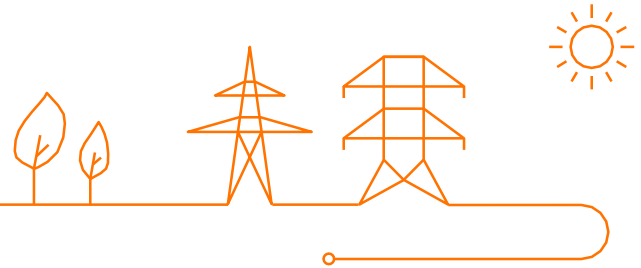
CRM Calibration 2026-27

TF CRM -public consultation on scenario, data and sensitivities

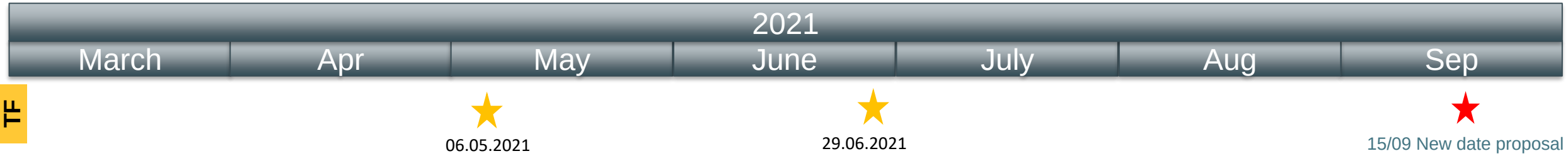
06.05.2021 | Elia

Agenda

1. Planning
2. Public consultation – Royal Decree framework
3. Scenario & sensitivities – Context
4. Scenario dataset
5. Sensitivities
6. Other parameters to be consulted

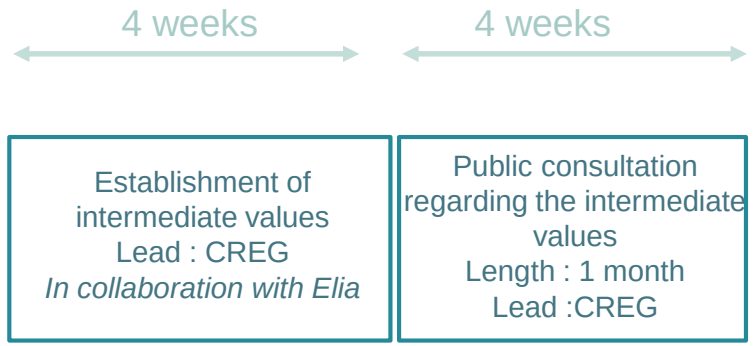


Indicative planning - CRM scenario choice for the DY26-27 Y-4 auction



Reference scenario Process

Intermediate values Process



Indicative planning

Public consultation – RD framework

Context : Royal Decree framework

Art. 5. § 1er. Le gestionnaire de réseau organise une ou plusieurs consultations publiques conformément à l'article 7undecies, § 3, alinéa 3, de la loi du 29 avril 1999 durant une période de minimum un mois. Le gestionnaire du réseau informe les acteurs de marché de la tenue de cette (ces) consultation(s). § 2. Au moins les sujets suivants sont soumis à une consultation publique : 1° la mise à jour des données et des hypothèses du scénario ou des scénarios, ainsi que des sensibilités, telles que visées à l'article 3, § 3 ; 2° la pertinence des sensibilités visées à l'article 3, §4, en ce compris les données et hypothèses à partir desquelles elles ont été établies ; 3° le type de capacité supplémentaire visé à l'article 6, § 1er ; 4° les sources publiques des scénarios pour les années postérieures à l'année de livraison à partir desquelles les données d'entrée sont utilisées pour le calcul des rentes inframarginales annuelles visées à l'article 10, §6 ; 5° la liste réduite des technologies existantes qui seront raisonnablement disponibles et qui sont éligibles pour la détermination du prix maximal intermédiaire visé à l'article 18, §1er.	Art. 5. § 1. De netbeheerder organiseert een of meerdere openbare raadpleging(en) met het oog op de opmaak van zijn verslag en zijn voorstel bedoeld in artikel 7undecies, § 3, derde lid van de wet van 29 april 1999, gedurende een periode van ten minste één maand. De netbeheerder informeert de marktdeelnemers over het houden van deze raadpleging(en). § 2. De volgende onderwerpen worden ten minste aan openbare raadpleging onderworpen: 1° de actualisatie van de gegevens en hypothesen van het scenario of de scenario's en de gevoeligheden zoals bedoeld in artikel 3, § 3; 2° de relevantie van de gevoeligheden bedoeld in artikel 3, § 4, inclusief de gegevens en hypothesen waaruit ze zijn opgebouwd; 3° het type bijkomende capaciteit bedoeld in artikel 6, § 1; 4° de publieke bronnen van de scenario's voor de jaren na het leveringsjaar waaruit de invoergegevens gebruikt worden voor de berekening van de jaarlijkse inframarginale inkomsten, bedoeld in artikel 10, § 6; 5° de beperkte lijst van bestaande technologieën die redelijkerwijs beschikbaar zullen zijn, en die in aanmerking komen voor de bepaling van de intermediaire maximumprijs, bedoeld in artikel 18, §1.

Context : Royal Decree framework

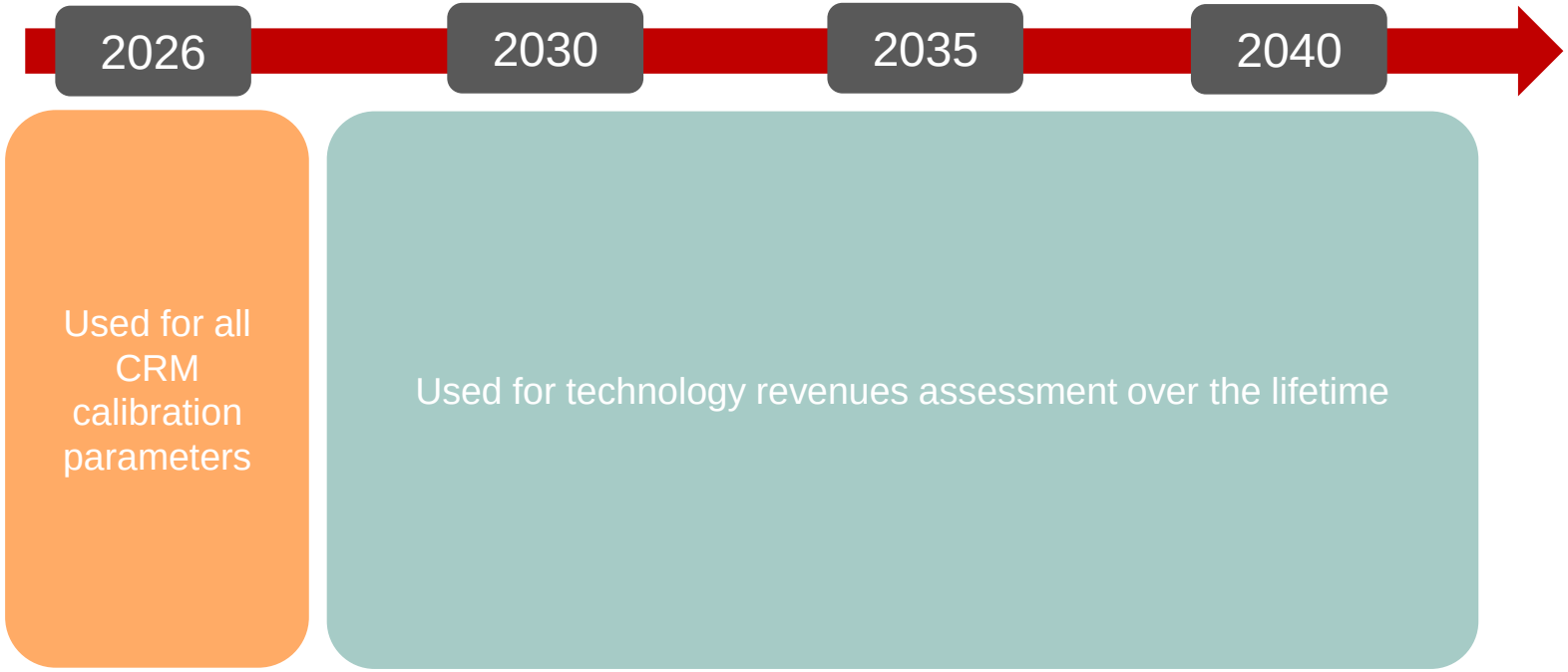
The first part of this presentation will introduce the **data and assumptions associated with the scenario**, as mentioned in article 3, §3 of the RD.

The second part of this presentation will presents the proposed **sensitivities, their source and the impact on the input data**, as mentioned in article 3, §4 of the RD.

The last part of this presentation is dedicated to three other parameters that will be part of the public consultation :

- **Preselected capacity types** (in order to make the reference scenario adequate)
- The **sources of the scenarios** for the determination of market revenues **after the delivery period**
- The **IPC parameters**

The public consultation includes the reference scenario parameters for the delivery period and the source of the scenario for the periods after the delivery period



2026 is the delivery period from Nov. 2026 to Oct. 2027

Scenario & Sensitivities – How are they constructed ?

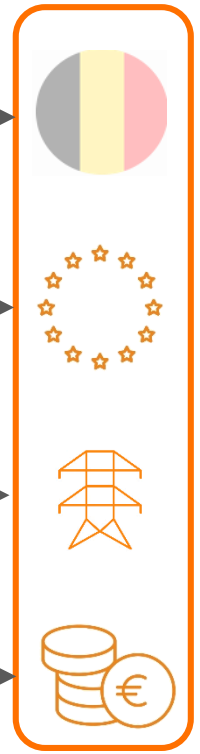
The reference scenario for 2026 is constructed based the most recent European adequacy assessment complemented with additional events to be selected by Belgian authorities after public consultation

Art. 3. § 1er. Le gestionnaire de réseau effectue, en collaboration avec la Direction générale de l'Energie et en concertation avec la commission, une sélection d'un ou de plusieurs scénarios et sensibilités selon les étapes décrites à l'article 3, §§2 à 4 inclus.

MAF 2020*

- Data for Belgium are in line with the final NECP (WAM scenario) submitted end of 2019 to the EC and with the latest status of each generation unit and updated recently with the consulted data in the Adequacy and Flexibility (2021)
- Data for the other countries will be updated based on the most recent national/regional adequacy studies and taking into account the latest European methodologies approved in 2020
- Flow based domains are constructed for the CORE region (as consulted upon in the Adequacy & Flexibility 2022-32 study).
- Price projections will be updated based on the latest 'World Energy Outlook' published end of 2020.

Scenario components



For Belgium and 27 other countries

§ 2. A partir de l'évaluation européenne, visée à l'article 23 du Règlement (UE) 2019/943, et / ou de l'évaluation nationale visée à l'article 24 du Règlement (UE) 2019/943, les plus récemment disponibles au moment de la sélection, un ou plusieurs scénarios et sensibilités sont sélectionnés. Cette sélection comprend au moins le scénario de référence central européen visé à l'article 23, 1er alinéa, 5, b) du Règlement (UE) 2019/943. Tant que lesdites évaluations ne sont pas encore disponibles, une sélection est effectuée à partir d'autres études disponibles.

§ 3. Les données et hypothèses à partir desquelles lesdits scénarios et sensibilités ont été établis, sont mises à jour sur la base des informations pertinentes les plus récentes.

**Mid Term Adequacy Forecast of ENTSO-e.*
Published end of 2020, data available on ENTSO-e website.

The reference scenario for 2026 is constructed based the most recent European adequacy assessment complemented with additional events to be selected by Belgian authorities after public consultation

Following Article 3, §2-3

MAF 2020*

Scenario components

Following Article 3, §4

Additional sensitivities to be included

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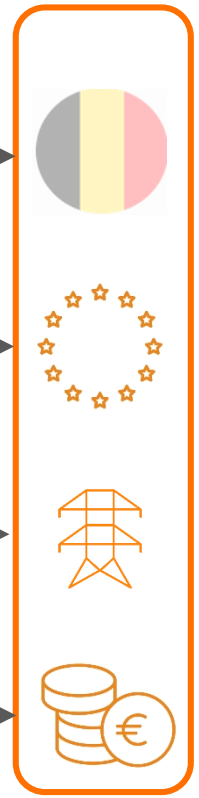

For Belgium and 27 other countries

+

- Sens. 1
- Sens. 2
- Sens. 3
- Sens. 4
- Sens. 5
- Sens. 6
- ...

List of sensitivities on all scenario components are possible

§ 4. En outre, d'autres sensibilités peuvent être définies, lesquelles peuvent avoir un impact sur la sécurité d'approvisionnement de la Belgique, notamment des évènements en dehors de la zone de réglage belge.

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Scenario components

For Belgium and 27 other countries

Following Article 3, §4

Additional sensitivities to be included

Sens. 1
Sens. 2
Sens. 3
Sens. 4
Sens. 5
Sens. 6

List of sensitivities on all scenario components are possible

Following Article 3, §6-7

Sensitivity(ies) to be included in the reference scenario

EXAMPLE

Sens. 2

Sens. 4

The choice of the sensitivities to be included in the reference scenario is made following the process described in the RD and after public consultation.

§ 7. Compte tenu de la proposition de la commission, des recommandations du gestionnaire du réseau et de l'avis de la Direction générale de l'Energie, le Ministre décide, par arrêté délibéré en Conseil des ministres depuis la décision prise en 2021, au plus tard le 15 septembre de l'année précédant les enchères, de l'ensemble des données et des hypothèses qui doit être sélectionné comme scénario de référence. Le Ministre peut déroger à la proposition de la commission moyennant motivation adéquate.

** Mid Term Adequacy Forecast of ENTSO-e. Published end of 2020, data available on ENTSO-e website*

What elements of the reference scenario will be submitted to public consultation ?

Details for each scenario component will be provided in an Excel file complemented with an explanatory note

- Generation and storage capacities per type (including a list of all CIPU thermal units)
- Forced outage rates per technology
- Yearly total electricity final consumption
- Demand-side response volume
- Balancing reserves volume

- A reference to the MAF2020 dataset for other countries will be given (detailed Excel with all information as published by ENTSO-e targeting 2025 and 2030, no data for other time horizon are available)

- A reference to the MAF2020 dataset will be given with the NTCs used (outside of the FB zone)
- In addition FB domains parameters and underlying assumptions will be provided

- Fuel and CO_2 prices

- Proposal of sensitivities

§5. Les scénarios et sensibilités sélectionnés, en ce compris les données et hypothèses à partir desquelles ils ont été établis, sont soumis à une consultation publique telle que visée à l'article 5.

Explanatory note

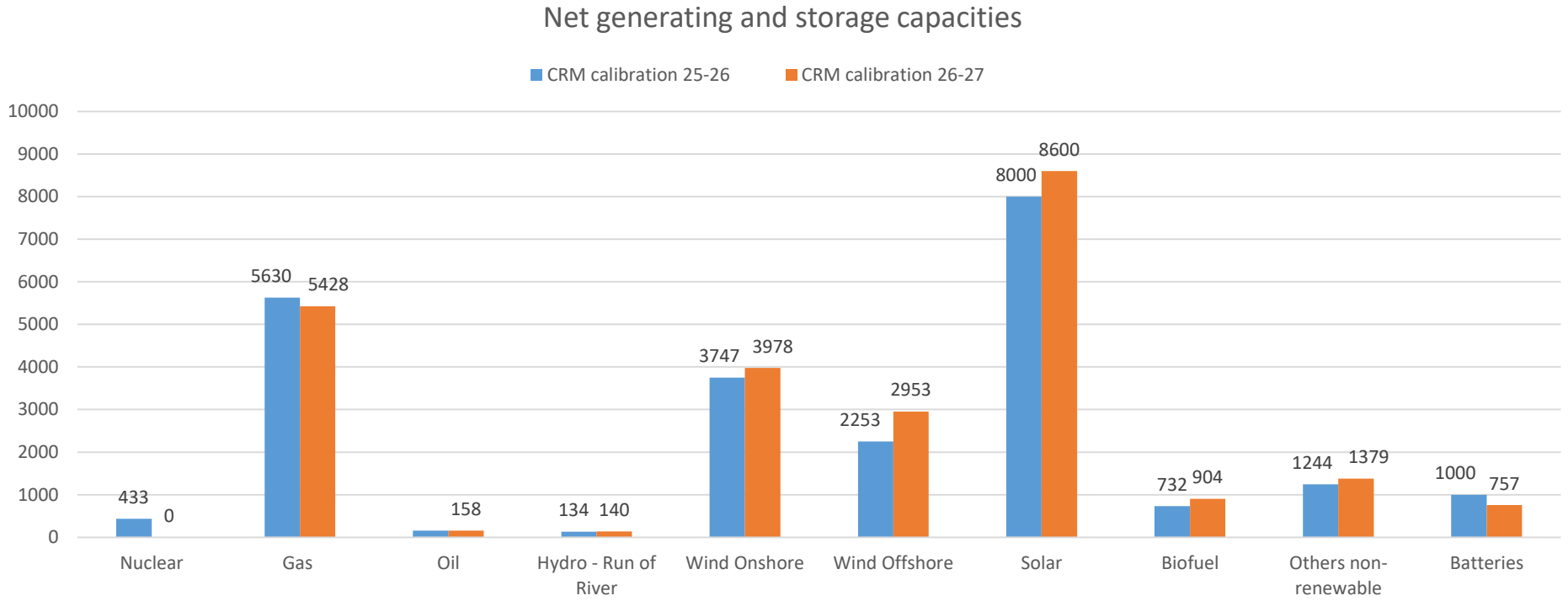
Excel file with all data

Other parameters will also be consulted upon:
- *technology list and costs by technology for the IPC,*
- *scenario choice for delivery period after the delivery period,*
- pre-selected capacity types (to be used to 'calibrate' the country's adequacy if needed)

Scenario dataset

Scenario components

Overview of generation and storage installed capacities



- This figure shows the updates between the 2025-26 and the 2026-27 CRM calibration.

Article 4, §2 & 3

Scenario components

Generation – Installed capacities

- All existing units are considered (unless closure announcement known).
- Aligned with the data consulted upon in the Adequacy and Flexibility study (2021)

Overview of the updates

Net Generating Capacities* (MW)	CRM calibration 25-26	CRM calibration 26-27	Comment
Nuclear	433	0	Doel 2 until 1st of December 2025
Gas	5630	5428	Capacity updates + Borealis Kallo 32MW – Vilvoorde GT
Oil	158	158	Adequacy and flexibility (2021)
Hydro - Run of River	134	140	Based on final NECP (WAM scenario)
Wind Onshore	3747	3978	Based on final NECP (WAM scenario)
Wind Offshore	2253	2953	Based on final NECP (WAM scenario)
Solar	8000	8600	Based on final NECP (WAM scenario)
Biofuel	732	904	Takes into account profiled & individually modelled Biomass + Waste Updated based on final NECP (WAM scenario) + Rodenhuize decommissioned (205MW) +E-wood (22MW)
Others non-renewable	1244	1379	Adequacy and flexibility (2021)

Article 3, §2

Scenario components

Storage – Reservoir volumes & capacities

– Pumped-storage is in line with the data consulted upon in the Adequacy and Flexibility study (2021)

Pumped-storage

Pumped-Storage facilities	Reservoir Volume [MWh]
Storage reservoir	5800
Storage reservoir derating (ancillary services)	500
Available storage for economical dispatch	5300

Unit name	Turbining capacity [MW]
Total capacity	1224
Coo 1-6	1080
Platte Taille 1-4	144

- Coo's turbining capacity and reservoir volume are in line with the current available information

Article 3, §2

Scenario components

Storage – Reservoir volumes & capacities

– Batteries' projections are in line with the data consulted upon in the Adequacy and Flexibility study (2021)

Batteries

Category	Sub category	Capacity and volume of storage in 2026 [MW] or [MWh]
Total capacity [MW]		**757**
Capacity [MW]	Large scale storage ("in-the-market")	412
	Small scale storage ("out-of-market")	216
	Vehicle-to-Grid (V2G)	129
	• V2G "in-the-market"	18
	• V2G "out-of-market"	111
Reservoir volume [MWh]	Large scale storage ("in-the-market")	824
	Small scale storage ("out-of-market")	647
	Vehicle-to-grid	517
	• V2G "in-the-market"	72
	• V2G "out-of-market"	445

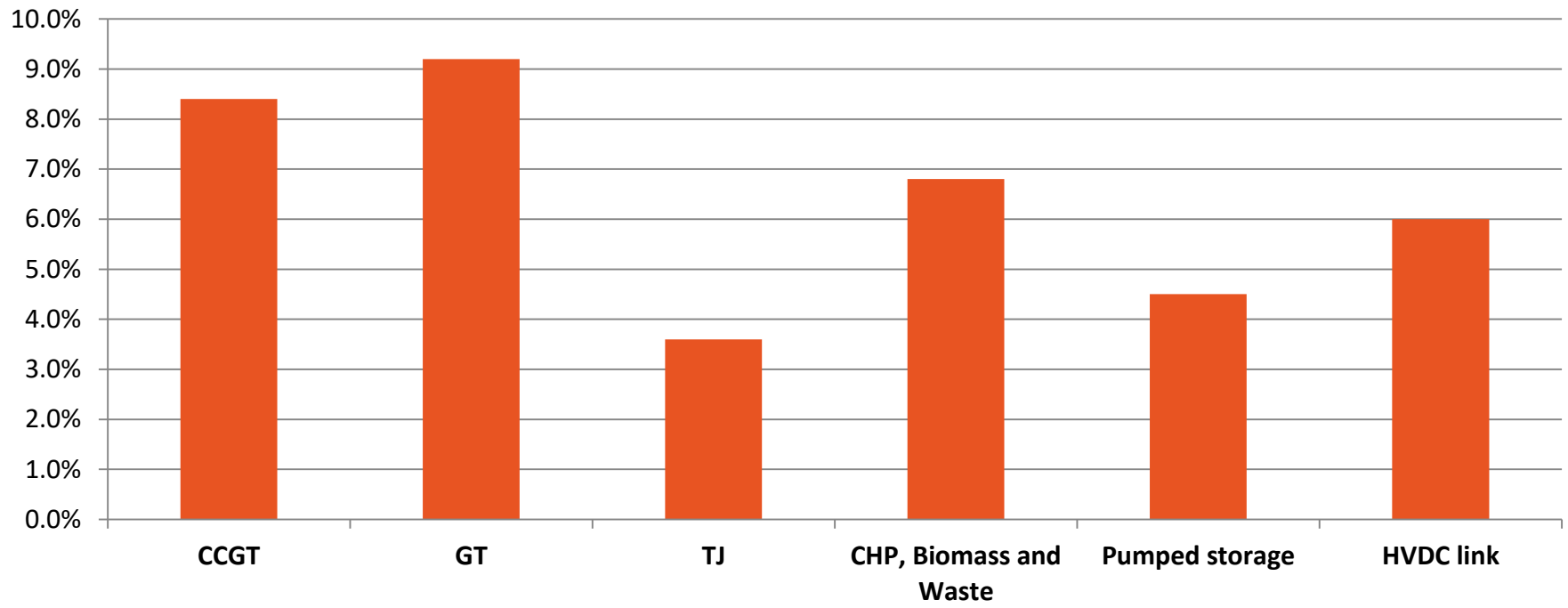
- Updated numbers based on the data consulted upon in the Adequacy and Flexibility study (2021)

Article 3, §2

Scenario components

Forced outage rate

- Forced outage rate have been determined for all thermal generation & storage technologies available in Belgium, such as done for other Elia adequacy studies.
- It is based on historical data from the last 10 years (source : ENTSO-E Transparency platform, Elia)
- For the HVDC link forced outage rate, note that 6% is proposed by ENTSO-E for HVDC forced outage rate.



Article 3, §2

Scenario components

Demand-side response – Categories & Capacities

- Demand-side response shedding categories are based on the data consulted upon in the Adequacy and Flexibility study (Elia, 2021)
- Demand-side response shifting values are based on the Energy Pact.

Overview of the updates with CRM 25-26

Data	CRM 2025-26	CRM 2026-27	Sources
Demand-side response shedding	1565MW	2044 MW	The numbers are based on the latest Ecube's study, a growth rate of 7% is applied until 2023 then interpolation to the Energy pact forecast for 2030 is applied
Demand-side response shifting	500 MWh/day	700 MWh/day	Added (as category not present in MAF) and based on Energy Pact

Article 3, §2 & 3

Scenario components

Demand-side response – Categories & Capacities

- Demand-side response values are based on the Energy Pact for 2030.
- Demand-side response shedding categories are based on the data consulted upon in the Adequacy and Flexibility study (Elia, 2021)

Shedding capacity

Categories	Total volume [MW]
Max use of 1 hour	164
Max use of 2 hours	573
Max use of 4 hours*	571
Max use of 8 hours	491
No limit	246
Total Volume	2044

Shifting capacity

	Total volume [MWh/day]
Total Volume	700

- The total volume of demand-side response shedding is equal to 2044 MW. It includes both volume dedicated to the electricity energy market and to the ancillary services.
- The numbers are derived from a growth rate of 7% Until 2023 based on Ecube's study then interpolation to the Energy pact forecast for 2030 is applied

** This capacity includes the volume on ancillary services (430 MW)*

Article 3, §2

Scenario components

Balancing capacity - Purpose

- There are 2 purposes for the evaluation of balancing reserves volume :

  1) A volume will be taken into account for the energy market model in line with national and European studies

  2) A volume will be taken into account for the determination of the volume parameters of the demand curve

Royal Decree Reference	
Art. 11.	**Art. 11.**
§ 2. Ces deux volumes sont déterminés en cinq étapes :	§ 2. Deze twee volumes worden in vijf stappen bepaald:
(…)	(…)
2° un volume correspondant au besoin en réserves d'équilibrage est ajouté à la charge visée au 1° ;	2° een volume dat overeenstemt met de vereiste reserves voor het bewaren van het evenwicht in het netwerk wordt toegevoegd aan het in 1° bedoelde verbruik;

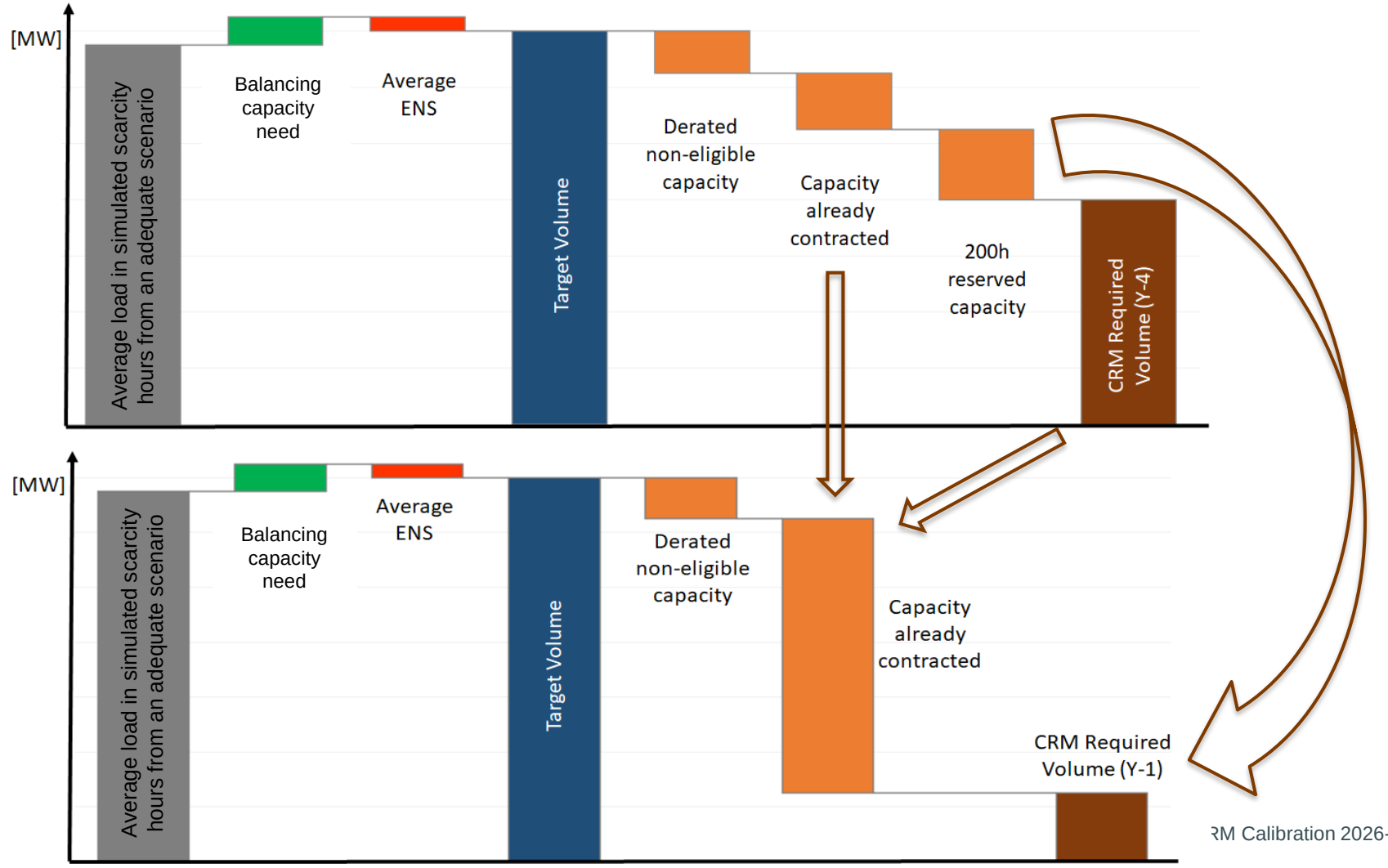
Scenario components

Demand curve - Reminder

Determination of the volume parameters – Article 11 of the Royal Decree

Y-4 auction

Y-1 auction

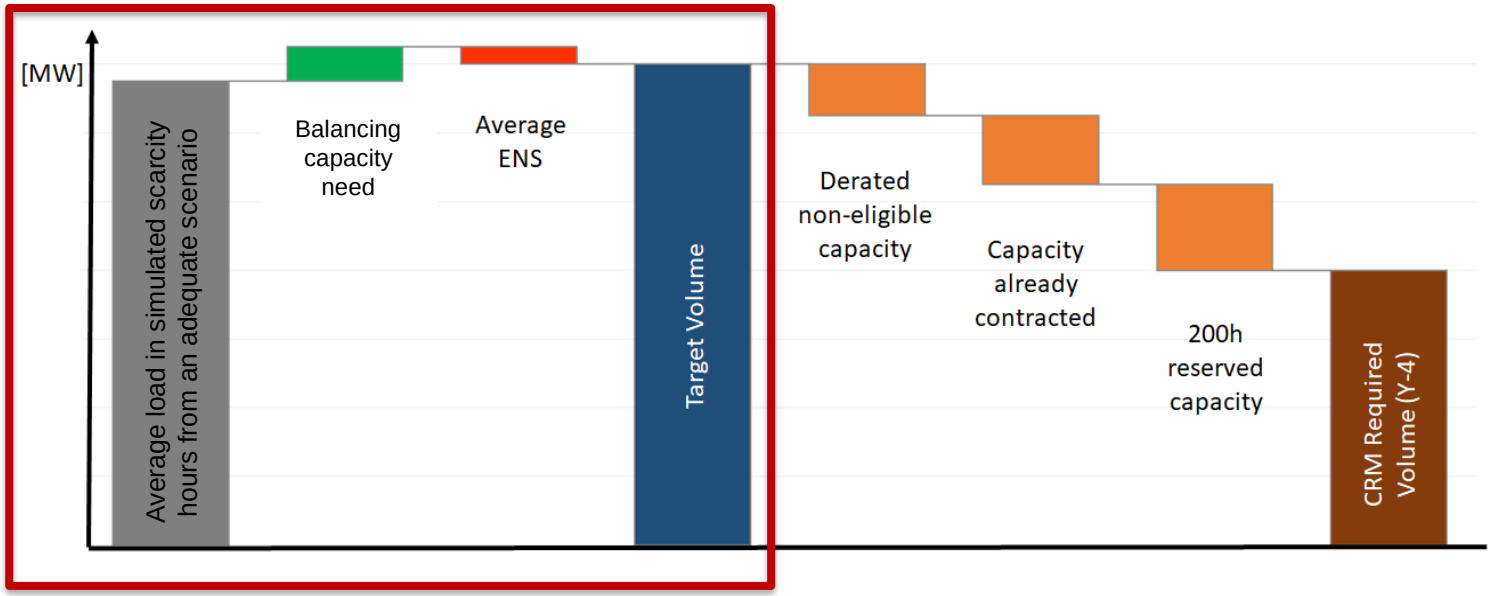


Scenario components

Balancing capacity - Purpose

Determination of the volume parameters – Article 11 of the Royal Decree

Y-4 auction



The model will allow to determine 3 parameters of the Y-4 auction of delivery period 2025-2026:

- The average load in simulated scarcity hours from an adequate scenario
- **The upward balancing need**
- The average estimated energy not served in simulated scarcity hours.

Scenario components

Balancing capacity

– Balancing reserves volume should be considered neither as an expert estimation. Indeed, the reserves are daily dimensioned depending on system conditions and market performance.

	Volume [MW]
Total FCR	75
Total FRR	1104
Total reserve capacity	1179

– Total balancing reserves for 2026-2027 delivery period is based on :
  – FCR Capacity = 75 MW
  – FRR (aFRR+mFRR) Capacity = 1104 MW
    - A minimum level is legally required to deal with the dimensioning incident
    - Future capacity needs therefore depend on system evolutions and performance of the market

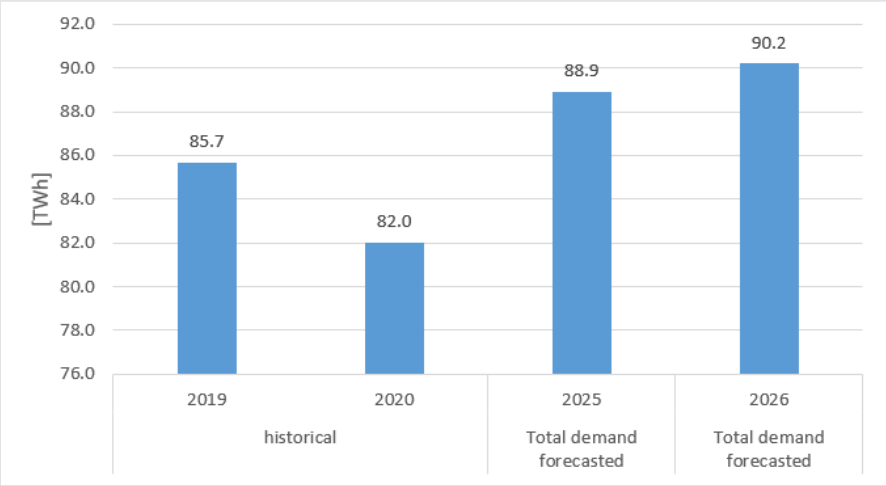
Scenario components

Total normalized electricity consumption for Belgium

– Consumption follows the one of the final NECP (WAM)

Final total electricity consumption

		Total demand [TWh]	Normalised total demand [TWh]
historical	**2019**	84.9	85.7
	2020	81.0	82.0
Total demand forecasted	**2025**		88.9
Total demand forecasted	**2026**		90.2



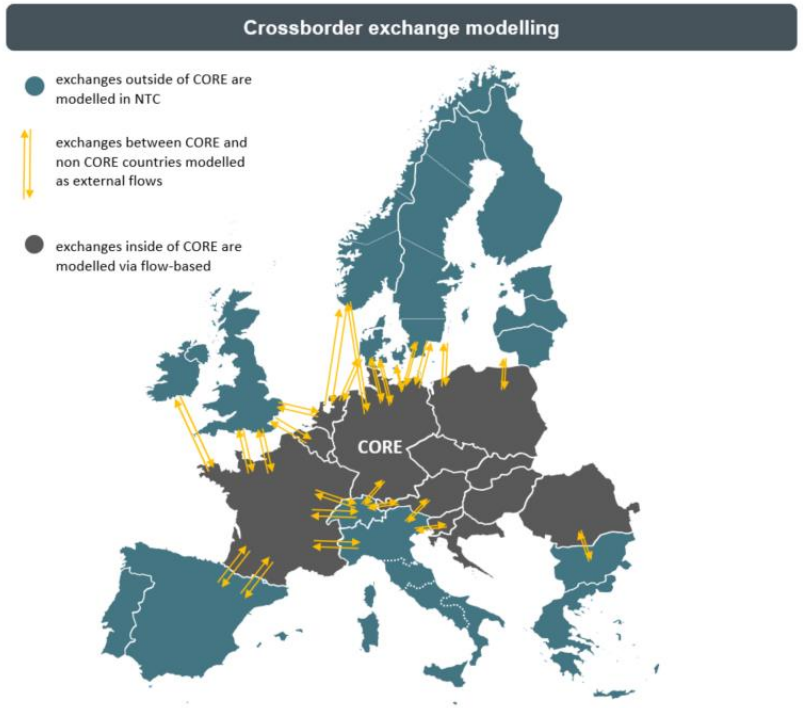
- 2025 and 2026 projections are based on the Total demand forecasting tool developed in collaboration with Climact taking into account the Plan Bureau forecast of June 2020 for macro economics (this approach is also in line with the Adequacy and Flexibility (2021)

Article 3, §2

Flow-based perimeter and bidding zone definition

- This approach is identical to the one consulted upon in the Adequacy and Flexibility study (2021)
- The bidding zones are assumed to be the same ones that we have today for all future time horizons.
- Major improvements were done to extend the flow-based domains from CWE to CORE region and to include the possibility of ‘Advanced Hybrid Coupling’ (AHC). Those will increase the complexity of the simulations but will better reflect the expected evolution of the capacity calculation rules.

	2026
FB CCR	CORE
minRAM	70 %
CNEC	Only XB CNECs



Climate data base

The last European adequacy study (MAF2020) performed by ENTSO-E still used the full Pan European Climate Database consisting of 35 historical climate years. In order to be compliant with the recently adopted ERAA methodology, the climate database used for this study will be based on the same approach than consulted in the Adequacy and Flexibility study which uses **200 synthetic climate years** representative of the ‘2025 climate’ and which are equally probable. This database is provided by **MeteoFrance and used by RTE for its adequacy assessments**. Such approach (using best forecasts of climate projections) is also the chosen target solution by ENTSO-E for its future adequacy studies.

Scenario components

Economic parameters

- The economic parameters are proposed to be based on World Energy Outlook (WEO) 2020.
- Prices for CRM calibration are expressed in € 2019.

Category	CRM Calibration 2025-26 Price [€/GJ]	CRM Calibration 2026-27 Price [€/GJ]
Oil	11.7	10.5
Gas	6.4	5.8
Coal	2.6	2.0
	[€/tCO2]	**[€/tCO2]**
CO2	27	31

Article 3, §2

Definition of sensitivities

Additional sensitivities that could be included in the reference scenario (those are detailed further in the presentation) that were defined following the process described in the RD)

French nuclear availability 1

Decreased French nuclear availability in continuity of last year's reference scenario
Lower availability by 2 units on average during winter

French nuclear availability 2

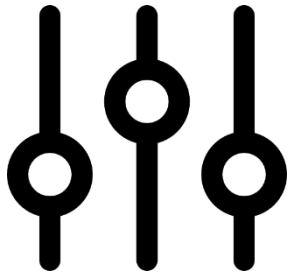
Decreased French nuclear availability based on historical figures
Lower availability by 4 units on average during winter

FB CEP rules

Non achievements of the CEP rules for 2026 to reflect the uncertainty on capacity calculation.
50 % RAM instead of 70% minRAM

BE unit at risk

Closure of turbojets due to aging and economics + Vilvoorde GT (officially closed in the meantime)
-158 MW



Sensitivities were built in collaboration with FPS as stated in RD article 3

Article 3, §4

French nuclear availability 1

Reduced availability of France's nuclear fleet in continuity with last year's reference scenario

FR: NUC availability reduced by 2 units in winter

- **Significant degree of uncertainty** on the availability of the French nuclear fleet
- **Nuclear availability reduction by 2 units in winter** is aligned with what has been performed in the **GAA PLEF 2020**
- The choice of 2 units is in **continuity** with the previous **reference scenario** chosen by the minister

RTE's remark in MAF 2020

[…]

The nuclear availability in France is also taken into account differently in both resource adequacy assessments. The French generation adequacy study combines a deterministic approach for the ten year inspections (information shared via the official transparency channels - REMIT) for which each duration is probabilistically extended consistently with what has been observed in the past years, and a probabilistic one for the other outages. In the MAF, the simulated availability of nuclear power plants do not model the uncertainty on the extension of duration of outages, but take it into account only in a deterministic manner instead of probabilistically. ***This can lead to underestimate the occurrence of some simulated situations with very low availability of the nuclear generating fleet.***

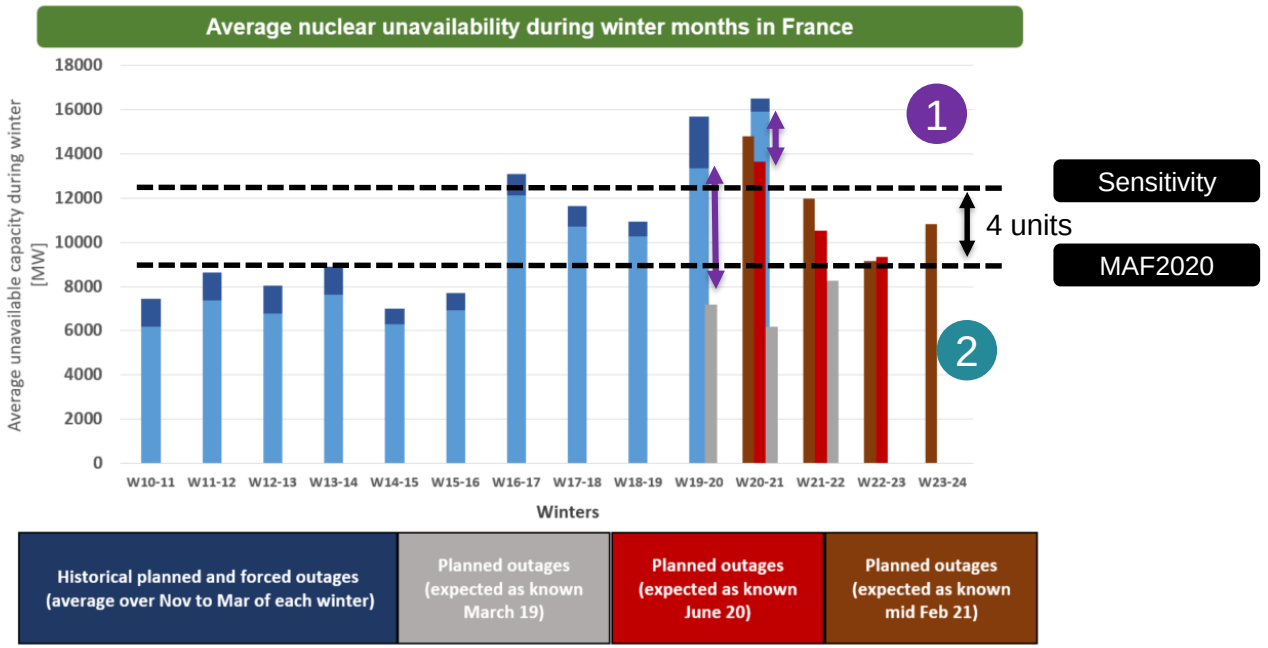
[…]

Article 3, §4

French nuclear availability 2

Several events took place in the past 4 winters in France which substantially reduced the nuclear availability of the nuclear fleet.

FR: NUC availability reduced by 4 units in winter



1 The last two winters have shown an under estimate of the planned unavailability see purple arrow showing at least 4 GW of difference for winter 19-20. Current value for winter 2021-22 already show a difference of 2 GW with the June 20 projections.

2 Winter 2023-24 still shows an expected unavailability above the MAF 2020 average

In addition, there are different reasons to consider that the forecasted availability of the French nuclear fleet can be overestimated:

- Delay due to inspections (4th wave of 10-year inspections going on)
- Ageing fleet
- RTE has confirmed that the observed maintenance is usually much higher than the one forecasted by the producer
- COVID-19 has impacted a lot the refueling and the maintenance planning of the nuclear assets.

To reflect those uncertainties into account and reflect what is happening in the past 4 winters, a lower nuclear availability for France of around 4 units (difference between the green and black dotted lines) can be applied

Article 3, §4

While MAF is in NTC, we propose to use a flow based model including 70% of minRAM on each cross border CNEC but there are uncertainties on whether such margin will be available at all times

50% RAM instead of minRAM 70%

Several reasons might exist that could lead to smaller domains that those determined:

- Firstly in exceptional circumstances, the minRAM factor can be set below the targeted legal threshold by a TSO in case it is required to maintain operational security
- Country that cannot structurally provide 70% might apply a bidding zone split, this process will last and might not happen over a day, moreover the split will not be known in advance.
- Current requirements do not exclude the existence of internal grid elements (to a bidding zone). Decreasing the margin can be considered as proxy to the inclusion of internal constraints into the market coupling as the FB domain calculated only considers XB CNECs (no internal elements)

Article 3, §4

BE unit at risk

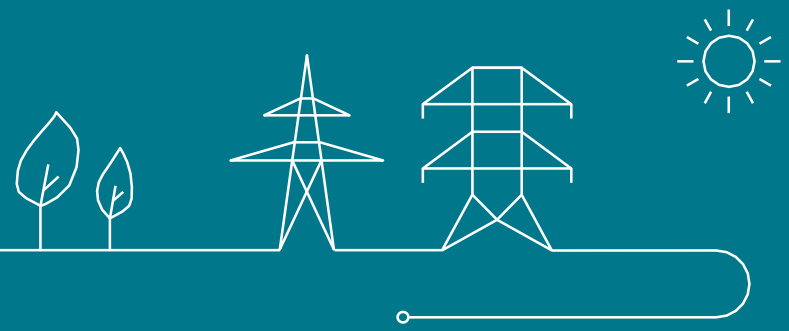
Uncertainties on Belgium's thermal units

- Due to obsolescence and economic viability turbojets could be considered to have left the market by 2026
- The official closure of Vilvoorde GT has been in the meantime announced

- -158 MW turbojets
- ~~-255 MW Vilvoorde GT~~

Article 3, §4

Other parameters to be consulted upon



Preselected capacity types

Royal Decree Context

Art. 6. §1er. Le gestionnaire du réseau s'assure que le scénario de référence tel que déterminé selon l'article 3, §7, répond au niveau de la sécurité d'approvisionnement requis par l'article 7undecies, §7, premier et deuxième alinéas, de la loi du 29 avril 1999 en ajoutant, si nécessaire, de la capacité supplémentaire à la zone de réglage belge :

1° provenant des types de capacité présélectionnés selon l'article 10 et proposés par le gestionnaire de réseau dans la consultation publique visée à l'article 5 et ensuite choisis par le gestionnaire de réseau en collaboration avec la Direction générale de l'Energie et en concertation avec la commission ;

2° d'une manière itérative sur la base d'une boucle d'optimisation économique avec un incrément à la hauteur de celui appliqué dans l'évaluation la plus récemment disponible de l'adéquation des ressources à l'échelle européenne ou nationale visée aux articles 23 et 24 du Règlement (UE) 2019/943, et de maximum 100 MW.

Art. 6. §1. De netbeheerder verzekert zich ervan dat het referentiescenario zoals bepaald volgens artikel 3 §7 beantwoordt aan het niveau van bevoorradingszekerheid dat worden geëist door artikel 7undecies, § 7, eerste en tweede lid, van de wet van 29 april 1999 door, indien nodig, aan de Belgische regelzone bijkomende capaciteit toe te voegen:

1° afkomstig van de volgens artikel 10 voorgeselecteerde types van capaciteit die voorgesteld worden door de netbeheerder ter openbare raadpleging bedoeld in artikel 5 en daarna door de netbeheerder in samenwerking met de Algemene Directie Energie en in overleg met de commissie gekozen worden;

2° op een iteratieve manier op basis van een economische optimalisatielus op basis van incrementele stappen ten belope van deze zoals toegepast in de meest recent beschikbare Europese of nationale beoordeling van de toereikendheid van de elektriciteitsvoorziening, bedoeld in de artikelen 23 en 24 van Verordening (EU) 2019/943, en van maximaal 100 MW.

Preselected capacity types

Purpose

Reference scenario defined by the Minister → Calibration of the reference scenario → Determination of the CRM volume & parameters

This scenario does not necessarily meet the legal security of supply criteria, as defined in article 7undecies, 3 of the electricity law.

As long as the security of supply criteria is not reached, capacity will be iteratively added based on an economic optimization loop.

The output from the model ensures to be compliant with the legal security of supply criterion.

Preselected capacity types

Purpose

Reference scenario defined by the Minister → Calibration of the reference scenario → Determination of the CRM volume & parameters

→ Preselected capacity types need to be selected for each CRM auction

Preselected capacity types

Application to Y-4 auction for DY 2026-2027

Category	Associated technology	Volume Calculation	Marginal Price Calculation
Type 1 - Baseload	CCGT, CHP	Add new CCGT	Marginal price of a new CCGT
Type 2 - Peakers 1	OCGT	Add new OCGT	Marginal price of a new OCGT
Type 3 - Peakers 2	IC engines	Add new IC engines	Marginal price of a new IC engines
Type 4 - DSR	DSR	Add weighted average of existing DSR categories	Weighted average of existing DSR categories

Scenario choice post delivery period for market revenues calculation

Royal Decree Context

“Article 10, §6 Les rentes inframarginales annuelles estimées de la référence pour chaque technologie sont exprimées en €/MW/an et sont calculées, avec une périodicité annuelle, sur l’ensemble de la durée de vie de la référence pour chaque technologie, en prenant en compte la valeur du coût marginal de la technologie comme seuil inférieur. Ces rentes inframarginales sont déterminées, pour chaque année sur la durée de vie de l’unité de marché de capacité, sur la base de la médiane (P50) des revenus des années de simulation, sur la base du scénario de référence visé à l’article 3, §7 et tiennent compte du niveau du prix d’exercice applicable visé à l’article 26.

Si le scénario de référence n’est pas disponible pour une année sur la durée de vie de la référence pour chaque technologie, une interpolation est réalisée entre les valeurs des années pour lesquelles le scénario de référence existe, éventuellement corrigé par des données disponibles complémentaires. Ces données sont présentées par le gestionnaire de réseau et les sources de celles-ci sont soumises à une consultation publique visée à l’article 6, §2, 4° et sont choisies par le gestionnaire de réseau en collaboration avec la Direction générale de l’Energie et en concertation avec la commission ;

“Artikel 10, §6 De geraamde jaarlijkse inframarginale inkomsten van de referentie voor elke technologie worden uitgedrukt in €/MW/jaar en worden, op jaarlijkse basis, berekend over de volledige levensduur van de referentie voor elke technologie, rekening houdend met de waarde van de marginale kost van de technologie als ondergrens. Deze inframarginale inkomsten worden voor elk jaar over de levensduur van de eenheid in de capaciteitsmarkt bepaald op basis van de mediaan (P50) inkomsten van de simulatiejaren op basis van het referentiescenario bedoeld in artikel 3 §7 en houden rekening met het niveau van de toepasselijke uitoefenprijs bedoeld in artikel 26.

.Indien het referentiescenario niet beschikbaar is voor een jaar uit de levensduur van de referentie voor elke technologie, wordt een interpolatie uitgevoerd tussen de waarden van de jaren waarvoor het referentiescenario bestaat, eventueel bijgestuurd door bijkomende beschikbare gegevens. Deze gegevens worden voorgesteld door de netbeheerder en de bronnen ervan worden ter openbare raadpleging bedoeld in artikel 6, §2, 4° voorgelegd en worden door de netbeheerder in samenwerking met de Algemene Directie Energie en in overleg met de commissie gekozen.

Scenario choice post delivery period for market revenues calculation

Purpose

Determination of market revenues

Calculation of market revenues on the technology lifetime

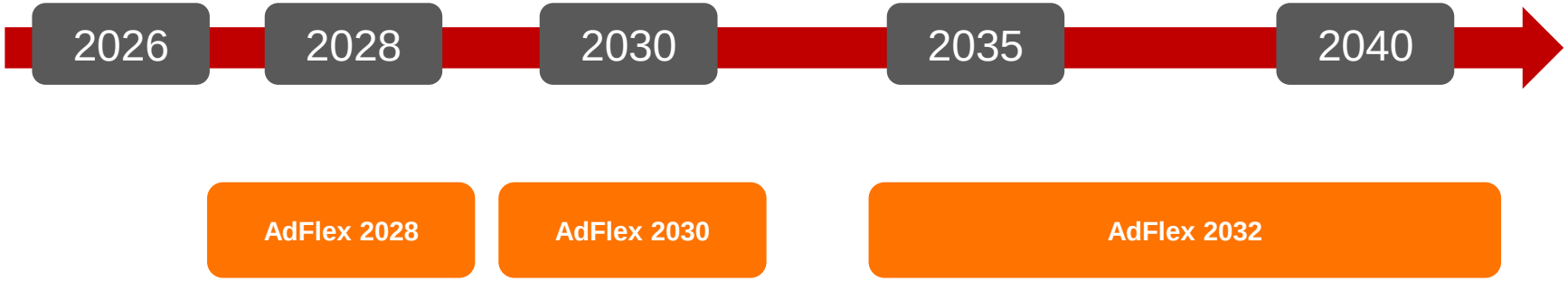
→ Only the delivery period scenario is not enough

The purpose of the scenario choice post-delivery period is :

- To use available scenario from public sources for the delivery period after the 2026-2027 delivery period
- If such a scenario is not available for one delivery period, to interpolate the market revenues between the pivotal delivery period from the 1st bullet.

Scenario choice post delivery period for market revenues calculation

Application to Y-4 auction for DY 2026-2027



Shortlist of existing technologies for the determination of the Intermediate Price Cap : same shortlist than for in the calibration report related to DP 2025-26

Royal Decree Context

“Article 18, § 1

Le gestionnaire du réseau détermine, sur la base de l’étude visée à l’article 17, après la consultation publique visée à l’article 6, une liste réduite de technologies existantes ou raisonnablement attendues qui seront considérées pour la détermination du prix maximal intermédiaire.”

“Artikel 18, § 1

De netbeheerder stelt op basis van de studie bedoeld in artikel 17, na de openbare raadpleging bedoeld in artikel 6, een beperkte lijst op van bestaande of redelijkerwijs te verwachten technologieën die in aanmerking genomen zullen worden voor de bepaling van de intermediaire maximumprijs.”

Although not required by the Royal Decree Methodology, this consultation voluntarily also includes several underlying hypotheses for the further calibration of the Intermediate Price Cap, such as:

- the cost figures underlying the shortlist of technologies based on the expert study as meant in art. 18 §1 (i.e. the Fichtner and Afry studies, cf. later in this presentation)
- the approach to determine the net revenues from frequency-related balancing services

Shortlist of existing technologies for the determination of the Intermediate Price Cap

and other relevant underlying hypotheses : same framework applied as for the Calibration report linked to DP 2025-26

Purpose

Calibration of the Intermediate Price Cap

Highest

Missing-money = Yearly Costs - Yearly Revenues

*among technologies included in **shortlist***

Proposed by Elia, based on expert study that was performed in concertation with CREG with regard to the determination of costs for the technologies relevant for the determination of the intermediate price cap

Yearly Costs:
- Fixed O&M, incl. provision for non-yearly maintenance costs
- Activation cost for availability test

Cost figures associated to the technologies included in the shortlist

Yearly Revenues:
- Inframarginal energy market revenues
- Net revenues from balancing services

Approach to determine net revenues from balancing services for the technologies included in the shortlist (note: no values are consulted upon)

Shortlist of existing technologies for the determination of the Intermediate Price Cap

- Application to Y-4 auction for DP 2026-27: the **shortlist of existing technologies** applied is **the same** than the one considered in the **calibration report** related to DP 2025-26.

Technology (existing units)
CCGT
OCGT
Turbojet
Pump-storage hydro (4h)
demand-side response (4h)

- **Net revenues from balancing services** : as detailed in the Royal Decree on Methodology, these net revenues are estimated for each technology of the shortlist.
  - They correspond to the historical average reservation costs by the TSO of balancing services for the last 36 months ;
  - They take into account costs, including opportunity costs linked to the participation to these services in order to avoid double counting of revenues arising from energy markets & from these services.
  - This methodology to determine net revenues is thus applied to FCR, aFRR & mFRR

Expert study on costs for various technologies : Fichtner study followed by a peer review by Afry applied in the same way than for the calibration report

- The Fichtner study on the costs underlying various technologies was realized in 2019-20 and published by Elia in April 2020.
- After the public consultation held by Elia in May 2020, a peer review was undertaken to ensure robustness of results in view of the feedback received
- The relevant cost figures determined in these studies have been used in the calibration of the IPC for the Delivery Period 2025-26 and are at the basis of Elia's proposal for the shortlist of technologies.
- According to Elia, the results of these studies remain **relevant** and **can be applied to the calibration process related to the Delivery Period 2026-27.**
    - Note that the Royal Decree Methodology states that it must be updated at least every three years or in case of significant market evolutions. In Elia's view none of these criteria are currently fulfilled.