce the risk exposure (or for which owners of the assets in the CRM can create financial operations that would reflect this; if not done so, that would be by the own volition of the asset owner). Febeliec in any case does not agree that the equity risk premium for an asset covered by a CRM should be on the same level as the equity risk premium of the asset owner as a whole, as totally different risk have to be covered. By applying such a high risk premium for an asset with a much lower risk exposure, and taking that into account in the calculations, the end result will be an undue increase of costs for consumers for covering a non-existing or at least much lower risk.

On the corporate tax rate, Febeliec has no comments to a value of 25%, were it not that many companies (including several of the potential candidates for the CRM) have effective corporate tax rate levels that are (substantially) lower than the normal tax rate level. This again has a negative effect on the outcome from the point of view of the consumers who will have to bear the cost of the CRM.

On the inflation rate (2.2.1.4) Febeliec also asks to update the study based on new inflation expectations in the post-covid-19 climate, as already the FPB has lowered (substantially) its inflation forecasts for at least the near future.

On the equity beta Febeliec wants to refer to its previous comment on the equity risk premium. For the assets in the CRM (as opposed to the asset owners overall assets portfolio), the beta should be much lower, as the assets in the CRM have a much lower risk exposure than the overall assets in the market. Something very similar can be observed with the assets (and thus beta) of regulated monopolies such as system operators, where such lower risk exposure leads to safe haven effect in case of turmoil on financial markets. The share price of Elia in this covid-19 crisis is a very good example and shows the much lower beta for assets with limited (or hardly any) risk exposure. Febeliec thus wonders whether the proposed value, which covers the power industry as a whole, is reflective for CRM covered assets.

On the cost of debt (2.2.2.3), Febeliec takes note of the proposed values but wonders whether again these are reflective for CRM-covered assets in a post-covid-19 period with a virtually unlimited flooding of cash by central banks.

As a result of the above, Febeliec strongly doubts that the proposed WACC values reflect the reality for a specific class of assets with limited risk exposure in a post-covid-19 period, and is concerned that this will not lead to a minimisation of the CRM cost, a legal obligation.

On the section of gross CONE, Febeliec has attentively read the results for the different technologies considered in the longlist, with some remarkable results for the LCOE. The only element that is not clear to Febeliec is which CO2 prices were taken into account, as these will clearly have a substantial impact on low/no carbon technologies versus other technologies. On demand side management, Febeliec cannot agree with the proposition that the “*key idea behind DSM is that power usage “follows” the supply of power e.g. from fluctuation renewable energy generation*”. Demand side response is a voluntary and remunerated action by a consumer (any non-voluntary action would be curtailment and not DSM or DSR). Moreover, Febeliec also strongly wants to stress that for most DSR there is only a small or limited investment cost, as DSR in most cases concerns secondary use of assets that have been built for other primary reasons and thus (the largest part of) their investment cost is already assigned for different reasons. A large part of DSR is thus characterized by small investment (and reservation) costs and high activation costs (to cover their opportunity costs for not consuming electricity). For a.o. the residential and commercial sector, the on-going (and in some cases even accelerated) roll-out of smart meters (which is socialised) will enable the participation of these segments to DSR, with relatively minimal additional investment costs. The CONE for such assets will thus be low, as activation costs are not directly used in CONE and in any case the Belgian system adequacy under the CEP is not to be construed to limit market prices but rather to solve a residual system adequacy risk of which it has been proven that it cannot be solved by the market, after removal of all existing market distortions and the consideration of a strategic reserve in case the removal of those distortions would not be sufficient. Only in last resort a CRM can be envisaged under a strict framework, yet price levels on the electricity market are not element in these criteria.

On 3.2.2.2, Febeliec is very surprised to see that for the shortlist, “the technology should not strongly depend on changes in the current National Energy Policy”. While Febeliec firstly already wonders which such “National Energy Policy” that is referred to is, Febeliec is even more surprised to see that innovation is excluded from the scope, while the Belgian and European energy landscape has been and still is undergoing an unprecedented transition in the recent decade(s),

with many new technologies. It is thus surprising that for the next two decades (the building phase and the up to 15 year duration of subsidies under the CRM) no innovation and new technologies are considered<sup>5</sup>.

On 3.2.15, Febeliec is very negatively surprised to see that Fichtner concludes that *“since it is impossible to identify a “reference” DSM technology [...], DSM is not suited to be the “Best New Entrant Reference Technology”. It is therefore not considered in the shortlist”*. Instead of completely removing demand side response from the shortlist for this reason, Fichtner (and Elia) should have conducted a more thorough segmentation effort. This approach does arbitrarily exclude demand side response, for which Febeliec wonders whether this would be in line with the non-discrimination stipulations of the CEP.

On the land purchase costs (3.3.2.2), Febeliec is surprised that this is included for the reference projects with an arbitrarily chosen value, while for at least several candidate projects no additional land has to be acquired (in some cases it concerns a replacement of an existing or already dismantled facility). Febeliec is concerned that this artificially and arbitrarily increases the cost, to the detriment of total cost for consumers.

On the initial connection costs to the grids (3.3.2.3) for gas, Febeliec is surprised to read that *“a contingency of 25% is added as it is usual for gas networks to cover potential reinforcements or upgrade costs”*, without any further justification. Is this based on actual costs in Belgium or is another perimeter (“usual”) used? In any case, such contingency of 25% seems fairly steep.

On the owner’s contingency (3.3.2.4) Febeliec is very surprised that after all the extra safety margins already taken (see all the above comments), an additional margin is granted, to the detriment of the cost for consumers. Febeliec considers this additional contingency a windfall profit for the owners; the only condition under which such arbitrary additional contingency would even be the slightest bit acceptable would be if on all aspects there would not have been extra margin built in (quod non).

On the initial filling of fuel tanks (3.3.2.8), Febeliec does not agree with this approach, as any CONE calculation should not take into account such costs of fuel (which are to be considered part of the operating costs, not the capital costs). Febeliec considers this yet again 1,5% additional costs absolutely unwarranted, to the detriment of the total cost of the CRM for consumers. The fuel costs are already included in the operating costs (3.3.3.1), Febeliec is concerned about double counting, to the detriment of costs for consumers.

On the commissioning costs (3.3.2.10), Febeliec reads that *“they include costs of fuel and electricity”*, which for Febeliec are covered under operating costs and not capital expenditures. The 2% to 2,5% that is added for commissioning costs by Fichtner is thus unacceptable as a capital expenditure by Febeliec.

On the operating spare parts (3.3.2.11), Febeliec does not oppose the reasoning behind the need for spare parts in an industrial installation. However, these costs are part of the O&M costs, not the capital expenditures. Febeliec thus opposes the 1% to 1,25% that is added to the overall cost. Febeliec is, just as with some of the other categories, concerned that certain costs are counted twice (see also maintenance in section 3.3.3.3), thus artificially and unduly increasing the overall cost for consumers.

On the (additional) miscellaneous costs (3.3.2.12) of yet again another 0,5% (for landscaping or disposal of construction waste and unforeseen costs not yet covered in all the other built-in margins), Febeliec can only voice its strongest concerns, taking into account all the above comments. This addition is in flagrant opposition to the least cost criterion.

On at the least the fuel (3.3.4.1) and CO2 certificates (3.3.4.2) costs, Febeliec reiterates its comments about the impact of the covid-19 crisis and asks for an update of the data used, in order to avoid unduly increasing the overall costs for consumers, which would not be in line with the legal obligations.

On the section on the intermediate price cap for existing capacities, Febeliec is a.o. most surprised of the comments on decentralized CHPs, for which is mentioned that the *“profitability of such CHPs depends very much on the fuels they use”*, while in reality many of those CHPs receive subsidies to ensure a viable business case, as well as the fact that for

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<sup>5</sup> When making an analogy with mobile telecommunications, this would be similar to deciding in 2000, when the first cell phones started to be able to connect to the internet in an embryonic way, that only landlines, mobile voice and sms would be the relevant technologies. After the introduction of the iPhone in 2007, technological evolution went crescendo and is still accelerating at rapid pace. For energy, this evolutionary path has only recently started, yet this analysis as well as Elia’s overall view on the electricity sector, despite own large programs aiming at this evolution such as Internet of Energy, does completely discard this.



DSM only reference is made to 2018, but not to 2019 values which should have been available and presumably indicate a further increase in DSM (even notwithstanding certain distortions to the participation of demand side flexibility to the system, a.o. smart meter roll-out, which should enable even further participation in the future).

On 4.2.2, Febeliec wants to reiterate its comments on fuel prices, as a natural gas price of 23,6 €/MW seems steep, even in pre-covid-19 times but definitely in post-covid-19 times. The same applies for the CO2 certificate costs.

On the investment on existing capacities (section 5), Febeliec is surprised to see that unavoidable costs may include “the connection costs to the power grid and the gas, water and district heat networks”, as for existing capacities these connections have already been realised. Any operational costs related to these connections are not to be considered investment costs.

### **General Conclusion**

Febeliec as always remains available to discuss its comments to this consultation and the input data, but also still remains available to discuss the methodology. Febeliec is looking forward to the qualitative and especially quantitative results of the adequacy study from Elia and hopes that these will be presented and discussed.

## ANNEXES

In this section Febeliec wants to add a range of answers by Febeliec or its European sister federation IFIEC Europe to related consultations from Elia and its European Association ENTSO-e in 2018-2020. Many of the elements that (industrial) consumers consider (fundamental) flaws to the adequacy assessments conducted by the transmission system operator(s) have still not been resolved. Moreover, these answers also clearly show that adequacy assessments are continuously conducted without any adequate stakeholder consultation on the methodology, which in the mean time is an obligation under the Clean Energy Package. Nevertheless, by lack of a timely delivered (and thus not yet approved) European Resource Adequacy Assessment, the Belgian CRM volume determination will still be based on a non-consulted nor validated methodology.

### **Annexe 1: Febeliec answer to the Elia consultation on the input data for the adequacy and flexibility study 2019 (February 2019)**

Febeliec would like to thank Elia for this consultation on the input data for the adequacy and flexibility study to be conducted by end of June 2019. Febeliec regrets that only three weeks are given for this consultation, which severely limits the possibility of stakeholders to provide (quantified) input data.

Febeliec strongly regrets that Elia only conducts a consultation on the input data, and does not conduct a consultation on the methodology it will apply for this double study, which will be reiterated every second year. Febeliec strongly regrets that Elia has chosen to not involve the stakeholders in the development of this methodology, other than the stakeholders imposed by the law (FPS Economy and Federal Planning Bureau, 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 had they been involved from the beginning and the design phase, especially as the flexibility part of the study is a totally new domain that Elia will explore.

Febeliec will provide its input on the proposed excel-file by Elia, but this does not mean that Febeliec agrees with the proposed methodology and should in no case be interpreted as such. Febeliec has made ample comments and has provided ample questions during the presentation of the methodology by Elia during the Elia presentation on January 22<sup>nd</sup> 2019, many of which have not been answered in detail and/or still need to be covered and/or investigated. Febeliec wants to refer to its comments made during that presentation and hope that Elia will at least take them into account in order to improve the study.

Febeliec has following remarks and comments to the consultation at hand (per tab sheet):

- 0. Scenario framework:
  - Febeliec does not see how the proposed framework will provide a clear answer to the flexibility part of the study. Whereas adequacy involves supply covering demand at any price (de facto, market cap of 3000€/MWh in DAH market), flexibility (demand response, but also emergency generators, storage, ...) will participate in the market at a wide range of prices. Moreover, with the study looking ten years ahead, Febeliec wonders how Elia will cover future evolutions in flexibility. Whereas generation might be quite predictable with respect to future evolution paths (technological and from a cost perspective) (potentially for some technologies, as recent history has shown that predictions have been more wrong than right), the recent past clearly shows that any predictions about flexibility have all been very much off, as flexibility has developed substantially each time the markets showed a clear interest in them (with clear price signals); new actors, new business models and new products have (swiftly) been developed to answer a new need. As such, Febeliec wonders how Elia wants to capture these observed historic market dynamics in its forward-looking models, in order to avoid underestimating flexibility in the market and thus overestimating artificially the need for a “structural block”. Moreover, it is unclear how Elia is planning to incorporate for example the gigantic potential of a combination of smart meters and variable price contracts for MSE and residential customers which should invigorate to a large extent demand response in the market.
  - In general, Febeliec regrets that the sources of data in the spreadsheets are lacking, making it almost impossible to validate the proposed data by Elia. 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.

- 1. Renewables:
  - As the source of the provided data is lacking, it is impossible for Febeliec to make any valuable contributions. Are the proposed data based on the NECP, an Elia analysis, based on announced projects or linear extrapolation? For offshore wind, Febeliec notices that Elia adds 2GW as of 2028, without any project realization curve (as opposed to what has been observed in the past). Also for PV, Febeliec notices an increase by a 100% by 2030 but cannot discern how this result was obtained. The same comment essentially applies to all categories.
  - What is lacking here is also the involved costs (CAPEX/OPEX) that are associated with these technologies. Especially when also looking into flexibility, such information should be very relevant.
- 2. Nuclear:
  - Febeliec takes note of the proposed nuclear phase-out calendar, following the law.
  - Febeliec would however propose to include some sensitivity scenarios on this phase-out in order to obtain insight in the impact of this political choice, including cost impacts as this information will be very valuable. It concerns here (avoided) investments costs but also operation costs and the impact on flexibility in the system and thus the need for flexible or non-flexible capacity.
- 3. Interconnections
  - For Febeliec it is unclear how for example Alegro will be taken into account in the model and what will be the impact. Moreover, as the study looks 10 years ahead, Febeliec wonders how potential projects proposed in the Elia TYNDP (Nautilus, Alegro II) should be taken into account (making even abstraction of all other interconnectors with for example the UK and the Nordics will be realised from CWE in the next decade). The same applies to all the enormous grid improvement and extension projects Elia has planned on the backbone grid as well as the underlying grids in the next decade.
  - With respect to the flow-base domain, it is very unclear how Elia will take into account the proposed modifications as well as certain clarifications and specifications that have been added in the Clean Energy Package, more precisely in the Energy Directive and Regulation, with respect to the cross-border market coupling and loopflows.
- 4.1. CHP:
  - Febeliec takes note that Elia will take into account a 100% flat CHP profile for the next decade, without the phase-out nor construction of any CHPs. As this scenario seems quite unlikely, Febeliec would urge Elia to include at least some sensitivity scenarios where additional CHPs are taken into account. Elia takes into account an increase in total demand (to be discussed below), a.o. because of increased demand from industrial consumers (e.g. new large investments in Belgium), but does not take into account any investments in CHPs for any of such projects nor for any residential neighbourhood level CHP systems.
- 4.2. Market response
  - Febeliec refers to the numerous comments it made to the methodology developed by E-Cube in the recent past and its reservations it has towards this methodology
  - 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 of “Belgian Market Response volume” for 2018, But according to Febeliec +/-1250MW is a gross underestimate, taking into account all the demand response that exists in the balancing market as well as the announcements by for example two of the largest BRPs in the Belgian system for winter 2018-2019 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 would greatly appreciate that Elia provides a detailed breakdown of its data in order to be able to analyse it. In any case and as already indicated, Febeliec has the feeling that Elia underestimates the real market response that was available in 2018-2019 and as such should use this higher value as the starting point for its analysis. As prices (as well as (media) attention) drew all market actors to look at their energy portfolios, market dynamics have lead to the emergence of previously untapped market response in the market. This should clearly be taken into account, in order to avoid to underestimate the inherent flexibility in the system.
  - Moreover, Febeliec refers to its comment on the introduction of smart meters and variable price contracts and the fact that this will unlock a vast volume of currently untapped (untappable) flexibility in the residential and SME segments. Febeliec wonders whether, how and from when onwards this is taken into account in the Elia proposed values.
  - In general, it is very difficult to provide any useful input on the data presented by Elia, as any breakdown is missing (e.g. on total demand shifting volumes).

- 4.2.bis: Diesel generators
  - Diesel generators (and similar technologies) are completely missing in the file from Elia. CREG studies have shown that for example only the (aggregated) Belgian hospitals already have up to 400MW of diesel generators and this is not taking into account all the other emergency generators (from industrial sites over public services, office buildings to even residential consumers) that are operational in Belgium. Moreover, the current winter shows that even large BRPs install more than substantial volumes of diesel generators to cover their positions (diesel generators which cannot be formally accounted for as “emergency” generators as they are not connected to specific consumption processes). Febeliec asks Elia to introduce this category of diesel generators (and similar technologies) to the file.
  - In case Elia would account for them in the category “market response”, Febeliec would want to see a clear breakdown of the different constituting elements (in order to be able to assess the expected evolution over time by Elia) and also wonders whether the category of non-emergency diesel generators would be accounted for as they do not constitute negative offtake. Moreover, if Elia would count diesel generators (and similar technologies) as market response, the volume of market response is an even large underestimate than described above (cfr previous remarks)
- 4.3. Storage
  - The same issues arise for storage as for previous categories as no source is available for the information nor a breakdown (e.g. In number of batteries, technologies, vehicles, ...) nor a methodology describing the increase of storage, making it impossible to provide any meaningful comments to the proposed data
- 4.4. Additional capacity to meet adequacy and flexibility requirements
  - Febeliec regrets to see that Elia makes technological choices in this data file and thus also in the methodology for the adequacy and flexibility study and this over the course of an entire decade as Elia will only assess (current) CCGT and OCGT technologies. This thus de facto excludes not only all other (potential or existing) technologies but also locks in current efficiency rates for these types of plants and thus excludes efficiency gains and learning curve effects. Mentioning that “other forms of capacity are already taken into account in the scenario definition and sensitivities will be performed to those” does not alleviate the concerns of Febeliec on technology neutrality, as this still clearly indicates a technological preference of Elia towards CCGTs and/or OCGTs.
- 5. Total electricity consumption
  - Febeliec wants in this framework refer to the comments it always makes in the framework of the input data for the yearly study for the determination of the required volumes for strategic reserve and wants to point to the historic growth rates which show far from the very clear year-on-year increase of 0,49 to 0,74% that Elia foresees for the future. The historical values show that even for economically sound years as 2016 total electricity demand can diminish, whereas Elia only (macro-economically?) discerns never-ending year-on-year increases for the whole of the next decade. Febeliec reiterates previous demands to validate historical IHS forecasts with actually observed values for the recent years, in order to provide confidence in the applied methodology or, in case the IHS track record would not be so sound in predicting future electricity consumption, develop an alternative and more correct forecast tool. In any case, Febeliec observes that even after a few years of economically sound years (2011-2017), total electricity demand has still not returned to the level of 2011 (let alone pre-2008 levels!), whereas Elia now decidedly takes into account an increase of almost 7 TWh in demand in the next decade!
  - In any case, Febeliec urges Elia strongly to include several sensitivity analyses on this point, as overestimates in total electricity demand will automatically lead to overestimated needs for (flexible) capacity and thus unnecessary investments in Belgium, both for adequacy and maybe even for flexibility purposes.
- 6.1. Fuel and CO2 prices
  - Febeliec hopes Elia will conduct some sensitivity analyses on these parameters, as they will have an enormous impact on the outcome, but regrets that Elia has not included any data for such sensitivities (e.g. based on other IEA scenarios or scenarios from other sources)
- 6.2. Economic assumptions
  - Febeliec cannot validate most of the proposed assumptions, but refers to a previous comment on the fact that Elia locks in current efficiency factors and cost factors with this data and does not take into account efficiency gains or learning curve effects or even economies of scale/scope.

- With respect to demand shedding and shifting, Febeliec wonders why shedding is linked to industry and shifting to residential. Both categories can be linked to both types of grid users. Moreover, Febeliec does not understand why industry is considered to have no CAPEX and residential does and how the other parameters are introduced. Also on the economic lifetime, Febeliec does not understand why residential consumers are valued at 8 years, whereas industrial consumers should be around indefinitely.
- 6.3. Forced outage rates
  - Febeliec regrets that no sources have been provided, making it difficult to assess the information. For example for DC links, Febeliec wonders on which historical data this is based and which technologies have been taken into account; Febeliec has always understood that the applied technology for at least NEMO (and Alegro?) is new and thus wonders how this historical value has been determined.
- 6.4. Flexibility characteristics
  - Febeliec regrets that only three weeks were given for this consultation, allowing hardly any time to validate any of the information.
  - Febeliec regrets that diesel generators (and similar technologies) have not been introduced. Moreover, Febeliec regrets that CHP is only to be considered existing/old CHP with flexibility similar to that of old CCGTs, whereas no new CHPs (small and large scale) are considered nor any improvement in flexibility of such units.
  - For demand response, the included data has almost no added value as compared to the names of the categories chosen by Elia and as such it is very difficult to add additional validation. Febeliec nevertheless wonders why for CAT-4H there is a value in column M (fast flexibility limit), whereas all other categories have no values there. Does this mean that Elia considers this category inherently different from the other ones and if so, on what grounds? With the non-existent additional information from Elia, it is impossible to provide any input on this point.
  - Febeliec also wonders what the cryptic comment in cell S30 means, especially “share of 86% evolves towards 74% from 2020 to 2030”. Febeliec cannot validate this as it is unclear to what this refers.
- 7. Sources for other countries
  - Febeliec cannot provide any input, but wants to mention that the title on the sheet is wrong and should read “7.” Instead of “6.”.

Febeliec as always remains available to discuss its comments to this consultation and the input data, but also still remains available to discuss the methodology. Febeliec is looking forward to the mathematical results of the adequacy and flexibility studies from Elia, as is in this the legal role of Elia to provide input for the public debate on technological and policy choices.

## **Annexe 2: Febeliec answer to the Elia consultation on the methodology, hypotheses and data sources for the dimensioning of the volumes of strategic reserve for winter 2020-2021 (May 2019)**

Febeliec would like to thank Elia for this consultation on the methodology, hypotheses and data sources for the dimensioning of the volumes of strategic reserve for winter 2020-2021. Febeliec has been involved in similar consultations in previous years as well as in workshops and studies on certain aspects related to this consultation and Febeliec appreciates that Elia has taken into account at least some of its comments and adapted its methodology and hypotheses accordingly.

Febeliec would like to get some clarity on the relation between this exercise on the dimensioning of strategic reserve, the Adequacy and Flexibility study that Elia has to conclude by the 30<sup>th</sup> of June 2019 and the future regional resource adequacy assessment that will have to be conducted in case Belgium would opt for the implementation of a capacity remuneration mechanism in Belgium. It is clear that all three studies will discuss system adequacy in Belgium, but with different scope and time horizons as well as governance. However, it is unclear to what extent the current study with respect to the strategic reserve 2020-2021 is modified compared to the study for the strategic reserve for winter 2019-2020 in light of the discussions of Elia with other stakeholders, both market and non-market, on the other study currently being developed and the new or improved insights resulting from these (e.g. on total demand growth or the volume of market response).

On flow-based modelling, Febeliec continues to wonder what will be the (quantitative) impact of the incorporation of ALEGRO into the flow-based domain, a question Febeliec already had last year, as it is still unclear even though the interconnector should enter into service next year and thus be in service by winter 2020-2021. The same applies to the HTLS upgrades on certain parts of the 380kV grid.

On the demand profiles for all European countries and the new ENTSO-e software TRAPUNTA, Febeliec would have liked to get a better grasp on what the implications are of the switch to this new approach. Will this have a significant impact or is it merely a new source of data that will be used in a standardized way across Europe.

On Market Response, Febeliec would clearly like to stress that it has never agreed with the methodology for market response as it was developed by E-Cube for Elia, but rather that it was overruled by Elia and that Elia has chosen to proceed with this methodology despite comments and concerns from Febeliec. Febeliec is strongly of the opinion that the (preliminary) results for market response (which is broader than demand side response) presented as outcome of this methodology in the framework of the Adequacy and Flexibility study that Elia has to conclude by the 30<sup>th</sup> of June 2019 clearly show that the methodology leads even for historic periods (winter 2018-2019) to lower volumes of market response than have been announced and observed in the market. The last step of the methodology developed by E-Cube for Elia entails a sanity check, but Febeliec regrets that this step is overlooked and that as a result no lessons learned are drawn nor the methodology adapted in order to find a solution that better captures market response volumes. Febeliec strongly urges Elia to perform this sanity check and if the results would not be in line with the past (as is the opinion of Febeliec), either Elia should revise the methodology or at least use any higher value that could have been observed in the market as an under limit for the forecast. Febeliec also wants to express serious concerns to the international comparison point Elia is referring to with respect to the relation between market response volumes and maximum peak of the system, as market response, and explicitly demand response (because of opportunity costs), only develops in systems that are not structurally oversupplied with generation assets and thus comparing internationally with countries that (still) have structural overcapacity does not provide any meaningful benchmark point for the assessment of market response in Belgium, unless only countries would be taken into account with similar situations.

On the low probability high impact sensitivity, Febeliec regrets that Elia has not indicated which would be the parameters that will be applied for this sensitivity as Febeliec has indicated for the previous exercise (as well as other related exercises) that an increase in the height of the impact (e.g. increase of nuclear unavailability from 1GW to 1,5GW as a result of the unavailability of several nuclear plants operated by the incumbent producer in Belgium during one exceptional winter) leads to an increase of the need for strategic reserve and thus cost for consumers, while it is unclear to what extent such scenario is relevant towards the future (very low probability as compared to low probability) and to what extent the (recent) past has not shown that under exceptional circumstances mitigating solutions have been found within the market that were not identified before (relating also to the previous comment on the underperformance of the methodology for the assessment of market response).

On the base case and sensitivities (point 3.1.5) Elia mentions that “analysis will determine the amount of generation volume that should be considered unavailable in Belgium & France”. Febeliec wonders when this information will become available and whether this will only be communicated in the results of the study, meaning that stakeholders cannot react to this important input hypothesis, or that this will already be communicated in the planned consultation on the input data.

On the growth of the total Belgian load, Febeliec takes note that Elia continues to use IHS MARKIT, despite underperformance of these forecasts when comparing the previous forecasts made in the past with the (in the meantime historic) observed reality. Elia mentions the development of an internal demand forecasting framework, presumably also in light of the other studies on system adequacy that Elia is performing or will have to perform. Febeliec hopes that such framework will be more robust and hopes that Elia will consult stakeholders on this framework, as presumably will in any case have to be done within the governance framework of at least some of the adequacy assessment exercises.

On the AT-DE Bidding Zone split, (point 3.4.2.3), Febeliec thinks that the second alinea is redundant as this split has been introduced in October 2018 and actual data exist, so reliance on a (potentially faulty) SPAIC seems to Febeliec a non-conform approach.

On the evolution of simultaneous import capacity restrictions and cross-border import in general, Febeliec would like to state strongly that the Clean Energy Package should have entered into force by 01/01/2020, including the provision on the volume of cross-border capacity that has to be given to the market. Febeliec hopes that this will be included in the analysis for the following three winters and would like Elia to detail how this has been done and what the impact is on the adequacy assessment. Moreover, Febeliec would like to reiterate its request to indicate very clearly in case of limitation of cross-border flows, in this as well as other adequacy related studies, whether this is the result of either lack of cross-border interconnection capacity or lack of energy in interconnected markets, as this is very valuable information and will become of much more significance in the future when the Clean Energy Package will be fully implemented.

On the way ANTARES takes into account demand response, Febeliec understands that Elia has to work within the limits of the tool, but regrets that the tool has still no other way to approach demand response other than modelling it as “very expensive generation units”. Febeliec would also like to stress that Elia is referring here to demand response, whereas actually market response should have been used, unless Elia is incorporating all non-demand response elements of market response elsewhere in the model. If the latter would not be the case, this would imply an underestimation of market response in the model.

Febeliec also wants to reiterate its position, already also expressed in previous years, towards the methodological approach of increasing the margin and/or strategic reserve volume by blocks of 100MW in the iterative process for the determination of the potential required volume. For Febeliec, a finer granularity than 100MW should be used, as even the lack of 1MW under the current approach would immediately lead to a need of 100MW additionally. Applying a finer granularity would avoid sourcing unneeded volumes. Alternatively, an approach could be implemented where very marginal transgressions of the LOLE criterion do not automatically lead to an increased contracting of strategic reserve volumes, through the application of a deadband, taking into account the multiple layers of sensitivity already applied by Elia in combination with low probability, high impact scenarios, which already skew all the results towards a very conservative approach. For Febeliec, it should in any case be avoided to increase the cost for the grid users unnecessarily by following a much too conservative approach.

## **Annexe 3: Febeliec answer to the Elia consultation on the methodology, hypotheses and data sources for the dimensioning of the volumes of strategic reserve for winter 2019-2020 (May 2018)**

Febeliec would like to thank Elia for this consultation on the methodology, hypotheses and data sources for the dimensioning of the volumes of strategic reserve for winter 2019-2020. Febeliec has been involved in similar consultations in previous years as well as in workshops and studies on certain aspects related to this consultation and Febeliec appreciates that Elia has taken into account at least some of its comments and adapted its methodology and hypotheses accordingly.

As also commented during the last Task Force implementation Strategic Reserve, Febeliec remains with questions on the (quantitative) impact of the incorporation of NEMO and ALEGRO (as well as BeDeLux) into the flow-based domain and thus their impact on the determination of the need for strategic reserve. In addition, the application of a 6% outage rate for the interconnectors is according to Febeliec not sufficiently validated in the report, as it is unclear whether this value is based on existing interconnectors or taking into account particularities of the new HVDC technologies that will be applied, while Febeliec is also wondering if the 6% is taking into account that these interconnectors will be brand new in the following winters and thus should not yet be subject to ageing issues occurring over time.

Febeliec also takes note on the fact that for market (demand) response, Elia will take into consideration new available data from May 2017 to March 2018, but has not yet received an answer to the impact this update of data will have. Febeliec in any case wants to point out that despite the fact that the bidladder up until now has not seen an abundance of activity should be treated very carefully in the analysis, as this is partially due to economical elements, as many industrials are producing at or near maximum output levels, but also because the Transfer of Energy, which should enable and facilitate market actors to market their flexibility without prior consent from their supplier and his BRP, has not yet been fully implemented. Febeliec asks Elia to take into consideration the aforementioned elements when determining the level of demand side response in the next winters, as the near past might not be a completely relevant proxy and an underestimation of the real potential.

Febeliec wants to reiterate its position towards the methodological approach (point 4.3) of increasing the margin and/or strategic reserve volume by blocks of 100MW in the iterative process for the determination of the potential required volume. For Febeliec, a finer granularity than 100MW should be used, as even the lack of 1MW under the current approach would immediately lead to a need of 100MW additionally. Applying a finer granularity would avoid sourcing unneeded volumes. Alternatively, an approach could be implemented where very marginal transgressions of the LOLE criterion do not automatically lead to an increased contracting of strategic reserve volumes, through the application of a deadband, taking into account the multiple layers of sensitivity already applied by Elia in combination with low probability, high impact scenarios, which already skew all the results towards a very conservative approach. For Febeliec, it should in any case be avoided to increase the cost for the grid users unnecessarily by following a much too conservative approach.



## Annexe 4: Febeliec answer to the Elia consultation on the input data for the dimensioning of the volumes of strategic reserve for winter 2020-2021 (September 2019)

Febeliec would like to thank Elia for this consultation on the methodology, hypotheses and data sources for the dimensioning of the volumes of strategic reserve for winter 2020-2021. Febeliec regrets that Elia did not include a clear overview of all the hypotheses and the full methodology of this study. Febeliec will provide its input on the proposed excel-file by Elia, but this does not mean that Febeliec agrees with the proposed methodology and should in no case be interpreted as such.

Febeliec has following remarks and comments to the consultation at hand (per tab sheet):

- 1.1 Production summary
- **1.2 Individually modelled thermal production:** Febeliec would like to remark that for several units (Langerlo 3-4, Monsanto Lillo) these were “exceptionally available in 2018-2019”, because one or several BRPs were exposed to a risk of imbalance in their portfolio and took measures to avoid being imposed potentially very high imbalance prices (up to 13.500€/MWh), including making available these units. As such, for Febeliec, units in this situation should not be discounted in an analysis on adequacy for Belgium, unless it is proven that they cannot be put back into operation if needed by and for BRPs, thus avoiding costly volumes to be contracted in a strategic reserve at a cost for all consumers in Belgium. On Doel 3 and the decommissioning foreseen on 01/02/2023, Febeliec would request Elia to make at least a sensitivity analysis with this unit still in the market (even though the volumes for winter 2022-2023 are only indicative and not used for composing a strategic reserve at this point).
- **1.3 Renewable production:** As the source of the provided data is lacking (which projection of the regions), it is impossible for Febeliec to make any valuable contributions. Febeliec can only remark that for certain categories, most notably biofuel, the volumes decrease over time, but with the data at hand it is impossible to make any assessment on the correctness of this analysis.
- **1.5 Profiled thermal production:** Febeliec is surprised to see in the accompanying slide deck of Elia that for biomass and waste, the data in the database of Elia and of the Regions is very different, with more than 15% difference for Flanders and the Walloon Region.
- **2.1 Demand:** Febeliec wants in this framework to refer the comments it has also made in the past in the framework of the input data for the yearly study for the determination of the required volumes for strategic reserve. Based on the new moving window for the dataset (2011-2017(forecast, apparently no historical data are available?)), Febeliec can only observe that historically the growth rate was on average -0.59% (last 7 years), +0.17% (last 5 years) or 0,09% (last 3 years), yet Elia takes for its forecasts till 2023 (including for 2018, where apparently no historical data are available?) an average annual growth rate of +0,42%, adding more than 2 TWh to the Belgian demand y 2023 as compared to the last available data, without providing any justification for this forecast. The historical values show that even for economically sound years as 2016 total electricity demand can diminish, whereas Elia only (macro-economically?) discerns never-ending year-on-year increases. Febeliec reiterates previous demands to validate historical IHS forecasts with actually observed values for the recent years, in order to provide confidence in the applied methodology or, in case the IHS track record would not be so sound in predicting future electricity consumption, develop an alternative and more correct forecast tool. In any case, Febeliec observes that even after a few years of economically sound years (2011-2017), total electricity demand has still not returned to the level of 2011 (let alone pre-2008 levels!). In any case, Febeliec urges Elia strongly to include several sensitivity analyses on this point, as overestimates in total electricity demand will automatically lead to increased needs for capacity and thus a potential strategic reserve.
- **2.3 Market response:** 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 of 699MW market response, taking into account that two of the largest BRPs in the Belgian system contracted for winter 2018-2019 substantial volumes (+500MW and +200MW) of additional market response. Febeliec would greatly appreciate that Elia provides a detailed breakdown of its data in order to be able to analyse it (e.g. categories and constraints). In any case and as already indicated, Febeliec has the feeling that Elia underestimates the real market response that was available in 2018-2019 and as such should use this higher value as the starting point for its analysis. Moreover, Febeliec does not understand how a 1% growth from the volume of 2018-19 (699MW) can lead to a decrease for 2019-20 (697MW) (cfr Elia file). Moreover, Febeliec also wants to highlight the introduction of smart meters (with currently already more than 60.000 installed in Flanders, amongst which more than 8000 in cases of local solar production, and variable price contracts and the fact that this will unlock

a vast volume of currently untapped (untappable) flexibility in the residential and SME segments. Febeliec regrets that these elements are still not (and never have been) taken into consideration by Elia in its analyses. Febeliec also refers to the numerous comments it made to the methodology developed by E-Cube in the recent past and its reservations it has towards this methodology, which it also never approved. Last but not least, based on the provided data it is for Febeliec impossible to analyse to which extent the data for market response provided by Elia (with a scope much larger than demand side response) are taking into account all elements. For example the inclusion of the impact of diesel generators (and similar technologies) is at least very opaque. CREG studies have shown that for example already the (aggregated) Belgian hospitals already have up to 200MW of diesel generators and this is not taking into account all the other emergency generators (from industrial sites over public services, office buildings to even residential consumers) that are operational in Belgium, while last winter also has clearly shown that BRPs can install more than substantial volumes of diesel generators to cover their positions (diesel generators which cannot be formally accounted for as “emergency” generators as they are not connected to specific consumption processes). Febeliec would like Elia to provide thus a very clear and detailed breakdown of its data on “Market Response” in order to be able to assess the expected evolution over time by Elia

- **4. Flow based domains:** Febeliec appreciates that Elia has evolved its methodology in order to include 4 “typical” days with each 24 CWE flow based domains. If selected correctly, this approach should presumably improve the analysis. Febeliec however regrets that Elia is not providing a qualitative overview of the impact of new grid elements, such as the introduction of Alegro or the impact of NEMO (with operational experience in the meantime), as well as the introduction of new interconnectors (already happened or foreseen in the timeframe of this analysis by Elia) in the neighbouring countries and their impact on the Belgian import-export situation.
- **Storage:** Febeliec regrets that this aspect is not even covered in the input data of Elia. If Elia has included this segment in “Market Response”, Febeliec reiterates its position on the need for a clear breakdown of this category, but also wants to stress that if this would be the case, the volume of market response is presumably a gross underestimate.

Febeliec regrets that Elia does not conduct a consultation on the methodology, and thus wants to use this consultation to reiterate its position on the (past but maybe also current) methodological approach of increasing the margin and/or strategic reserve volume by blocks of 100MW in the iterative process for the determination of the potential required volume. For Febeliec, a finer granularity than 100MW should be used, as even the lack of 1MW under the current approach would immediately lead to a need of 100MW additionally. Applying a finer granularity would avoid sourcing unneeded volumes. Alternatively, an approach could be implemented where very marginal transgressions of the LOLE criterion do not automatically lead to an increased contracting of strategic reserve volumes, through the application of a deadband, taking into account the multiple layers of sensitivity already applied by Elia in combination with low probability, high impact scenarios, which already skew all the results towards a very conservative approach. For Febeliec, it should in any case be avoided to increase the cost for the grid users unnecessarily by following a much too conservative approach.

## **Annexe 5: Febeliec answer to the Elia public consultation on input data for determining the volume for Winter 2019-2020**

Febeliec would like to thank Elia for this consultation input data for determining the volume of Strategic Reserve for winter 2019-2020, as it is very important to have a clear, common and accepted understanding of which hypotheses, generation and demand volumes and capacities will be taken into account for the analysis conducted by Elia. Just as for the previous consultations on this input data in previous years, Febeliec regrets that Elia has not provided in the excel file under consultation more of the assumptions and hypotheses it has applied to come up with the proposed numbers, other than some vague references in the accompanying document (e.g. “information received from regions”), without referring to which reports or sources were used; a large array of different estimates have been made by different parties for a multitude of purposes and it would be helpful if it would be indicated which of the documents and thus underlying sets of assumptions from those parties have been used in order to be able to validate the proposed numbers by Elia. ). As a result and despite the added value of the accompanying document provided by Elia, it is still difficult to get real insight in the methodology applied by Elia.

With respect to the generation capacity, Febeliec will not comment the availability of individual thermal production units, but takes note of the list as provided by Elia. Febeliec however would like to iterate its request from previous years for a public and official list with a clear status of all the announced closures of thermal generation units as well as their end dates. Such list still does not exist, which has all parties to rely on information to be found in the press and/or on company websites, which is not the most transparent process.

With respect to renewable production, Febeliec has no specific comments, but observes a very significant increase in both PV and onshore and offshore wind in the numbers proposed by Elia. Febeliec wonders whether this increase is based on hard evidence (e.g. permits granted, investment decisions taken, construction and planning of offshore windmills) or rather based on extrapolation of current trends and/or growth paths. Febeliec insists on the need to take into account the evolution of the minimum load factor of renewables since this is an important factor in the analysis of the determination of the volume of strategic reserve.

With respect to the demand, just as in previous years Febeliec continues to wonder why Elia takes such fairly steep increases for the following years, taking into account that the average over 2011-2017 is still close to zero and over 2014-2017 is slightly negative. Moreover, CREG studies also show that the (residual) load and peak load profile in Belgium have undergone non-negligible changes in the last few years. Can Elia provide the basis on which to forecast yearly increase of around 0,5%? Is this based on a macro-economic top-down approach, and if so, which GDP-growth rates and other macro-economic parameters have been used for the calculation, or is it based on an additive bottom-up approach and if so, which segments of consumption are expected to increase over time? If anything, the historical data for the years 2011-2017 shows that it is very difficult to draw a line on consumption increase/decrease, yet Elia takes a significant yearly increase into account, leading to a consumption of several TWh per year more in 2022, thus leading automatically to an increased need for generation capacity and thus potentially also a larger Strategic Reserve. For Febeliec, such approach might prove overly cautious, and comes at a cost for all electricity consumers as they will have to foot the bill for the resulting outcome of these Elia assumptions.

On the volumes of market response, Febeliec has provided ample input and comments during the work conducted by both Elia and E-cube in the subgroup of the Task Force implementation of Strategic Reserve and is pleased to see that this input has been taken into account.

With respect to the flow-based domains, Febeliec refers to its comments provided during the public consultation on methods, hypotheses and data sources. Febeliec welcomes the inclusion of more granularity with respect to flow-based domains in the analysis by Elia and also welcomes the inclusion of Alegro within this analysis. On this last point, Febeliec wonders what the impact will be of this interconnector, and which outage rates and other derating elements will be taken into account by Elia in its model for this interconnector. Febeliec regrets that Elia does not provide a description of the expected impact of the inclusion of both new interconnectors as well as other interconnectors or increases in cross-border capacity in the CWE/CORE region (e.g. increase in capacity between a NL and DE), nor the impact of other measures (e.g. 20%minRAM, DE/AT split), which would be very helpful information to the stakeholders. Febeliec hopes that Elia will provide an in-depth analysis on these elements in its report on the required volumes for 2019-2020, after its analysis, as this information would be very useful for the stakeholders, also beyond the scope of “just” the calculation of the need for a Strategic Reserve.

## Annexe 6: IFIEC Europe answer to the ENTSO-e consultation on the proposal for a European Resource Adequacy Assessment Methodology (January 2020)

IFIEC Europe would like to thank ENTSO-e for this consultation on the proposal for a European Resource Adequacy Assessment (ERAA) Methodology. IFIEC Europe wants to stress the importance of this and related methodologies on VoLL, CONE and the reliability standard, as they will be instrumental in the European and national resource adequacy assessments. IFIEC Europe also wants to stress that this consultation and its answer to this consultation are only touching on high level principles, whereas the proof of the pudding will be in the eating, when this methodology will be applied to the European and/or national electricity markets. It is of the utmost importance that also the translation of the described principles into operational models, input collection efforts etcetera is conducted in a thorough way in order to ensure that all relevant data are used but also that no (voluntary or involuntary) over- or undershooting is created in the implementation phase.

IFIEC Europe supports that for any potential complementary national resource adequacy assessments that may be conducted, these shall have a regional focus and shall be based on the same methodology, while they also shall include the divergence between the European and national resource adequacy assessments, including details of the sensitivities used and the underlying assumptions, in order to harmonize as much as possible all analyses while maintaining consistency.

IFIEC Europe has no specific comments on the **subject matter and scope** at this point, as this part remains quite high level; the real test will come when the methodology will be applied. In any case, IFIEC Europe has confidence that ACER will perform a thorough analysis before the approval of the methodology as well as any future amendment. IFIEC Europe only has a question about the fact that the ERAA “*shall also serve as a reference method, without prejudice to innovation going beyond it*”, as it is unclear what is meant with the last part. IFIEC Europe asks ENTSO-e to clarify this point, as it should not result in undermining the harmonized and consistent approach towards adequacy studies.

With respect to the **definitions**, IFIEC Europe wants to refer to its answer to the ENTSO-e consultation on the methodologies on VoLL, CONE and the reliability standard, in particular to its comments on the VoLL methodology. On the scenario framework, IFIEC Europe cannot agree towards the way ENTSO-e determines the baseline data for the ERAA, as it considers only the national trends from the National Energy and Climate Plans related to generation technologies (coal, nuclear, renewable energy) and energy-efficiency, as well as the state of the grid, but does not look at trends with respect to demand side response, market response, storage, ... For IFIEC Europe it is important that any adequacy assessment is conducted in a technology neutral way and as such it is unacceptable that an important number of flexibility sources are not taken into account in the scenario framework. IFIEC Europe also has serious doubts towards the methodology with respect to the economic viability check (see below).

With respect to the **scenario framework** and the Central Reference Scenarios, IFIEC Europe is surprised to read for scenarios with capacity mechanisms that “*constraint such as limits on capacities available (e.g. constraints on demand response), legal and administrative hazard, hazards with impact on availability, building delays, stop-loss limits, may however justify in specific cases that the Reliability Standard is not always fulfilled at any price*”, as first the list above is too wide and too vague (and could thus encompass almost anything) while at the same time nullifying the impact of capacity mechanisms as according to ENTSO-e they will not even guarantee adequacy at all. With respect to sensitivities to the two Central Reference Scenarios, for IFIEC Europe it is important that these are investigated (and not merely potentially), as it is very important to understand to what extent the results are robust for small variations in input data and thus to what extent the analyses will lead to a real outcome towards adequacy in Europe.

With respect to the **description of the ERAA**, IFIEC Europe wants to stress that where ENTSO-e takes demand side response into account on the demand side of the equation, existing studies have also looked at this by taking it into account on the supply side of the equation. IFIEC Europe is indifferent to the approach, insofar the real impact of demand side response is taken into account and not discarded at both sides at the same time. Demand side response is a major source of flexibility and will become so even more towards the future with increasing price caps (thus allowing prices to rise to levels that could even reach VoLL for certain categories of consumers) and the roll-out of smart meters and dynamic price contracts, thus providing all consumers with the necessary tools to valorise their (demand side) flexibility. With respect to uncertainty towards outages of generators (and other sources of flexibility? ENTSO-e should specify this more clearly or justify why only generation is taken into account) and interconnectors, IFIEC Europe wants to stress that insofar such outages are solved within balancing timeframes, they are to be covered by system reserves and not be included in an adequacy assessments (as ENTSO-e has also chosen to exclude system reserves as a

contributor). Moreover, IFIEC Europe has questions with regard to the internal lines (as opposed to interconnections) that will be taken into account for the analysis, as these should be tackled differently in the model. IFIEC Europe also has question with respect to *“taking into account the impact of climate change”*, which is mentioned several times throughout the document, while however not providing any insight on how this shall be done. IFIE Europe would like to see some further elaboration on this point, as it cannot be the purpose to include this parameter to allow the results to be manipulated in a certain direction. It is very important that the impact of climate change, if included, is correctly modelled, taking into account not only the negative (*“extreme weather conditions”*) but also the positive impact it can have on system adequacy (e.g. hydro-modelling, load factors, less numerous cold spells and less severe cold spells, ...). With respect to demand, it is important that next to the proposed variables, also elements decreasing demand, such as a.o. energy-efficiency measures, are included, as otherwise the model based on only economic growth will lead to an overestimate of demand. Also on demand, IFIEC Europe has questions on the *“impact of climate change”* and how this will be modelled. With respect to both explicit and implicit demand side response, IFIEC Europe takes note that ENTSO-e only will consider them in the assessment insofar *“such technology is considered as available, mature and competitive”*, without specifying which criteria will be used for this. IFIEC Europe is concerned that this could lead to an underestimate of the available demand side response in the system and would thus like more clarity on the application of the criteria proposed by ENTSO-e. Moreover, IFIEC Europe can only stress that for the European RAA, it is important to take into account the best practices in any of the Member States, applied to all of the Member States, to assess the potential of demand side response in the overall assessment, as at the minimum level any demand side response schemes and facilities that exists in any of the Member States can be extended to all of them (as they have proven by their existence to be available, mature and competitive). With respect to the DSR activation curve, IFIEC Europe wants to refer to its answer to the ENTSO-e consultation on the methodologies on VoLL, CONE and the reliability standard, in particular to its comments on the VoLL methodology. Taking into account the framework created by a.o. the provisions of the Clean Energy Package, the CACM Network Code, the decisions by ACER and the NRAs, IFIEC Europe is of the impression that ENTSO-e grossly underestimates the potential of DSR. Indeed, with the automatic increasing price caps in the day-ahead and intraday markets whenever market prices reach certain thresholds, the gradual introduction of smart meters for all consumers in combination with the obligation to offer dynamic price contracts, this will lead towards a much higher participation of demand in the adequacy equation through increased demand side response, both explicit and implicit. Indeed, if for a certain (category of) consumer(s) prices rise above its individual VoLL, this consumer will voluntarily stop consuming and thus alleviate any adequacy concerns at that point in time (as opposed to involuntary and blunt curtailment of geographical zones of consumers by TSOs). On the economic viability check, IFIEC Europe has a lot of questions, not in the least because almost no elements are provided to assess how this will be performed, in particular towards DSR taking into account the above. On supply, IFIEC Europe adamantly cannot agree with the proposal to exclude any non-market resources, such as strategic reserves, from the central reference scenarios of ERAA (thus also including the central scenario without capacity mechanisms), as such mechanisms have exactly (or should have been) designed and dimensioned to ensure adequacy of bidding zones. By subtracting them from the analysis, all the concerned bidding zones will by definition become inadequate (unless the dimensioning for the strategic reserves has been erroneous), leading to a need, while already the means to solve the adequacy issue are in place (and paid for). IFIEC Europe can under no circumstance accept such approach. With respect to the fact that ENTSO-e will not take into account the system reserves, IFIEC Europe wants to refer to its aforementioned comment to that point, that all issues that are solved in the balancing timeframe should then also not be taken into account for this adequacy assessment. With respect to the fact that *“FCR and FRR shall be deducted from the available resources in the adequacy assessment”*, IFIEC Europe is surprised to see this mentioned in the section on supply, while it is clear that DSR and storage are also considerably and ever-increasingly contributing to balancing resources; IFIEC Europe wants in any case to avoid that not all relevant elements are taken into account and thus an overestimated and non-warranted quantity of supply not taken into account in the adequacy assessment because of this. With respect to the network, IFIEC Europe clearly wants to stress the importance to only take into account cross-border interconnectors, as internal lines to a bidding zone are supposed to be non-congested for an adequacy assessment (in case of structural congestion, bidding zones should be split in accordance or the congestion resolved in different ways that should not impact system adequacy). Moreover, IFIEC Europe wants to stress that all legal obligations, in particular article 16.8 of Regulation 2019/943 in the Clean Energy Package with respect to the 70% rule, shall be taken duly into account. With respect to load curtailment sharing, IFIEC Europe would like to get a better view on how this will be applied by ENTSO-e as the methodology remains very vague on this point, that can however have a very big impact on an adequacy assessment on the level of bidding zones and asks ENTSO-e to modify the methodology on this point to reflect on the concrete implementation for this element, including a full methodological approach.

On **data collection**, IFIEC Europe has no concrete comments at this point, as the methodology remains very vague. Nevertheless, IFIEC Europe wants to stress that harmonization will be required in the framework of the ERAA, and refers to its previous comment on the way DSR will be taken into account (it would for example be inconceivable for IFIEC

Europe that certain Member States would be reporting substantial contribution from DSR while others would show almost none). Especially for DSR, IFIEC Europe is concerned as ENTSO-e states that *“the final expected realization in the market shall be economically assessed within the economic viability check”*, to which point IFIEC Europe refers to its above reasoning on the implications of the application of VoLL in a context of rising price caps and consumers with smart meters and dynamic price contracts. On the demand forecasts, IFIEC Europe is surprised to see that only those elements are considered by ENTSO-e that have the potential to increase demand, while for example the important efforts that will be done towards energy efficiency gains, an important part of the focus of the Green Deal and the National Energy and Climate Plans, are not mentioned. IFIEC Europe also takes note that the *“economic and technical data to perform viability assessments should be consolidated centrally by ENTSO-e based on best available information to ENTSO-e and complemented by inputs from TSOs and other relevant stakeholders and market parties”*, without however specifying how this consolidation will be done and how and which other parties will be involved. With respect to point 12 of article 5, IFIEC Europe refers to its numerous previous comments on VoLL and market price caps and is indeed very interested to see which assumptions the TSOs will apply, but also, as mentioned before, this impact will be included in the assessment.

On the **economic viability** assessment, ENTSO-e states that it will *“implement an ambitious, innovative but complex methodology”*; however, IFIEC Europe is concerned as the methodology does not provide any real insight in how such an assessment will be conducted. This is not helped by the fact that this methodology *“shall include an economic assessment of the likelihood of retirement, mothballing and new-build of generation assets”*, but does not mention anything about the other sources of flexibility (e.g. DSR, storage, ...). IFIEC Europe in any case strongly supports that the purpose of the economic assessment shall be the minimization of the overall system cost. With respect to the constraints of the economic assessment, IFIEC Europe is surprised that additional constraints based on price restrictions or risk-averse behaviour by investors are taken into account, but not the fact that the former need to be tackled and that for the latter it is remarkable that only investors are considered risk-averse, as opposed to all (existing) market parties, including balancing responsible parties. IFIEC Europe was very surprised by this approach, where ENTSO-e has chosen in the economic assessment to consider *“the effect of risk aversion towards price volatility and price spikes”* for investors in case the outcome of the scenarios were to be very skewed to specific years in certain Monte Carlo years in the probabilistic simulation, thus leading to the exclusion of all the years in which investors in flexibility could earn a significant income, whereas all other parties, including consumers and balancing responsible parties, are to be considered absolute risk-takers and willing to accept any price level without modifying their behaviour. This approach is not correct as it does not reflect reality and is as such totally unacceptable for IFIEC Europe. On the other elements, IFIEC Europe is surprised to learn that *“for countries with existing capacity mechanisms, the economic viability shall not take into account additional revenues to assets within a non-policy technology category”*, that *“additional revenues due to scarcity pricing mechanisms shall be considered in ERAA only when a scarcity mechanism is implemented and operational in a Member State”* (thus removing revenues from planned and decided but not yet operational scarcity pricing mechanisms from the equation and by definition reducing the economic viability of assets) while also only including *“additional revenues from for example heat-driven CHP production or ancillary services, if a robust estimate exists on the expected extra revenue”*. IFIEC Europe cannot at all agree with an economic viability assessment methodology where by design a wide range of important revenue streams are excluded (a.o. for CHPs even subsidy scheme revenues that are exactly designed to make those assets economically viable), thus by design worsening artificially the business case for assets and artificially increasing the adequacy concerns by an undue and overestimated viability issue, unless such revenues were deemed to be robust without providing a clear definition of this robustness nor which party would decide on this. IFIEC Europe was even more surprised that ENTSO-e states that additional revenues from ancillary services or heat-driven CHP production might not be possible to be reliably defined and thus completely rejected from the ERAA. When then looking at the economic viability assessment with capacity mechanism, IFIEC Europe was again very negatively surprised to see that ENTSO-e has yet again included options that render these system economically non-viable, despite capacity mechanisms exactly being set up and approved to cope with such issues. IFIEC Europe refers also to an abovementioned comment on this point, but in general is appalled by the fact that apparently the TSOs do not even trust in their own national assessments for capacity mechanisms, that more over have been approved by the European Commission based on an assessment of their needs and dimensioning. IFIEC Europe can only observe that ENTSO-e for the ERAA seems to look for more ways to create inadequacies, even for by definition adequate systems with capacity mechanisms, rather than to look for synergetic effects by looking at a wider geographical scope and taking into account effects of scale.

With regard to the **output and results**, for IFIEC Europe this article is insufficient. The ERAA report should not *“strive to facilitate stakeholders’ understanding regarding the inputs, data, and assumptions and scenario development”*, but should guarantee this. Moreover, this report for IFIEC Europe shall (not might) encompass detailed information as listed in the methodology.

On the part of **stakeholder interaction**, IFIEC Europe is please to see that such a part is provided, yet wonders how this interaction will be set up, especially in relation with market parties during the preparation phase of the report (as opposed to the dissemination phase), in order to allow them to provide input. IFIEC Europe throughout the methodology has seen quite some references to national processes, yet no harmonization exists there and it is unclear how this will be covered in the ERAA. Moreover, certain elements such as the exogenous capacity assumptions are to receive feedback through the process of consultation of the NECPs and national development plans, whereas these consultations have not been designed for this, nor is any mention made of such use of these consultations. IFIEC Europe was also negatively surprised to see that this section mentions clearly “*scenarios, assumptions and sensitivities of the ERAA that producers and other market participants*”, showing as at many other instances in this methodology that ENTSO-e is very producer-centric in its reflections about adequacy, thus omitting the importance of all other sources of flexibility.

On the process, IFIEC Europe refers to the comments above but also asks ENTSO-e to provide more clarity on which stakeholders it considers relevant, next to the Electricity Coordination Group, to provide an overview of the preliminary results as well as include in the overall process of this methodology.

## Annexe 7: IFIEC Europe's answer to the ENTSO-e consultation on the Mid-term Adequacy Forecast 2019

With respect to the ENTSO-e consultation on the Mid-term Adequacy Forecast (MAF) 2019, IFIEC Europe wants to provide its comments on the methodology (appendix 2).

IFIEC Europe regrets that an (IT) error<sup>6</sup> at the ENTSO-e side resulted in exactly this methodology document not being publicly available until 13/01/2020, which was the date of the deadline for this consultation, and has as a result requested an extension of the deadline for this consultation. ENTSO-e approved the requested deadline extension for this consultation in written form on 13/01/2020, in order to allow for sufficient time to analyse the methodology document.

IFIEC Europe wants to raise some **fundamental concerns** with the MAF methodology of ENTSO-e; IFIEC Europe considers the MAF methodology not to be balanced, most notably with respect to all available sources of flexibility in the system, in particular with respect to the methodological treatment of (implicit and explicit) demand side response. Moreover, IFIEC Europe can only observe and deplore that for ENTSO-e *“adequacy studies aim to evaluate a power system’s **available**<sup>7</sup> resources and **projected**<sup>8</sup> electric demands in order to identify potential risk of supply and demand mismatches in developed scenarios”*, as for IFIEC Europe also **projected** resources as well as implicit and explicit **demand side response** reduction potential (as opposed to mere demand patterns) should be taken into account in any forward looking system adequacy study. IFIEC Europe also regrets that with respect to *“techno-economic trends as well as policy decisions”*, ENTSO-e only refers to *“a massive phase-out of certain generating technologies”*, but does not take into account other policy decisions that also have a major impact on the adequacy of the system, such as strategic reserves or even capacity remuneration mechanisms (more below). IFIEC Europe is also not satisfied with the way ENTSO-e is treating random events and the use of balancing reserves; balancing reserves exist to cope with unexpected and random events and only if such events have a duration beyond balancing time horizons such events should be taken into account for an adequacy assessment ( e.g. a power plant tripping and returning back to the market within a short timeframe does not create an adequacy issue, only a balancing issue). For IFIEC Europe, these issues are not sufficiently taken into account (or at the least not described in the methodology) and thus leads to an overestimate of potential adequacy concerns as also events covered by (existing) balancing means will be added to the needs with respect to adequacy. As a general remark on the MAF, IFIEC Europe regrets that the actual implications of the (summarily described) methodological elements towards a quantitative output are unclear; the MAF thus remains a blackbox approach for all parties except ENTSO-e...

With respect to the modelling of demand, and even more so demand side response, IFIEC Europe does not consider the methodology of ENTSO-e as satisfactory. With respect to demand and demand elasticity, the ENTSO-e methodology remains very vague, only referring, without any methodological insight, to explicit demand side response, but completely omitting any impact of implicit demand side response, as if consumers were completely indifferent to prices (thus presuming low elasticity). This is in any case not valid for industrial consumers, as can already be observed historically, and will also become less correct for other consumers as smart meters are being rolled out. In several Member States supply of implicit and explicit demand side response reaches considerable levels (thus indicating at least minimal levels of potential for demand side response in other Member States, insofar no undue barriers exist for consumer participation).

With respect to the notion of “Missing Capacity”, IFIEC Europe is of the opinion that this should be analysed in a multi-area setting, as a perimeter merely focusing on a single-area setting will lead to sub-optimal results, as no synergies between areas with different supply and demand patterns can be taken into account. This would lead to unwarranted determination of adequacy concerns and potentially even the building of unnecessary capacity, to the detriment of the consumers through an increase in their overall energy costs (in particular in the case of subsidised capacity remuneration mechanisms). IFIEC Europe regrets that the focus of ENTSO-e seems to be exclusively (or at least primarily) on generation assets<sup>9</sup>, with less attention to the flexibility that for example (explicit and implicit) demand side response or storage can bring to the adequacy discussion, alleviating the potential need for generation capacity that would only be used during very few hours and thus unduly increase the overall system cost. The whole section of the demand time series does not even mention demand side response at all! Demand side response is only very briefly

<sup>6</sup> First notified to ENTSO-e by e-mail on 23/12/2019, but only rectified on 13/01/2020 by ENTSO-e

<sup>7</sup> bold added by IFIEC Europe

<sup>8</sup> bold added by IFIEC Europe

<sup>9</sup> E.g. at the bottom of page 17 of Appendix 2, where ENTSO-e states *“A single-area approach with local generation”* or *“Multi-area approach with generation expansion”*, without mentioning any other sources of flexibility. The same applies for the comprehensive datasets for the MAF (the PEMMDB), where the focus lies on generation, with some attention for *“electric vehicle penetration, heat pump penetration, new technologies, battery storage”*, but where demand side response (explicit or implicit) is not mentioned (except presumably for the few cases enumerated) despite the active contribution already today of demand side response to the adequacy discussions in Europe.



mentioned (132 words!) in section 3.6 of the methodology, not distinguishing whatsoever between implicit and explicit demand response. The section at first glance only refers to explicit demand response and does not provide any clarity on how demand side response is treated in the model, which data is provided by the TSOs and whether there is any alignment in the input data as regarding for example the potential for demand side response in the different Member States and the different assumptions that are probably used by TSOs. Section 4.2 on specific data collection and model assumptions also remains very vague on how data is collected and which assumptions are used, while completely omitting demand side response.

IFIEC Europe is categorically opposed to the methodological choice by ENTSO-e to explicitly exclude from the MAF the capacity markets and the out-of-market measures such as strategic reserves. IFIEC absolutely cannot accept that “*out-of-market capacities, such as strategic or grid reserves, are not considered in the optimisation problem*”, as this approach by ENTSO-e leads to a voluntary underestimation of the means available to counter adequacy concerns (in the case of strategic reserves, means explicitly constituted to avoid such concerns!). This underestimation leads to an unwarranted indication of adequacy concerns, resulting in potentially unnecessary and very costly additional measures (on top of the measures not considered by ENTSO-e which were put in place to alleviate adequacy concerns!), unduly negatively impacting consumer energy costs. IFIEC Europe also regrets to observe that “*the MAF model considers neither capacity nor the balancing market explicitly*”, which goes even further in creating an illegitimate and undue sense of urgency by even further omitting measures taken by Member States to avoid adequacy concerns. As such, IFIEC Europe can under no circumstance accept that the “*contribution of approved, existing and planned, CMs <sup>10</sup>might be currently considered in the installed capacity for MAF on the part of **some** TSOs*” [bold by IFIEC Europe], as these **must** be included by **all** TSOs in order to have a relevant assessment. IFIEC Europe adamantly opposes this approach, as this implies that consumers are paying for adequacy related (strategic) reserves in several Member States, often sold as insurance against adequacy concerns, while these (costly) measures are not even considered by ENTSO-e. IFIEC Europe considers this a fundamental and inexcusable flaw in the ENTSO-e methodology which renders all the results and policy recommendations of the MAF analysis void and without value. For IFIEC Europe, the methodology choices of ENTSO-e fundamentally diverge from the market liberalisation that was started in 1996, with Balancing Responsible Parties that have to guarantee that their portfolios are in balance at all moments and only residual imbalances being covered by the TSOs. The ENTSO-e methodology choices shift the responsibility for system adequacy away from the market.

With respect to the future evolution of the pan-European adequacy assessment, IFIEC Europe is looking forward to the European Resource Adequacy Assessment (ERAA) and hopes that this methodology improves on the MAF methodology, not in the least on the aforementioned elements. IFIEC Europe hopes to be actively involved in the development of the five new methodologies that need to be developed within six to twelve months after the Clean Energy Package’s entry into force. IFIEC Europe is also interested in seeing how certain elements of the Clean Energy Package, such as the 70% cross-border capacity, will be integrated in both the ERAA and the MAF adequacy methodologies.

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<sup>10</sup> Capacity Mechanisms