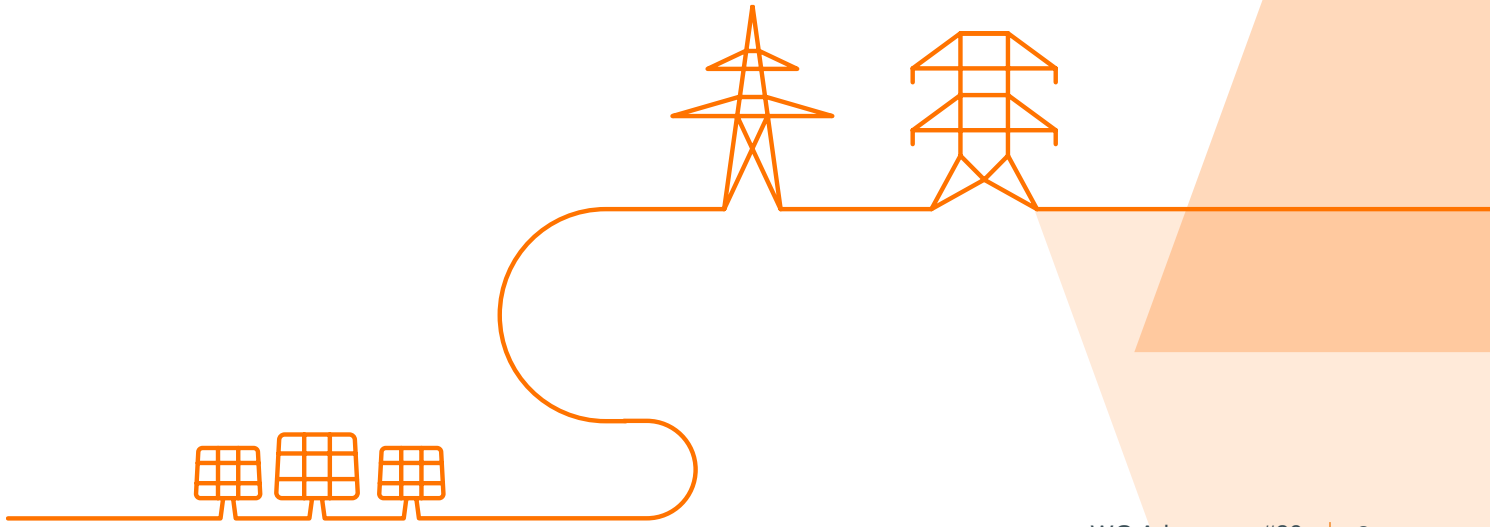
WG Adequacy #20

16/06/2023

Agenda

- Welcome
- Approval of the Minutes WG Adequacy #17 & #18
- Update on the timing of design topics
- Reactions to the Public Consultation on the Scenarios for the CRM Parameter Calculation
- AOB
- Next meetings



Approval of the Minutes

Comments on the Minutes of the WG Adequacy #17 & #18

- One clarification comment was received on the Minutes of the WG Adequacy #18 meeting
  - The text was adapted accordingly

Update on the timing of design topics

Current scope of design discussions per topic

Availability Monitoring:
- Clarification on current design
- Determination of SLA hours
- Proven/Unproven Availability for Daily Schedule CMUs
- Number of activations per day

Payback obligation:
- Clarification on application of DSM exemption per DP
- Potential improvements to the indexation mechanism and the calibrated strike price

Prequalification:
- Timing for Additional to Existing capacity

Cross-border CRM:
- Process for participation of foreign CMU
- Cross border CRM design (pre-auction, light prequalification, etc.)

This list represent the current scope of the proposed discussions, Elia does not exclude that additional topics are brought to the Working Group

Timing design evolutions discussion

16/06: WG Adequacy

August Workshop

- Detailed workshop on AM & PB (clarification/evolutions to formula's)

End August WG Adequacy

- Climact
- E-cube strike price / MR

14/09: WG Adequacy

- Presentation cost of capacity & balancing rev. studies
- Update XB CRM
- Feedback workshop
- AM design evolutions

13/10: WG Adequacy

- PB design evolutions
- PQ design evolutions

TBD Additional WG?

1/12: WG Adequacy

Public consultation CRM FR v4

Jan 2024: WG on consultation report

1/02: Elia submission FR v4

Timing as presented on slide is indicative and the list of topics is not exhaustive

Reactions to the Public Consultation on the Scenarios, sensitivities and input data for the CRM Parameter Calculation

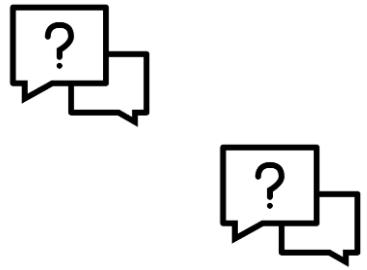
Agenda

1. **Summary of received stakeholder feedback on the public consultation and Elia's answer regarding:**
   - General remarks and methodology
   - Scenario dataset
   - Proposed sensitivities
2. **Elia recommendation**
3. **Other parameters**
4. **Potential improvements to the market response volume estimation (E-Cube study)**
5. **Next steps**

Public consultation on the scenarios, sensitivities and data for the CRM parameter calculation for the Y-1 Auction for Delivery Period 2025-2026 and the Y-4 Auction for Delivery Period 2028-2029

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

This presentation will provide a summary of the received feedbacks and Elia's answers. For a full view of the comments and answers, please consult the public consultation report that will be posted on the Elia website beginning of next week.



Feedback received to public consultation

2 stakeholders with non-confidential feedback

- *Febeliec*
- *FEBEG*

+ 1 stakeholder with confidential feedback

The confidential feedback will be sent confidentially and shared with the FPS Economy and CREG

Public consultation on data & methodology: How was it ?

From 18/04 until 19/05/2023 6 PM

WHAT ?

- **Input data scenario for Belgium and other countries**
  - Including Climact parameters
  - Any feedback was welcome on the proposed values for the reference scenario
- **Other parameters**
- **Potential improvements to the market response volume estimation**

General feedback

General remarks

- **Febeliec** regrets that the methodology is not included in the public consultation and does not agree with the applied methodology. Febeliec would like Elia to conduct calculations on multiple scenarios.
- **Febeliec** points to opaque assumptions for other countries due to use of different types of sources for different countries (policy announcements, REMIT, press,…) and indicates a lack of data from Elia.
- **Febeliec** is worried by the use of ERAA 2022 data as a basis for the proposed scenarios as it has been criticized by ACER.
- **Febeliec** regrets that it is still not completely clear which power plants are included. Especially towards diesel, emergency and process generators. Febeliec wonders how emergency generators are treated as these could represent 100s of MW of capacity.
- **Febeliec** has concerns regarding the use of climate years by Elia and wants to include a scenario with the historic approach.

- Methodology is described in article 12 of the Royal Decree on the determination of volume and parameters. The methodology is aligned with AdeqFlex 2023 where the methodology was part of the public consultation.
- Elia considers official sources, studies and press articles as sources. Other sources were used if they contain qualitative, more up-to-date information. A table with the detailed assumptions on demand and installed capacities for other countries was part of the public consultation. Most sources come from proven studies such as ‘Future Energy Scenarios’ for UK, ‘Bilan Prévisionnel’ for France, ‘Monitoringsleveringzekerheid’ for Netherlands, ‘NEP’ for Germany, …Elia provided an excel and Explanatory Note in which the assumptions made are explained and the sources are provided.
- Only the dataset collected from TSOs for ERAA2022 was used. Elia does not use the same model as ERAA2022 and does not rely on its results. Elia updates the ERAA2022 with the latest information considering the latest policies such as RePowerEU. Updates were discussed with other TSO’s and put to public consultation.
- These generators are only taken into account if they actively participate in the market. If so, their contribution is considered in the DSR volume.
  These capacities are eligible for the CRM if they meet the criteria laid out in the functioning rules.
- The use of the forward-looking model of Météo France is compliant with the ERAA methodology. A forward-looking climate database is under development at ENTSO-E. RTE also uses the Météo France database.

Feedback on input data

Overview of input data

- Renewables
- Storage
- Thermal generation
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- Economic parameters
- Forced Outages
- Balancing capacity

Overview of input data

- **Renewables**
- Storage
- Thermal generation
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- Economic parameters
- Outages
- Balancing capacity

Renewables energy sources

General feedback received

- **FEBEG** insists on the importance that Elia and the federal authorities double-check (political) ambition with technical and economical feasibility.
- **Febeliec** considers that it is impossible to provide meaningful comments as only aggregated numbers are given without any explanation.

- Elia recalls that the scenario and the sensitivities presented in this public consultation were previously discussed with the SPF and the CREG.
- The renewable capacities are presented in the Excel file for each category and were discussed with the regions. The different sources were detailed in the explanatory note and are fully aligned with the assumptions presented in the public consultation of AdeqFlex 2023 which provides the trajectory until 2034. In addition to this, the assumptions are in line with RECPs (Regional Energy Climate Plans that are going to be submitted by Belgium end of June to the EC). No separate assumptions for the regions are provided as only 1 market zone is modelled.

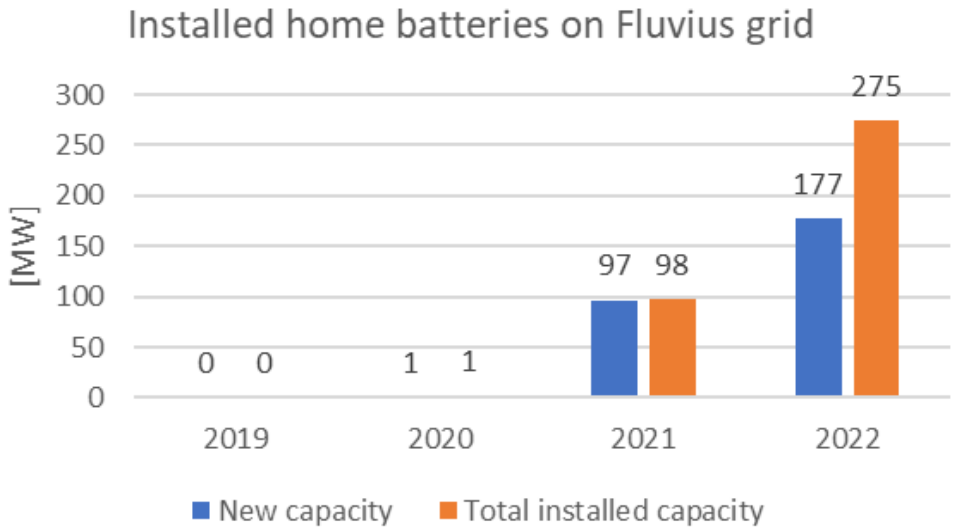
Overview of input data

- Renewables
- **Storage**
- Thermal generation
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- Economic parameters
- Outages
- Balancing capacity

Storage

- **FEBEG** comments that Elia should check if the additional potential capacity is in line with the limited connection capacity for the future battery projects.
- **Febeliec** regrets that no full methodology is available for the volume determination. Febeliec considers the additional potential capacity for large-scale batteries too high as a part of this capacity would also be constructed without CRM participation, implying that the capacity in the reference scenario should be substantially increased compared to the proposed 327 MW.
- **Febeliec** considers the proposal for small-scale storage a severe underestimate.

- If Belgium is not complying with its reliability standard. Capacity is added to the system (= calibration process) for the simulation used to calculate the different parameters of the auction. One of the possibilities is to add storage.
- Battery capacity potentially added during calibration is limited to the potential identified by Elia (based on the different status of the projects currently known to Elia)
- Elia proposed to work with an existing and a potential capacity that is added to the model during calibration of the model.
- For small-scale batteries, Elia cross-checked the proposed capacity with the latest data on small-scale batteries from Fluvius. Fluvius reports a total of 275 MW of home batteries connected to their grid in 2022. This is in line with the 282 MW for 2022 foreseen according to the Elia trajectory.



(Fluvius open data platform consulted on 07/06/2023)

Overview of input data

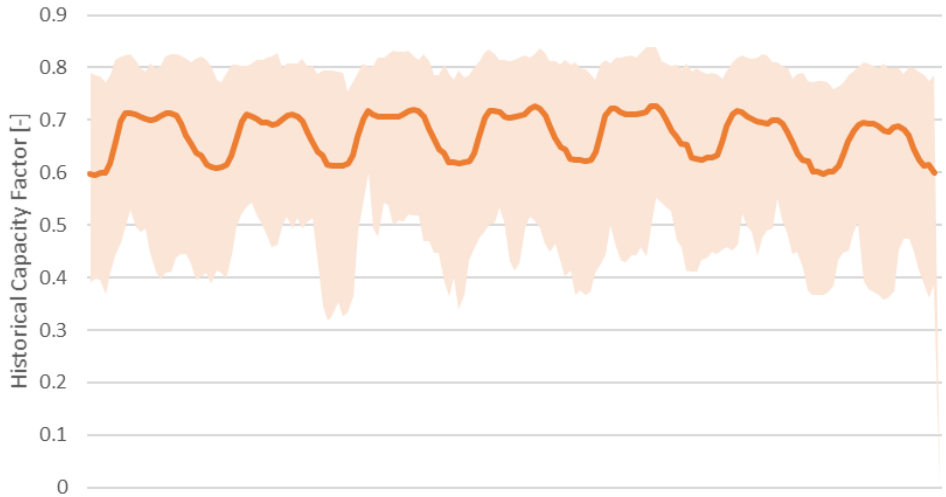
- Renewables
- Storage
- **Thermal generation**
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- Economic parameters
- Outages
- Balancing capacity

Profiled thermal capacities

- **Febeliec** does not understand why biomass is expected to be reduced by 2028-29 compared to the previous analysis and why gas CHP is foreseen with a very small increase between 2025-26 and 2028-29
- **Febeliec** mentions that because of a lack of breakdown, it is impossible to identify which periods certain categories (e.g. gas CHP, biomass) are available and to have a view on their contribution to system adequacy.

- The profiled biomass capacity of 624MW for the scenario of the Y-4 auction for Delivery Period 2027-28 was incorrect. This was the value that was submitted to public consultation. The correct value should have been 504 MW, which is the value that was selected by the Minister. The installed capacity proposed for profiled biomass increases from 547 MW in the Y-1 auction 2025-26 to 567 MW in the Y-4 auction 2028-29, representing an increase compared to the previous CRM auction's capacity.
- Most of the current CHP installations are situated in Flanders and are expected to no longer receive subsidies in the upcoming years. CHP units can still participate to the CRM auctions. Therefore, Elia's trajectory takes into account all existing capacity and known mature projects, without considering any closures. It should be noted that gas CHP are expected according to this analysis to increase by almost 100 MW.
- For the aggregated profiled biomass and waste units, the latest analysis of the metering data has shown no clear seasonal trend. A constant production profile is therefore used. It amounts to 60%, based on historical data. For aggregated CHP the profile is based on historic data, as shown on the graph on the right.

Average, min and max historical weekly profiles during winter for aggregated CHP units in Belgium



Overview of input data

- Renewables
- Storage
- **Thermal generation**
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- Economic parameters
- Outages
- Balancing capacity

Individually modelled thermal generation

- **FEBEG** would like to underline that there is a need to maintain long-term visibility on the CO2 emission's limits to participate in the CRM in order to allow the asset owners to make possible investment decisions in time.
- **Febeliec** reiterates a longstanding comment on the lack of transparency on the announced closure of power plants in Belgium.
- **Febeliec** notices that Elia does not seem to consider any additional units in Belgium in the period till 2029 beyond two CCGTs contracted already in the CRM auctions and one CHP and wonders whether this is realistic.

- The CO2 emissions limits are not the responsibility of Elia and are not part of this public consultation. Elia will share this consultation report along with the public responses to the public consultation with the relevant authorities.
- Elia can only refer to the legal procedure related to the closure announcement of power plants in Belgium (article 4bis of the Electricity Law). Any question or request on this matter should be addressed to the competent authorities.
- Elia took into account all the available information regarding the units in the market for the delivery periods considered. This information includes the 2 new CCGT, but also the lifetime extension of 2 nuclear units. If the reference scenario selected by the Minister is not compliant with the applicable reliability standard, Elia adds new capacities from the preselected capacity types in accordance with the methodology set in the Royal Decree. Therefore, Elia does consider additional units in Belgium if needed.

Overview of input data

Renewables

Storage

Thermal generation

Electricity demand (EV, HP, industry electrification & DSR)

Data for other countries

Economic parameters

Outages

Balancing capacity

Electricity demand (1/3)

- **FEBEG** notes that ELIA does not provide the final total electricity consumption as it will be updated with the latest Climact calculations which are based on Plan Bureau Economic estimates. Febeg invites Elia to transparently inform and to ask stakeholders once these figures are known.

The updated electricity forecast will be communicated to stakeholders during a WG Adequacy in which stakeholders are invited to provide feedback.

- **Febeliec** insists that an analysis is conducted on the quality of Elia's total electricity forecasts during all its adequacy assessments in comparison with the observed reality. Febeliec is convinced that Elia systemically overestimates total electricity demand.

Elia would like to stress the constantly changing environment in which it has to make forecasts. Policies, consumer behavior and technologies are constantly evolving and make it impossible to make accurate forecasts, especially several years in advance. Elia proposes and submits to public consultation the trajectories it deems most likely to materialize, which also align with other studies. The Minister, the regulator and the FPS can choose to deviate from this recommendation.

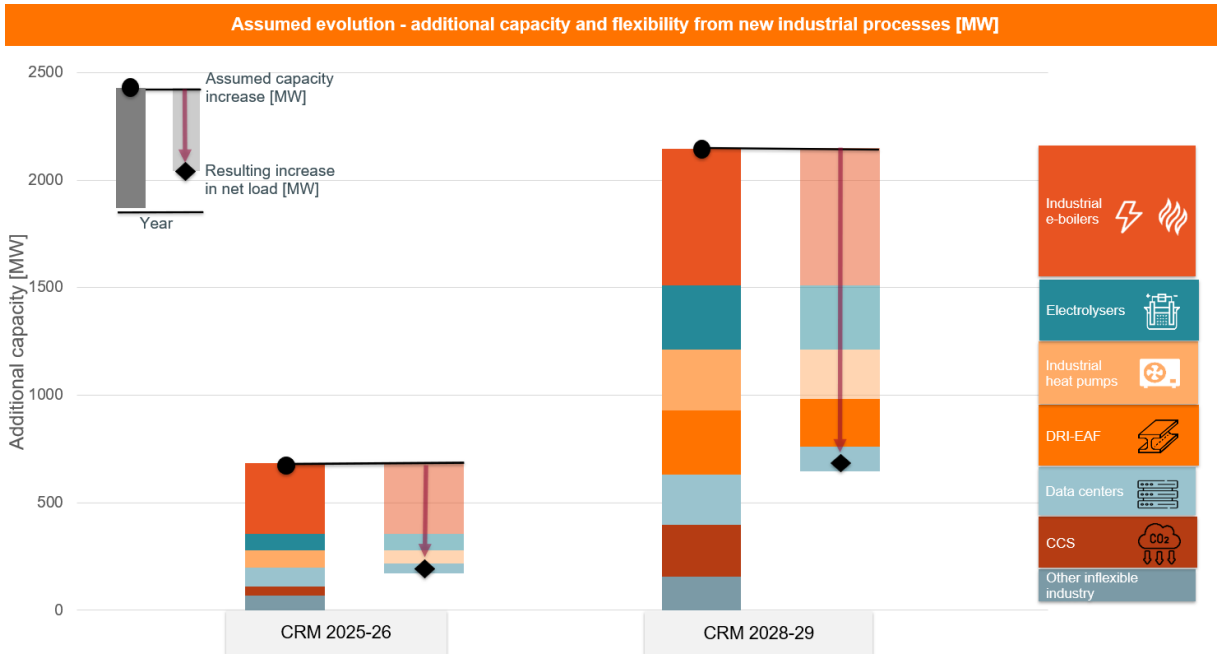
Electricity demand (2/3)

- Febeliec is extremely surprised by the proposed values by Elia :
  - Between 2027-28 and 2028-29, Elia adds 13,5 TWh of demand in one single year and increase the peak comsumption from 15 to 18 GW.
  - Elia adds 839.000 EVs in one single year and also 925.000 HPs
  - Elia adds 11,2 TWh of industrial demand
  - Elia decreases the demand side response with almost 20 % (compared to the level it foresees for 2025-26)

- The increase in electricity demand comes from additional electrification from EVs, HPs and additional electrification in the industry.
- The peak load does not include the impact of flexible loads. Therefore, the peak load is not a good indicator of the load during scarcity moments.
- The sales of HP increased massively in Belgium and across Europe in 2022 and are expected to keep increasing. According to Febiac, 25 % of the cars sold in 2022 were fully electric or plug-in hybrid, this increased to more than 35% in the first 3 months of 2023 . According to Elia, these recent observations confirm the numbers proposed for both delivery periods. In addition, the evolution of EVs and HPs are aligned with the most recent Regional Climate Plans and the Federal Climate Plan that will be handed over to the EC end of June 2023.
- Elia bases its electricity demand from additional electrification in the industry and data centres based on the results of the “Powering industry towards Net Zero” study complemented with information for specific projects.
- The demand response proposed for the initial reference scenario indeed decreases due to the new approach proposed by Elia. Additional demand side response could be added during calibration of the model to comply with the reliability standard. In addition to demand side response from existing industry (= market response), DSR from the additional electrification is also considered.

Electricity demand (3/3)

- **FEBEG** mentions that the electricity consumption could be reduced due to the consequences of the high electricity prices, but also witnesses a sharp acceleration of the energy transition with an increased rate for further electrification. Febeg therefore strongly recommends ELIA to consider these evolution in the determination of the demand (and peak demand).
- **Febeliec** insists on the flexibility of the consumers when high prices are reached as observed in the recent history.



- Elia considers the impact of high prices on the consumption (which is linked to the level of the prices assumed in the future: the lower the price, the lower the impact on consumption). In addition, additional electrification is also considered.
- A significant part of the HPs and EVs as well as the additional electrification from industry and data centers is assumed to be flexible and reacts to prices. On top of the flexibility of HPs, EVs and additional electrification there is flexibility provided by DSR from existing industry.
- The flexibility coming from additional electrification of industry has a very strong impact on adequacy. While the additional electrification leads to an increased capacity, the impact on the net load during scarcity moments is much more limited due to the associated flexibility (as illustrated on the figure above).

Demand Side Response

- **Febeg** agrees with the new approach proposed by Elia but finds the proposed capacities relatively high compared to other countries.
- **Febeliec** questions the methodology applied by E-CUBE and the resulting volume.
- **Febeliec** thinks the use of the economic perspectives from the Federal Planning Bureau from June 2022 is outdated and that therefore the impact of high prices in the summer of 2022 are not taken into account. The impact of high prices on consumers, demand side response as well as demand side destruction and investments is therefore not incuded.
- **Febeliec** urges Elia to take into account the impact of longer periods of high prices on the demand through voluntary demand side response.
- **Febeliec** opposes the view of Elia regarding the need for a CRM for demand response to develop as the current crisis clearly shows that demand reacts in substantial capacities on prices, even without a smart-meter.
- **Febeliec** cannot accept that for 2025-2026 and 2028-2029 the same base value is applied and considers the potentially added additional capacity too low considering recent observations such as smart-meter roll-out, Elia's CCMD program,…

- The existing DSR capacity (market response) calculated using a quantitative method. In addition, Belgium has a high level of industrialization and several initiatives such as the implementation of the CRM have been taken to encourage the development of DSR capacity.
- The methodology was developed by E-CUBE in discussions with stakeholders and some improvements were already made in 2020. Nonetheless, Elia agrees that the methodology has shortcomings and is working with E-CUBE to improve it. Elia included the methodology improvements in the public consultation and is still open to suggestions by stakeholders.
- Elia will take into account the new economic projections by the FPB which will be available by the end of June. The FPB publishes projections per industrial sector and takes into account the latest developments. As such the new projections from the FBP are deemed the most reliable source for economic projections for Belgium
- Elia takes into account the impact of high prices on electricity demand of households and industry, as performed in the reference scenario for the previous CRM auction.
- Adding potential additional DSR capacity does not mean that this capacity would not join the market without a CRM. It is just a mean to obtain a calibrated scenario for Belgium (= comply with its reliability standard) on which the CRM parameters are calculated.
- Elia proposed the same existing capacities for DSR but to potentially add capacity during calibration. The DSR capacity in the calibrated scenarios could be different. In addition to the existing and additional potential DSR there is also additional DSR form the electrification of industry amounting to around 1.2 GW in the 2028-29 delivery period

Data for other countries

- **Febeliec** mentions that it is not clear which cut-off point is taken by Elia to include or not updates or new ambitions.

- **Febeliec** is surprised to observed that, with the exception of Denmark, Elia proposes with +18% the largest relative increased in demand of all observed countries.

Table from Febeliec

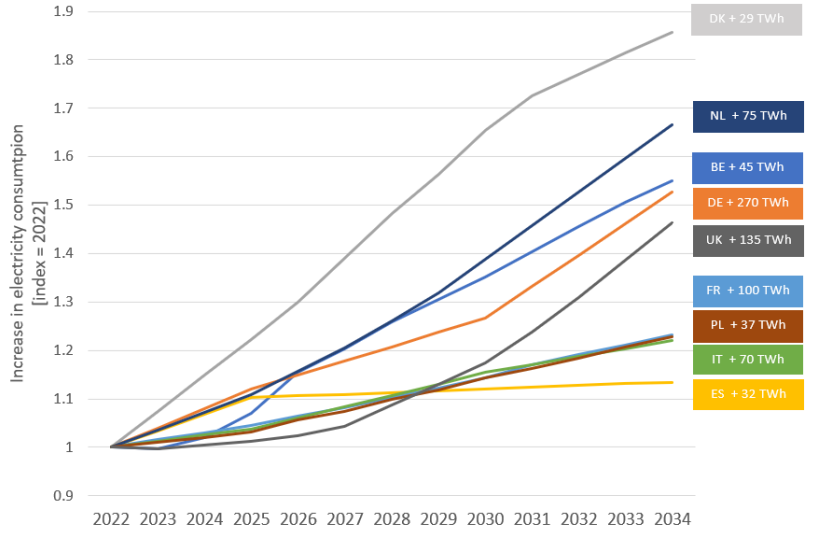
Demand (TWh)	2025-2026	2028-2029	% increase
Belgium	88,7	104,4	18%
France	480	506	5%
Germany	574	619	8%
Netherlands	124	141	14%
UK	295	316	7%
Spain	259	261	1%
Italy	329	342	4%
Poland	167	178	7%
Denmark	41	50	22%

- Elia tries to include in its studies as much as possible up-to-date information. Ideally, the required information is gathered from national studies. Unfortunately, recent official publications for every scenario aspect for every country are not available, especially in the current fast changing context. Therefore, Elia also uses press articles in order to create the most relevant datasets for other countries.

- Elia proposes to update the demand of Italy for delivery period 2028-29. This value comes from the Terna report 'Rapporto di identificazione delle capacita obievetto' published in June 2023. Elia invites the relevant authorities to consider potential forthcoming updates to the data for other countries if any relevant official studies are published prior to the Minister's final decision on the scenarios.

- Elia want to bring to light that the Belgium's projected increase in electricity demand is aligned with other major countries (and interconnected countries) such as Germany, the Netherlands, and the Great Britain.

Analysis by Elia



**Electricity consumption excluding electrolysis*

Flow based domain

- **Febeliec** agrees that for the minimum minRAM 70% is chosen. Febeliec insists that this value is a legal minimum.
- **Febeliec** does not see any information on which future grid is taken into account.
- **FEBEG** considers that the consideration of the minRAM 70% for all EU countries is overly optimistic for several reasons.

- Concerning the uncertainty of reaching a minRAM of 70%, from 31/12/2025 onwards, Elia wants to insist that the 70% minRAM requirement has to be applied rigorously to all CNECs. Elia agrees that there is a potential risk for Delivery Period 2025-26 and Delivery Period 2028-2029 that this requirement is not met by some countries, but does not propose to consider this for the reference scenario.
- The future grid developments are taken into account based on the latest European (TYNDP2022) and Belgian plans.

Overview of input data

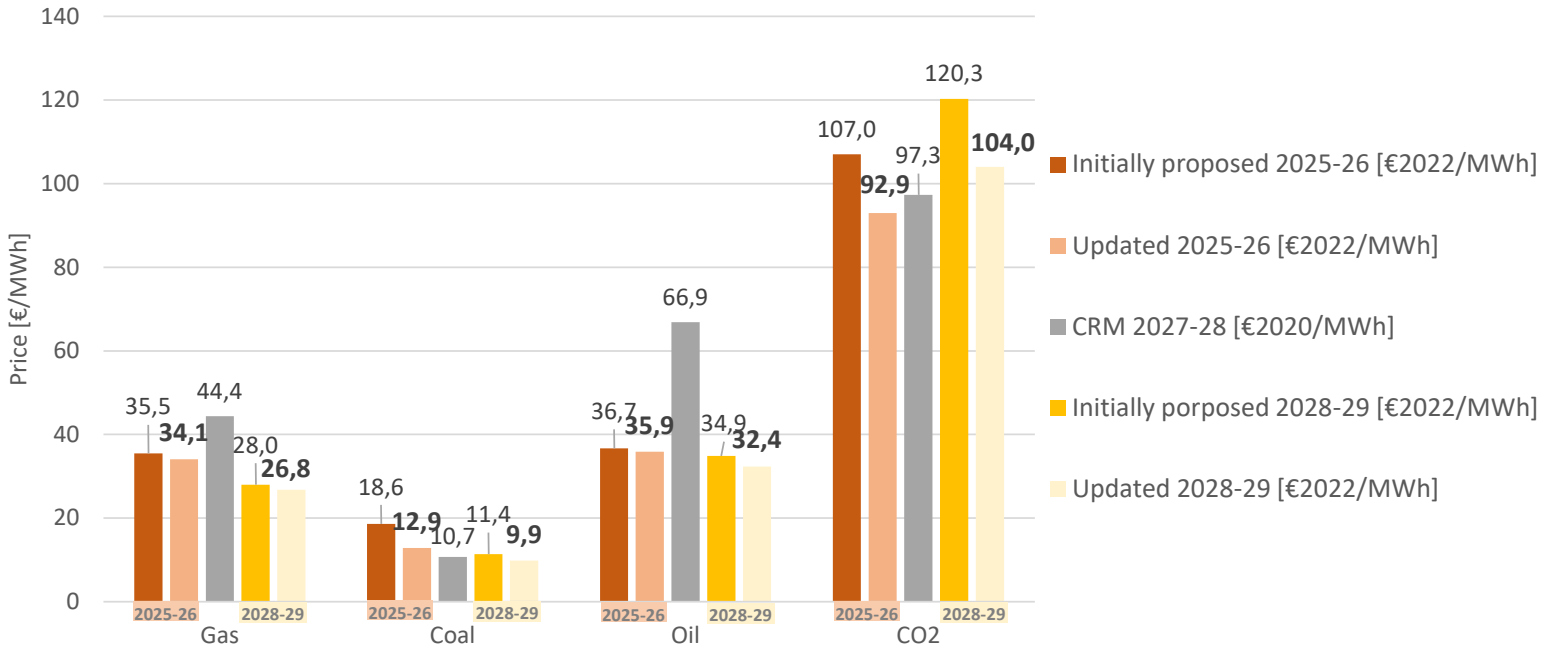
- Renewables
- Storage
- Thermal generation
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- **Economic parameters**
- Outages
- Balancing capacity

Fuel & CO_2 prices

- **FEBEG** points to an inconsistency between the prices in the explanatory note and the excel.
- **Febeliec** would like to see how Elia justifies its proposed (and highly increased) price levels for a.o. CO_2 in 2025-2026 (more than three times higher than in the previous analysis) and oil in 2028-2029 (also than three times higher than in the previous analysis)

- Elia thanks FEBEG for pointing out the inconsistency. The values in the explanatory note were correct.
- The big differences observed by Febeliec are related to the inconsistency.
- New update results in lower prices, in line with observed fuel price decreases in the market, which are also reflected in the future.
- Elia recommends the relevant authorities to consider an update of those prices if significant differences are observed in the forward prices.

Overview of fuel prices



Updated prices

Category	Price [€ 2022/MWh]	
	2025-2026	2028-2029
Gas	34,1	26,8
Coal	12,9	9,9
Oil	35,9	32,4
	Price [€ 2022/tCO2]	
	2025-2026	2028-2029
CO2	92,9	104,0

Forward prices from 07/06

CRM : Y-1 auction 2025-26 and Y-4 auction 2028-29

Overview of input data

- Renewables
- Storage
- Thermal fleet
- Electricity demand (EV, HP, industry electrification & DSR)
- Data for other countries
- Fuel & CO2 prices
- **Forced Outages**
- Investment costs

Forced outage rates

- **Febeliec** does not understand why the forced outage rate of nuclear plants is increased as well as that for OCGTs. For the latter, if new OCGTs would be added to the system, it is questionable to which extent they would be facing such higher forced outage rates.

- The proposed forced outage rate is the same as the one proposed by Elia in the past for the reference scenario for the Y-4 auction for delivery period 2027-28
- The other forced outage rates proposed for the Y-1 auction for delivery period 2025-26 and Y-4 auction for delivery period 2028-29 were calculated using a new methodology developed by N-SIDE and Elia . In the new methodology the forced outage rates are calculated considering Belgian units as well as units from other European countries to provide more robust results. This study was presented to stakeholders in October 2022 and was put to public consultation in November 2022.

Overview of input data

Renewables

Storage

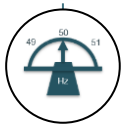
Thermal generation

Electricity demand (EV, HP, industry electrification & DSR)

Data for other countries

Economic parameters

Outages



Balancing capacity

Balancing capacity

- **Febeliec** regrets that Elia takes every year higher volumes of balancing capacity to be reserved, while at the same time watering down certain balancing obligations for BRPs.
- **Febeliec** insists that the impact of cross-border balancing capacity should be taken into account as reduction factor for balancing needs, as by 2028-29 all European balancing platforms should be functional. In addition to this, inter-TSO must be taken into account.

- Elia relies on its best estimates to fulfill the legal requirements on the need to dispose of sufficient reserve capacity. The effect of the relaxation of the DA balance obligation on the system imbalance could be negative in case of massive wrong bets by the players, which Elia considers unlikely thanks to the financial incentive that represent the Imbalance tariffs.

- Based on the dynamic nature of the FRR needs, and previous observations that renewable and demand prediction risks in terms of shortages are lower during scarcity conditions, Elia proposes to limit the final FRR needs to 1039 MW, i.e. the size of the largest nuclear generation unit (Doel 4), and this on top of the 'static' FCR values.

	Balancing capacity [MW]	
	2025-2026	2028-2029
Total FCR	95	97
Total FRR	1221	1353
Total reserve capacity	**1316**	**1450**
Total reserve capacity in scarcity periods	**1134**	**1136**

Feedback on sensitivities

Overview of sensitivities

- French Nuclear Availability
- Flow-based CEP rules
- Uncertainties on Belgian thermal units
- DSR and storage capacities
- Price and demand uncertainties
- UK nuclear fleet
- Norway export limitation

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

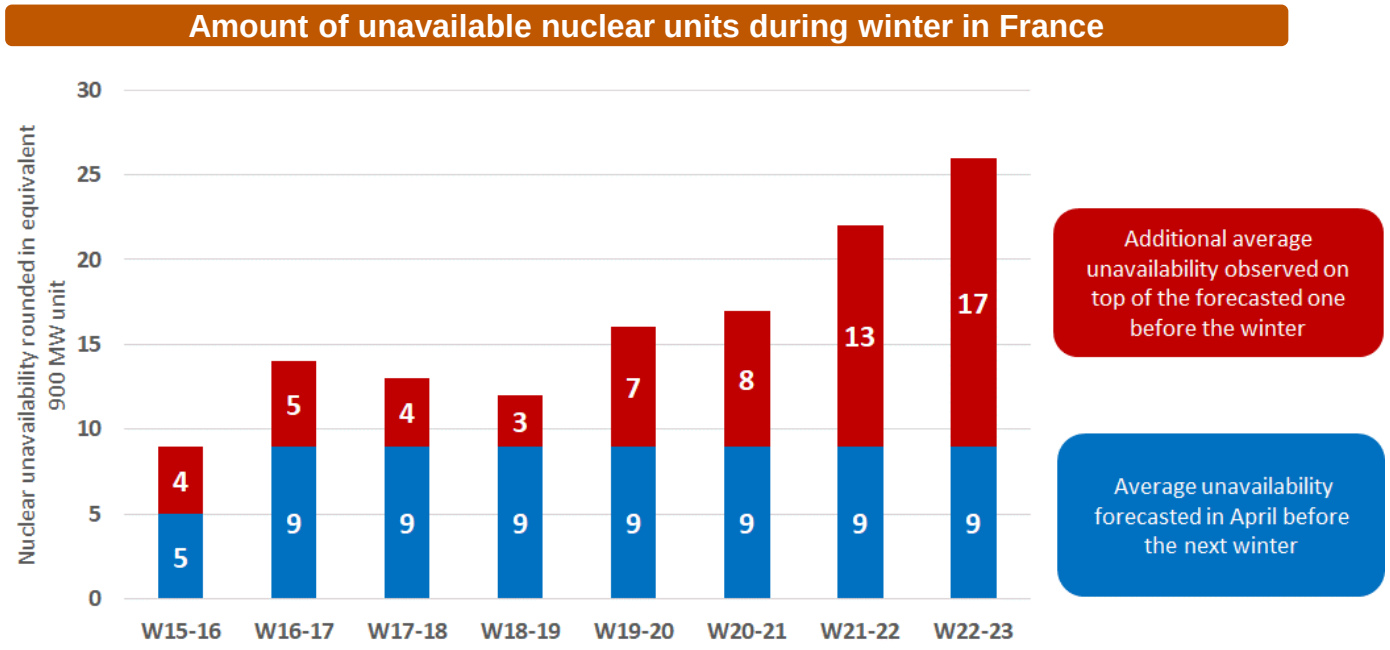
Norway export limitation

French nuclear availability

- **Febeliec** remains surprised that such sensitivity is even included, France has a CRM in place, guaranteeing the adequacy. Febeliec wonders to which extent Elia is creating scenarios where it excludes so much capacity in the European system as to create a self-fulfilling prophecy of adequacy concerns.
- **Febeg** firmly supports the need to include a sensitivity regarding the French nuclear availability. Febeg considers that the French nuclear availability constitutes a major risk for the Belgian Security of Supply. The recent low availability of the French nuclear due to abnormal corrosion phenomena and its possible impact on the upcoming winters clearly demonstrates that this risk should be taken very seriously.

- This sensitivity is proposed in order for the Belgian authorities to reflect on lower nuclear availabilities in France compared to REMIT and ERAA2022. Such reasoning is compliant as it is justified and quantified as described in the explanatory note, in line with article 3, §4 of the Royal Decree.
- Elia wants to insist that despite having a market-wide CRM, the French TSO expected in 2021 that its reliability standard will not be met in the coming 3 winters. The latest 'Bilan Prévisionnel' of RTE published in 2021 has identified in its reference scenario that the system would not be adequate according to their reliability standard.
- Elia wants to recall that the sensitivity is based on multiple arguments:
  - Over the past decade, nuclear unavailability in France has increased significantly, reaching unprecedented levels for winter 2022-23 (see figure next slide)
  - The French nuclear fleet is going through major overhauls to extend the lifetime of its ageing fleet beyond 40 years.
  - The recent additional outages linked to the problems of stress corrosion cracking has had a major impact on the availability of nuclear units in 2022, and will continue to do so at least for the three next years
  - The fleet is very vulnerable to generic issues given the same technological conception used in the reactors (a similar situation was already experienced during winter 2016-17).
  - More recently, RTE is planning to include sensitivities and stress-tests on the amount of outages in the framework of security of supply analysis.

French nuclear availability



- In conclusion for the Y-1 auction with Delivery Period 2025-26, Elia believes that considering the lower availability during winter compared to REMIT should be taken into account and integrates this sensitivity in its recommendation to the Minister. The reduction is calculated as described in the Explanatory note and based on the minimum EDF generation forecast (if available or 330 TWh) on the winter only.
- In conclusion for the Y-4 auction with Delivery Period 2028-29, Elia believes that considering the sensitivity with 4 units unavailable for the reference scenario should be taken into account and integrates this sensitivity in its recommendation to the Minister.

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

Norway export limitation

Flow-based CEP rules

- **Febeliec** opposes the inclusion of any sensitivity which would reduce the minRAM below 70% as this minimum threshold. Febeliec already considers the fixed RAM 70% a very conservative approach by Elia.

- **FEBEG** considers that there remain high uncertainties on whether the ambition of minRAM 70% will really be achieved by 2025 and by 2028 in all countries. Febeg considers it justified to embed this risk in the reference scenario for delivery 2025-26 and to have a prudent approach for delivery year 2028-29.

- Elia agrees that there is a risk for Delivery Period 2025-26 and Delivery Period 2028-29 that this requirement is not met by some countries, however Elia will not include this sensitivity in its recommendation.

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

Norway export limitation

Uncertainties on Belgian thermal units

- **FEBEG** suggest to account for some Belgian thermal plants (TJs, CHPs, ...) leaving the market for various reasons : no access to CRM, obsolescence, reduced steam need within the industry, ...

Elia suggests incorporating the CO_2 limits put forth by the FPS Economy during the WG adequacy meeting in March 2023. Considering the new CO_2 thresholds for the Y-4 auction with a delivery period of 2028-29, there is a significant likelihood that capacities exceeding the threshold will exit the market. Elia recommends a sensitivity analysis that accounts for the removal of all turbojets and old OCGTs (if not compliant), resulting in a loss of around 190 MW.

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

Norway export limitation

DSR and storage capacities

- **Febeliec** suggests to at least account for higher small-scale battery capacity

- **FEBEG** suggests to not retain the sensitivities for higher DSR and storage.

- Elia sees its proposed capacity for small-scale batteries confirmed by recent developments. Nevertheless, Elia invites the relevant authorities to take into account a change in the policies for small-scale batteries after the publication of this report if a relevant policy change occurs before the final decision of the scenarios by the Minister.
- Elia will not include a sensitivity in its recommendation on additional DSR or storage capacity. However, Elia reminds that according to the methodology, additional capacity will be added to the system if Belgium is not compliant with its reliability standard.

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

Norway export limitation

Price and demand uncertainties

- **FEBEG** agrees that high prices and volatility make it difficult to provide accurate fuel price estimates and recommends a prudent approach regarding this.
- **Febeliec** strongly supports one or several sensitivities on lower demand in Belgium as it considers Elia's forecasts excessive and thinks the impact of high prices should decrease the (peak) demand.
- **Febeliec** wonders how high prices are taken into account in the demand.
- **Febeliec** supports such sensitivities but lacks data on the price levels that Elia would use.

- Elia sees no reason to deviate from the updated prices proposed for the base scenario and as such will not include a sensitivity on fuel prices in its recommendation.
- Elia will simulate the reference scenario that will be selected by the Minister and as such sees no reason to include more sensitivities such as a higher or lower load sensitivity in its recommendation.
- Elia already takes into account the impact of electricity prices in the demand calculated by Climact. How this is done was presented by Climact in the WG Adequacy of 25 August 2022. Climact is working to further improve the methodology.
- Elia refers to AdeqFlex 2023 which will be published on the 29th of June for a detailed analysis of various prices and demand sensitivities.

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

Norway export limitation

UK nuclear fleet

- **FEBEG** considers that assuming the availability of Heysham 1 and Hartepool is too optimistic. Therefore, FEBEG supports a sensitivity considering that the two nuclear units are not extended.

Elia agrees with FEBEG's comment regarding the potential risks associated with including the nuclear units Heysham 1 and Hartlepool. However, Elia proposes to consider them available unless a national publication confirms a delay or a cancellation prior to the Minister's publication of the reference scenario.

Overview of sensitivities

French Nuclear Availability

Flow-based CEP rules

Uncertainties on Belgian thermal units

DSR and storage capacities

Price and demand uncertainties

UK nuclear fleet

Norway export limitation

Norway export limitation

- **FEBEG** considers that the risk on Norway hydro and its impact for Belgium should be monitored by Elia as it could increase in the future. This risk should be, at minimum, included in a general sensitivity on cross-border capacity.

- **FEBELIEC** considers that this is not reasonable sensitivity as such approach would be in breach with legislation and the single European market of which Norway is an integral part.

- Elia agrees with FEBEG comment that export restrictions in Norway could indirectly affect Belgium through the contribution of Germany and the UK to Belgian adequacy. On the other hand, Elia agrees with FEBELIEC comment that such a restriction would be in breach with the legislation of the single European market. However, the European Commission is currently investigating the measure and neighboring countries have announced they might be forced to take similar measures , weakening local electricity security. Therefore, Elia will not include this sensitivity to its recommendation.

Elia’s recommendation

Elia’s recommendation – Y-1 auction with delivery period 2025-26

All updates to the scenario dataset

+

Sensitivities

Prices	Low	**Central**		High
Demand	Lower demand	**Central**		Higher demand
FB CEP rules	**70% minRAM**	Fixed RAM 70%		Mixed 70%
FR Nuclear	High EDF forecast winter only	Average EDF forecast winter only	**Minimum EDF forecast or 330 TWh (winter only)**	Minimum EDF forecast whole year
DSR & Storage	**Central**	Extra existing storage		Extra existing DSR
Other foreign risks	**Central**	UK nuclear availability		Export restrictions Norway

Legend:

Initial proposed sensitivity	Additional Based on stakeholder’s proposal	**Elia’s recommendation**

Elia’s recommendation – Y-4 auction with delivery period 2028-29

All updates to the scenario dataset

+

Sensitivities

Prices	Low	**Central**	High	
Demand	Lower demand	**Central**	Higher demand	
TJ/OCGT closure	No	TJ closure	**TJ/OCGT closure (190 MW)**	
FB CEP rules	**70% minRAM**	Fixed RAM 70%	Mixed 70%	
FR Nuclear (additional amount of units unavailable)	2	**4**	6	8
DSR & Storage	**Central**	Extra existing storage	Extra existing DSR	
Other foreign risks	**Central**	UK nuclear availability	Export restrictions Norway	

Legend:

Initial proposed sensitivity	**Additional Based on stakeholder’s proposal**	**Elia’s recommendation**

Feedback on other parameters

Preselected capacity types

- **FEBEG** proposes to update the CAPEX and FOM costs in light of the “cost of capacity” study launched by Entras.
- **FEBEG** supports the removal of gas engines from the preselected capacity types for the Y-4 auction for delivery period 2025-26.
- **Febeliec** does not understand why OCGTs or other generation technologies are excluded for the 2025-26 delivery period and why other technologies such as small-scale storage are not at all considered.
- **Febeliec** is puzzled why only DSR 4h is considered, where many more categories exist.

- To take into account the updated FOM costs based on the “cost of capacity” study, Elia refers to the relevant authorities. The CAPEX is part of a second work package for which the results are expected after the decision by the Minister.
- The lead time of OCGT is considered too long to be considered as a possible new capacity in the 2025-26 delivery period. Small-scale batteries are considered out-of-market and therefore taken into account in the demand.
- Elia agrees with Febeliec on only considering DSR 4h and proposes to consider DSR unlimited instead as this would have the least impact on the dispatching of the different DSR categories and not over-complexify the process.

Post-delivery scenarios

- **Febeliec** regrets that Elia has not foreseen data or an analysis for every year in scope, specifically for 2029 and 2031 but more importantly for none of the years between 2034 and 2040, where merely an intrapolation seems to be used although this according to Febeliec does not provide a sound enough basis for the needs for the CRM, as an auction for the period 2028-2029 (and also 2025-2026) could lead to a very high and unnecessary overprocurement of capacity if only a very limited number of years would be identified with potential adequacy concerns

- It is not foreseen in the CRM calibration framework to perform a multi-year assessment and Elia therefore proposes to use AdeqFlex 2023 post-delivery year revenues.
- The post delivery years are only used to get market revenues for those years. They do not affect the volume to be auctioned and can therefore not lead to over-procurement.

Intermediate Price Cap (1/2)

- **FEBEG** welcomes the update of the “Cost of Capacity”-study but wishes to stress the importance that all costs must be covered and expresses its concerns related to the investment thresholds as well as the IPC derogation procedure.
- **FEBELIEC** expresses its concerns with regards to the technologies that are included in the list of technologies that are eligible for the IPC.

- The “Cost of Capacity”-study has in the meantime been launched in collaboration with Entras. In order to accurately take into account market parties’ concerns, Entras will organize interviews, and Elia is glad to see that multiple market parties have already agreed to participate.
- The investment thresholds as well as the IPC derogations are important topics but are not solely Elia’s responsibility. Discussions on these subjects will be launched in due time.
- The “Cost of Capacity”-study includes an update of list of technologies, which will also be presented in the Working Group Adequacy

Intermediate Price Cap (2/2)

- **FEBEG** proposes that due to increased RES penetration the cost of Availability Testing should be taken into account for all technologies for the calibration of the IPC.
- **FEBELIEC** expresses its concerns with regards to the determination of the net balancing revenues

- Elia does not agree with FEBEG's suggestion, as the increased RES penetration will not affect the frequency of Availability Testing. Furthermore, the AMT Price is calibrated sufficiently high for most units to recover their costs and thus run during the AMT Moments.
- Elia is working on a re-assessment of the net balancing revenues in collaboration with an external consultant, the results of which will be presented in the WG Adequacy.

Potential improvements to the DSR volume estimation

Potential improvements to the market response volume estimation

- **FEBEG** shares the concerns of Elia regarding the current methodology.
- **FEBEG** could support a new methodology where the price threshold would be calibrated in order to take into account changes in DSR and generation costs (on shorter time intervals to take into account price evolutions):
  - The calibration on the expected DSR marginal cost (based on correlation between marginal cost of DSR and fuel/CO2 prices) needs further investigation to understand the results/impacts.
  - The calibration on the highest generation marginal cost would be a prudent approach but could indeed risk to underestimate the DSR volume given that we are going towards a more mixed merit order than in the past.
  - The calibration based on a percentile of the electricity price (e.g. P90) seems arbitrary and would definitely not provide a correct view.
- **FEBEG** stresses the importance of filtering out generation bids is important and believes that doing this with a marginal cost approach is relevant. FEBEG is not in favor of applying a fixed percentage.
- **FEBEG** thinks that the different approaches to define the threshold should be tested and discussed with market parties.

- Elia takes note of the comments from FEBEG and will take them into account in the development of the improvements.
- Elia will provide a report on the results of the E-CUBE study and discuss these with stakeholders in a WG Adequacy in August

Potential improvements to the DSR volume estimation

- **FEBEG** recommends adding a quantitative analysis consisting of a yearly survey among industry/BSPs on the capacity they can effectively reduce as a cross-check.
- **FEBEG** stresses the need for a prudent approach when estimating the DSR due to a risk of overestimation of the potential without certainty on the delivery of these capacities. Especially given the importance of the volume reserved for Y-1 auctions.
- **FEBEG** finds that when determining the reserved volume for the Y-1 auction, authorities should make a check with the estimated DSR potential but taking a margin error into account and considering past participation of DSR in Y-4 auctions.
- **Febeliec** can not agree nor support the methodology proposed by E-CUBE and is not certain that trying to patch up the methodology will deliver better results as the fundamental flaw remains. Febeliec considers an approach based on market prices not a good indicator. Febeliec refers to its comments made during the meetings of the WG Adequacy.

- Elia notes the comment from FEBEG to include an interview with the industry and BSPs. Elia will look into the feasibility of performing such interviews for future exercises.
- Elia agrees with FEBEG that a prudent approach should be followed to avoid over but also under estimation of market response capacity.
- The approach to reserve a fixed volume for the Y-1 auction that covers at least the capacity corresponding on average with less than 200 running hours, is imposed by the Royal Decree Methodology.
- Elia proposes to await the results of the study and to discuss the results during a WG Adequacy.

Next steps

- Publication of the public consultation report: 20 June
- Presentation of Climact and E-Cube studies: WG tbd in August
- Determination of the scenario by the Minister: 15 September
- Publication of the calibration report by Elia: 15 November

AOB

Overview of capacities reserved for future CRM Delivery Periods

	Y-1 reserved volume	XB Volume (total / without GB)	Y-4 auction : volume to be auctioned
Y-4 auction for DP 2025-26	1467 MW	1935/ 1064 MW	/
Y-4 auction for DP 2026-27	1249 MW	1428 / 967 MW	/
Y-4 auction for 2027-28	1285 MW	934 / 381 MW	6450 MW (point A) / 6605 MW (point B)

https://economie.fgov.be/nl/themas/energie/bevoorradingszekerheid/elektriciteit/capaciteitsmechanismen/capaciteitsremuneratiemechanis/veilingen-het-kader-van-het
https://economie.fgov.be/fr/themes/energie/securite-dapprovisionnement/electricite/mecanismes-de-capacite/mecanisme-de-remuneration-de/encheres-dans-le-cadre-du-crm

Update on the Royal Decrees

Next meetings

Foreseen timeslots for next meetings

- Friday 16th of June 2023 AM
- Thursday 29th of June 2023 AM – AdeqFlex presentation
- **Friday 25th of August 2023 AM**
- Thursday 14th of September 2023 AM
- Friday 13th of October 2023 PM

Users Group Calendar: https://www.elia.be/en/users-group

Thank you.