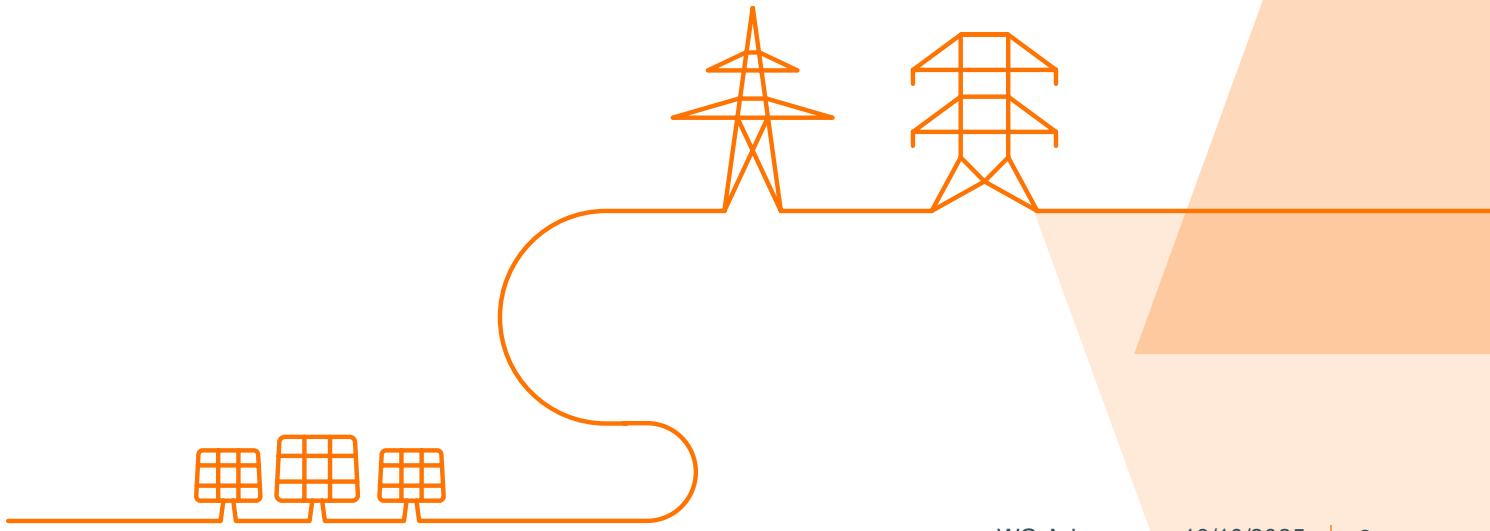
WG Adequacy #42

13/10//2025

Agenda

- Welcome
- Validation Meeting Minutes
- Net balancing study (Compass Lexecon)
- Strike price
- CRM Design update
- Start delivery preparations
- Launch new CRM website
- AOB & Next meetings



Welcome

Validation meeting minutes

Validation Meeting Minutes

Validation Meeting minutes WG Adequacy 41 (28/08/2025)

- No comments were received

Net balancing study

Net balancing revenues assessment by technology in the Belgian Electricity Market

Presentation to Adequacy working group

Compass Lexecon

13 October 2025

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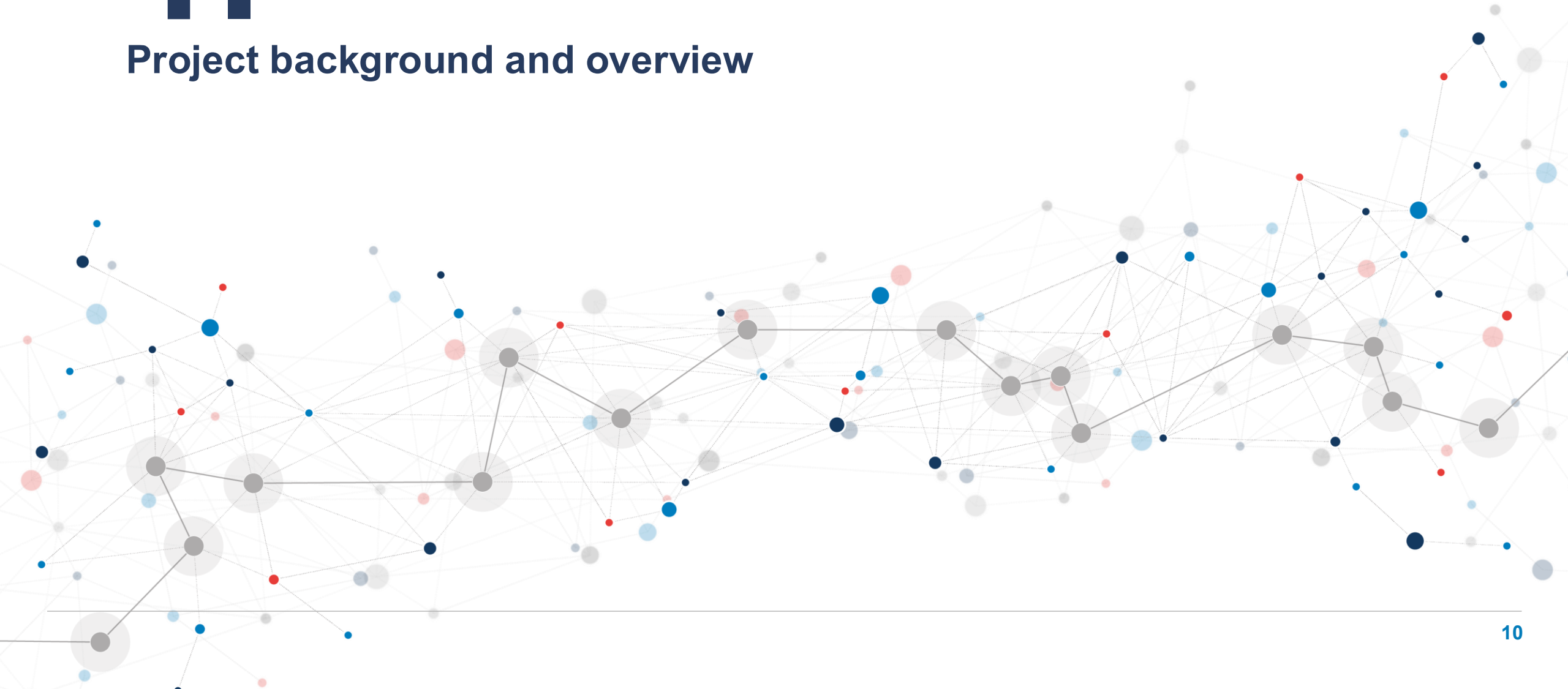
Outline

- Project background and overview
- General methodology and calculation of gross revenues
- Methodology of the calculation of net revenues and results
- Crisis adjustment and other adjustments

1.

Project background and overview



As part of the Capacity Market yearly calibration, Elia needs to define global and intermediate price caps

As part of the yearly calibration of the Belgian CRM, Elia is required to calculate the missing money of different technologies

- **Elia provides input for defining CRM parameters** to be used for yearly calibration cycles, following the Royal Decree Methodology and the Electricity Act
- As part of the yearly cycle, **Elia is required to conduct a "missing money" assessment for different technologies**, feeding into: (i) the CRM demand curve (Art. 10; final proposal made by CREG) (ii) the global auction price cap (Art. 10), (iii) the intermediate price caps (Art. 19 and 22)

The evaluation of the missing money of different technologies requires an assessment of their net balancing revenues

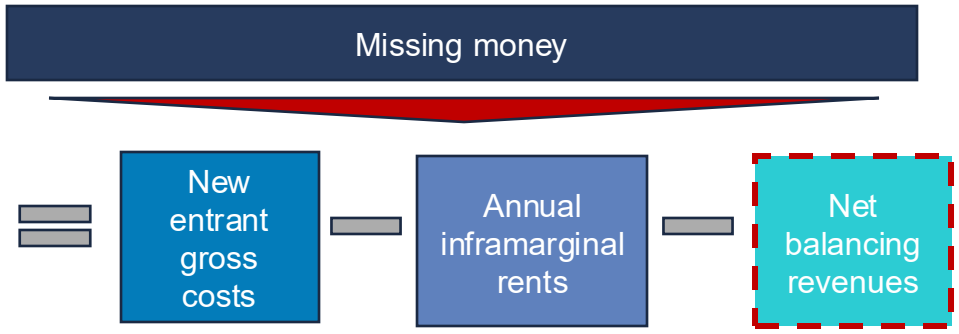
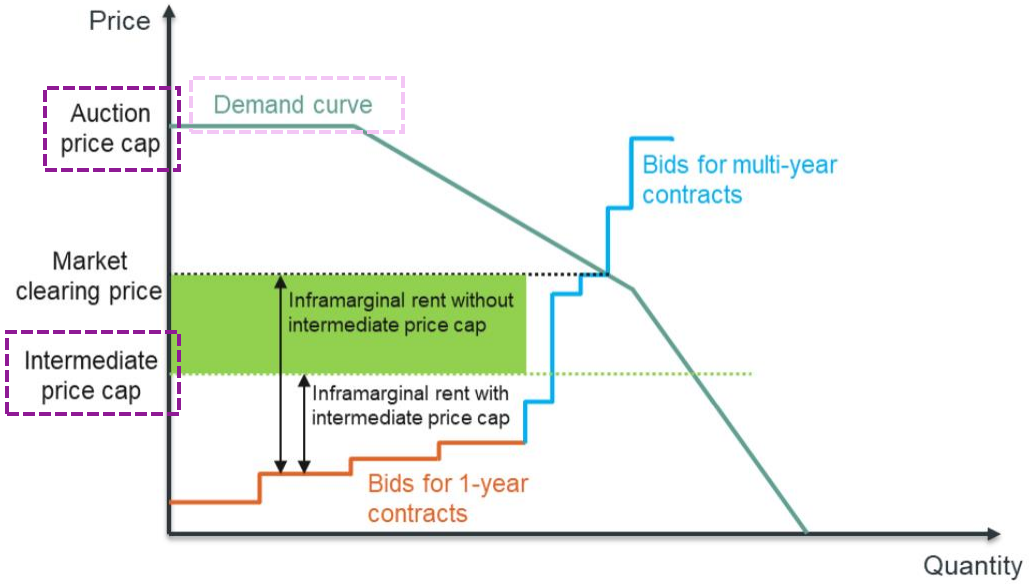


Illustration of the parameters requiring a missing money assessment for the yearly Belgian CRM calibration



Source: Elia (2019)

Elia is required by the Royal Decree Methodology to provide inputs to define the intermediate and global auction price caps, which requires the calculation of net balancing revenues for different technologies

Source: Royal Decree Methodology (2021), Electricity Act (1999)

Note: The demand curve is defined by the Minister based on a proposal made by CREG and on inputs and calculations by ELIA.

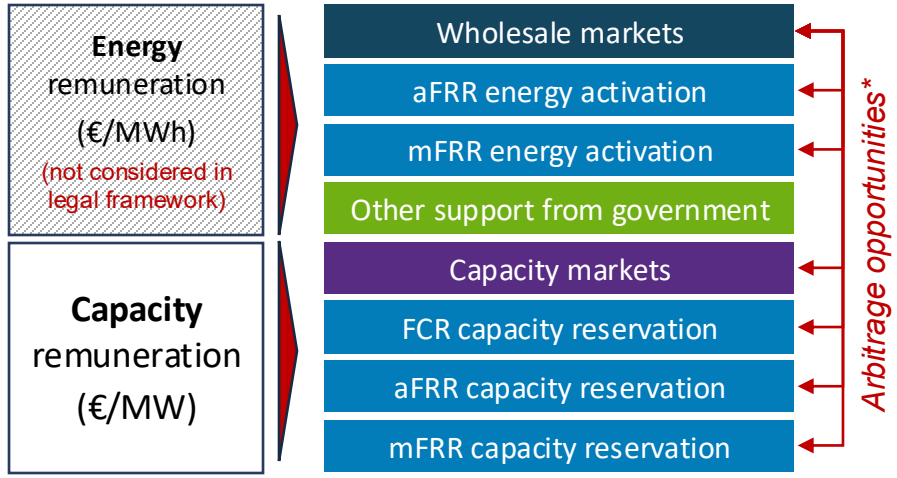
The net balancing revenue calculation follows a general methodology set by Royal Decree, accounting for arbitrage opportunities across markets

- **According to articles 10, 19 and 22 of the Royal Decree Methodology**, the estimated net revenue obtained from the provision of balancing services:

1. **Is evaluated for each relevant technology, defined separately for the purpose of the global auction cap, as well as for intermediate price cap**
2. **Corresponds to the average historical costs of reservation by the system operator for services intended for balancing regulation, for the last 36 months**
3. **Takes into account the costs, including opportunity costs, related to participation in balancing markets, in order to avoid double counting between inframarginal rents and market revenues from ancillary balancing services.**

- Indeed, **there is an arbitrage between balancing market participation and wholesale markets**, and this effect should be untangled to calculate net balancing revenues

Market participants have to arbitrage across multiple markets to maximise their revenues



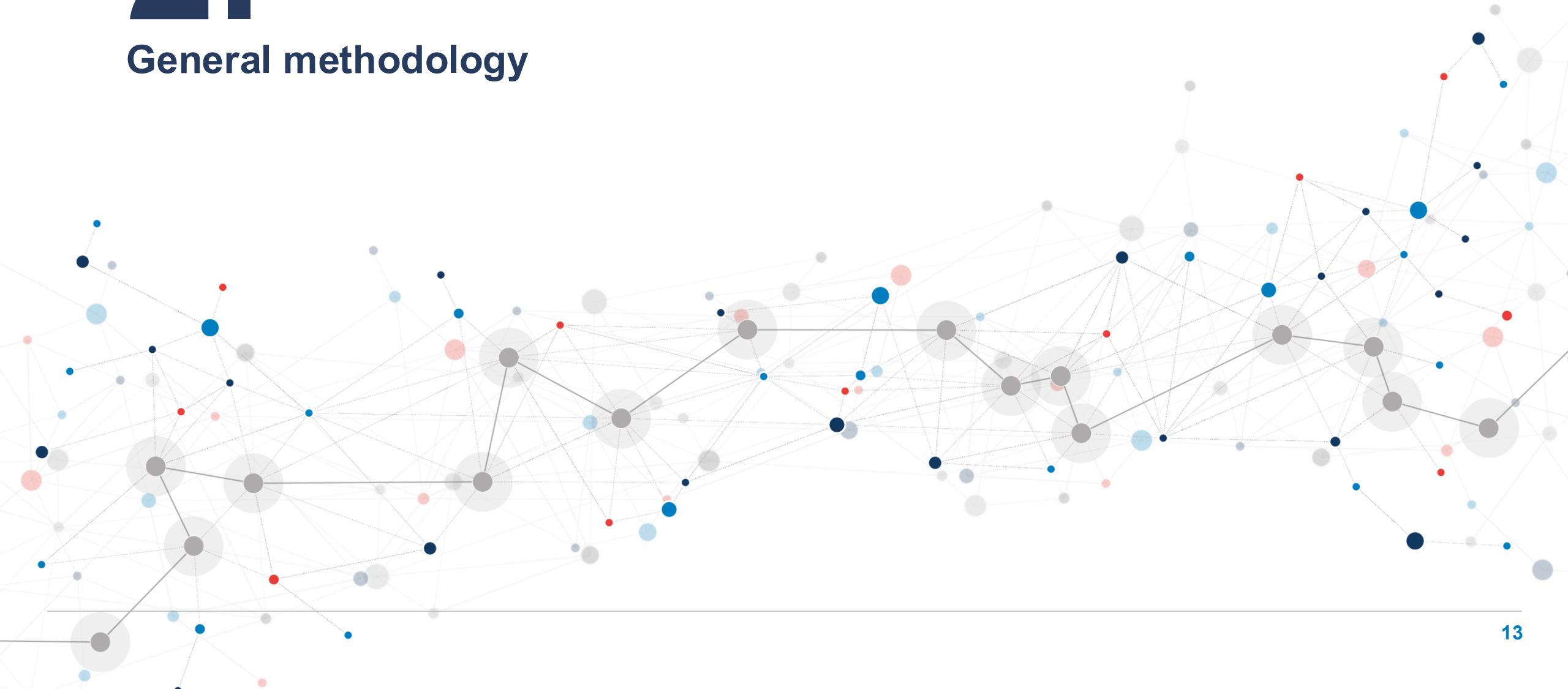
Strictly speaking, the Royal Decree Methodology only considers reservation. However, the present assessment targets a broader framework by looking at both reservation & activation revenues.

Source: Royal Decree Methodology (2021)

*Due to the reliability option mechanism, there is an arbitrage between the CM and wholesale markets.

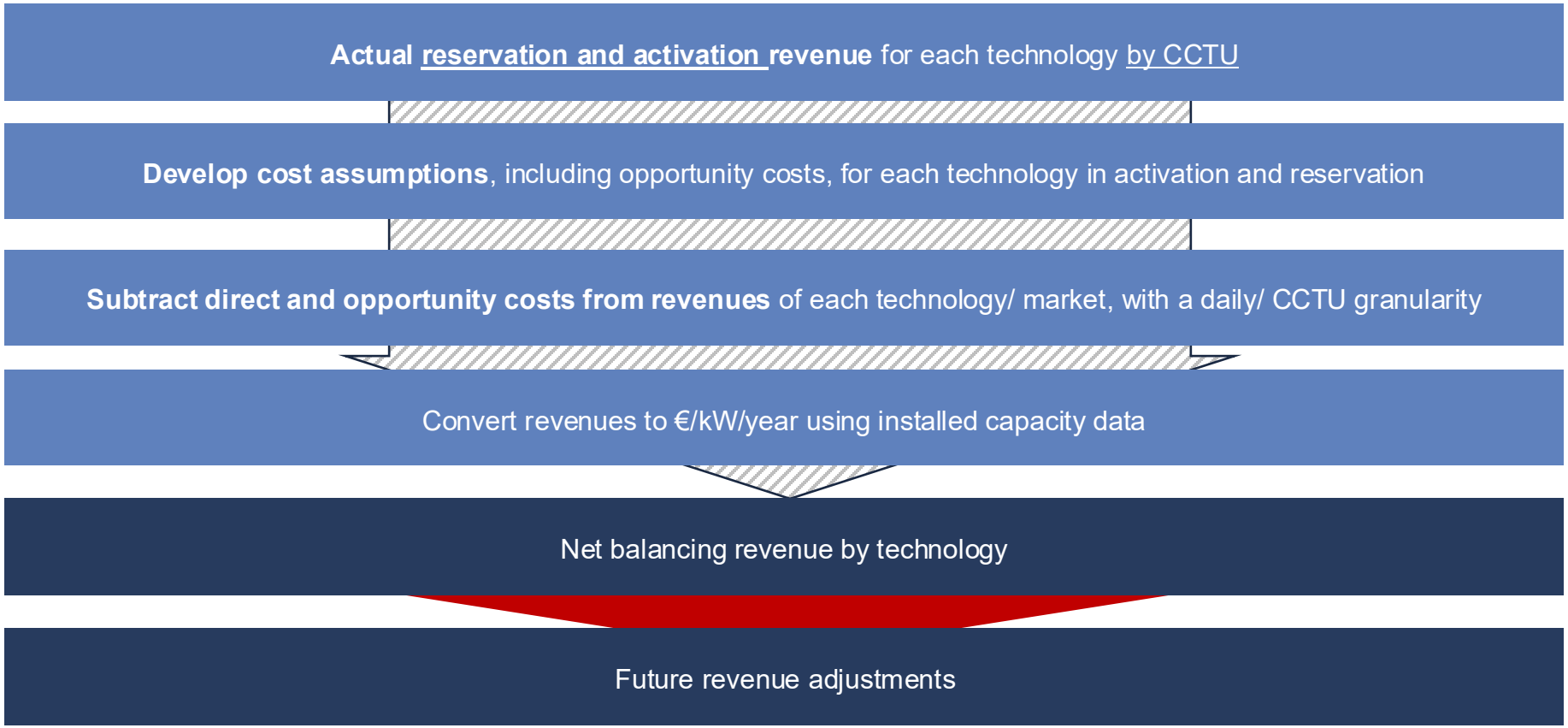
2.

General methodology



Our approach to calculating net balancing revenues

Compass Lexecon's proposed net balancing revenue methodology



Evolutions compared to last year's study

While the analysis performed in this study remains largely in line with that conducted last year, several data and methodological improvements have been implemented, notably significant upgrades to the storage opportunity costs evaluation.

Data / Calculation updates

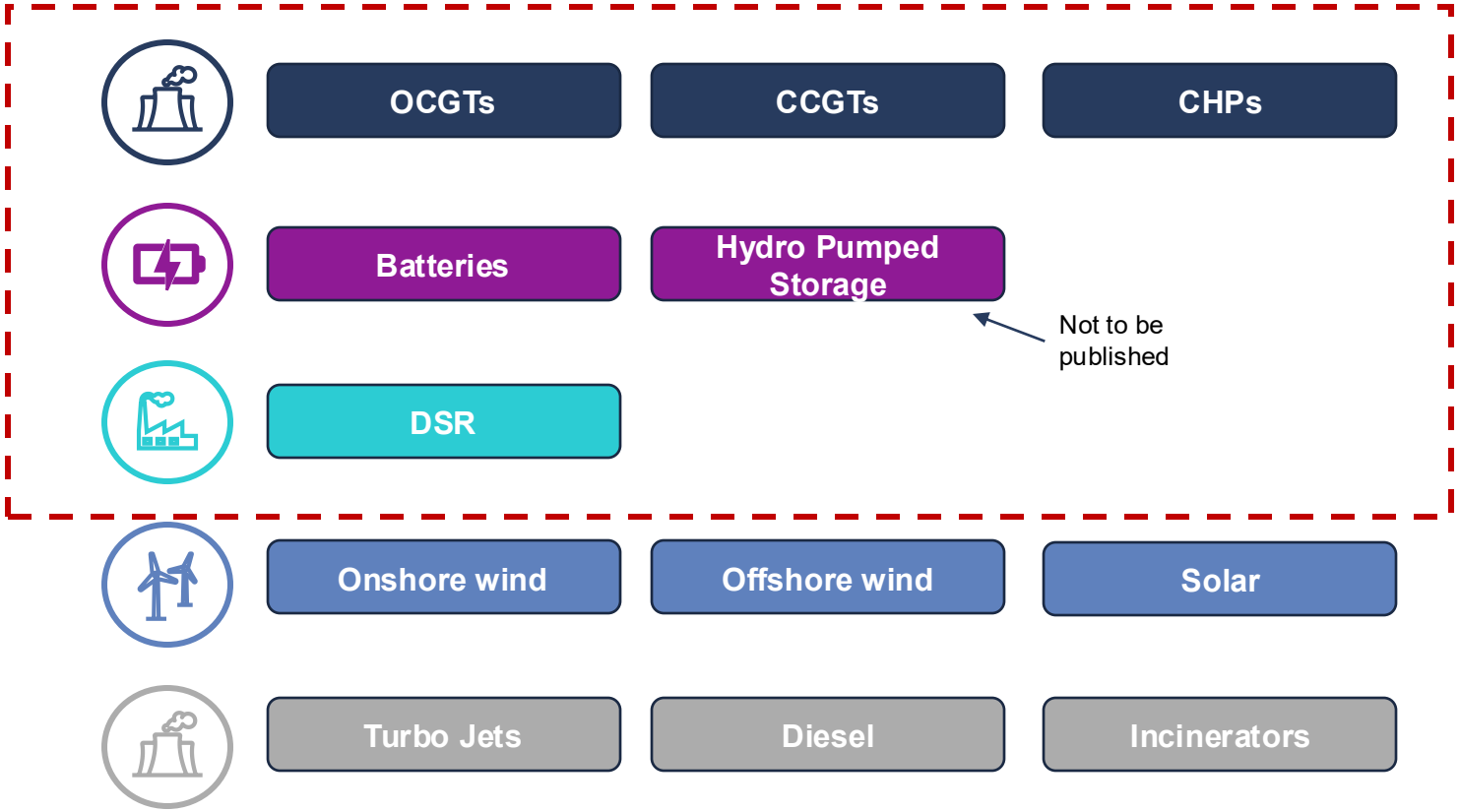
- AdeqFlex 23 was updated for **AdeqFlex 25** :
  - **VO&M values** updated for CCGT (c. **-2 €/MWh**) and OCGT (c. **-10 €/MWh**)
  - **Updated unit storage capacity** (4.7 MWh) and **efficiency** (75 %) **for Pumped Hydro Storage**
- Updated **CCGT and OCGT installed capacity** received from Elia, CCGT capacity converted to OCGT
- **Correction of oil price conversion factor** for **Turbo Jet** calculations. Mmbtu to GWh was done correctly in previous years.

Methodology updates

- **Battery and PHS optimization algorithm updates**:
  - Included an **optimization on intraday prices** after Day-Ahead optimization
  - **Increased maximum number of cycles** per optimization window to 2 cycles.
  - **Optimized under reservation constraint** to better allocate opportunity costs
  - **Set a minimum revenue threshold**, under which opportunity costs for a cycle are not considered given long-term degradation (battery only)
- Considering **DSR / batteries with shares of DPPG volumes and revenues**, based on a granular assessment of DPPG bids and prequalified capacities by Elia:
  - mFRR: DSR corresponds to 75% of DPPG volumes and revenues
  - aFRR-Up: DSR corresponds to 14% of DPPG volumes and revenues, and batteries to 15%
  - aFRR-Down: Batteries corresponds to 15% of DPPG volumes and revenues
- **DPPG is no longer considered**. Previous methodology used DSR installed capacity and data cannot not be precisely attributed to the mix of technologies under DPPG.

Scope of investigated technologies

For this study, we focus on the net revenues of gas units, storage assets and demand side response



Key technologies in focus for this study

Compared to last year, we have narrowed down the DPPG category to better delineate DSR, thanks to Elia's work on the data provided to us

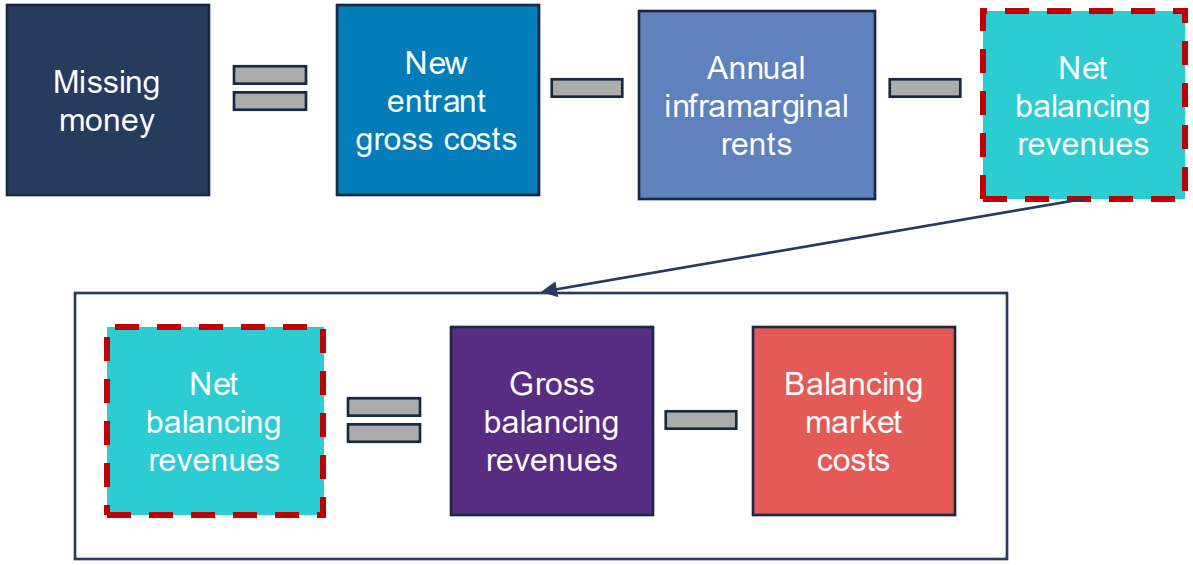
Technologies deprioritised for this study, due to lower relevance for the CRM and/or negligible balancing revenues

PRE-READ

Gross balancing revenues

The calculation of net balancing revenues first requires the calculation of gross balancing revenues

The evaluation of the missing money of different technologies requires an assessment of their net balancing revenues



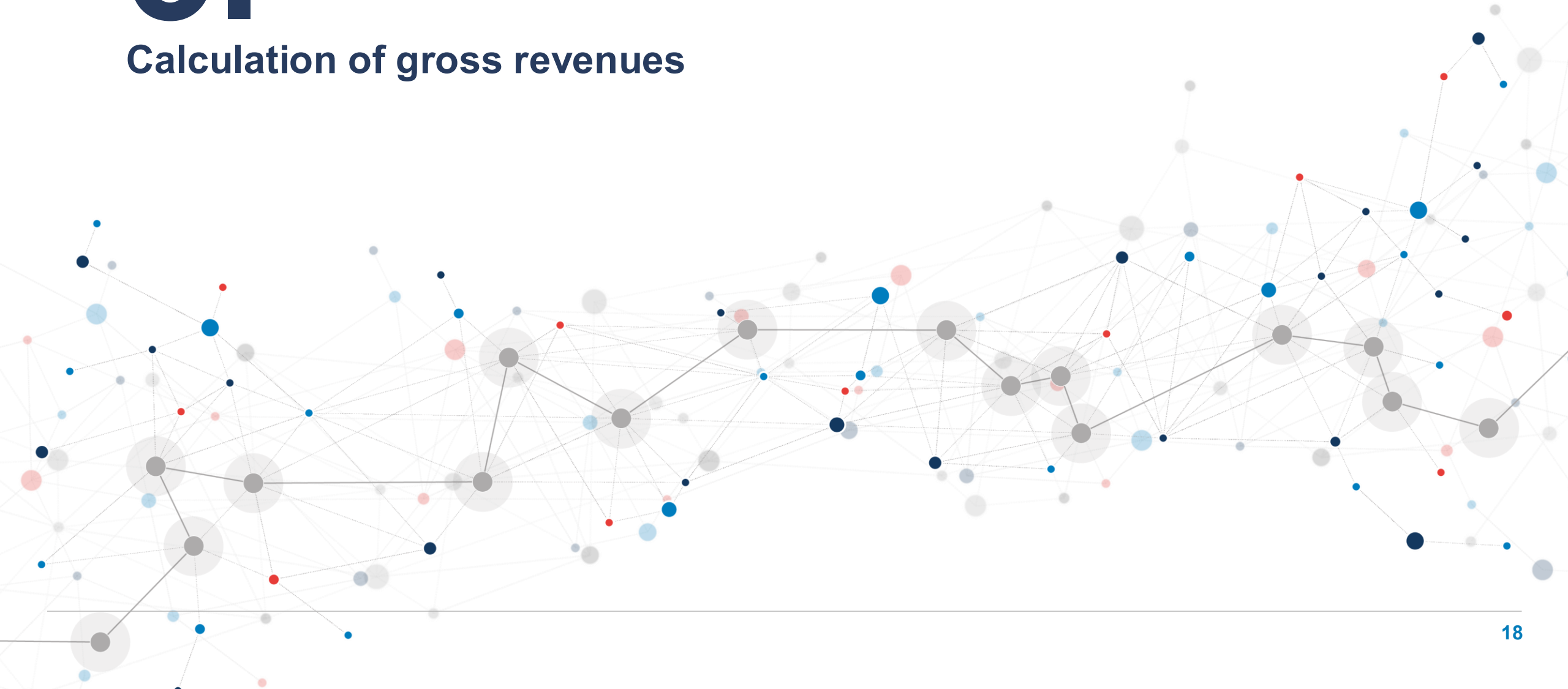
- **Gross balancing revenues** are the total revenues received by the different units for their participation in balancing services markets.
- **Balancing market costs** are the different costs associated with the provision of balancing services. This includes direct costs, as well as opportunity costs of reservation if applicable.
- **Net balancing revenues** are the additional revenues earned by the different technologies for the provision of balancing services compared to the commodity revenues on energy markets (inframarginal rents).

The net balancing revenues are calculated by subtracting balancing market costs to gross balancing revenues.

In this section, we first present results for the calculation of gross balancing revenues, and then, in the following section, we present our methodology and results for the calculation of net balancing revenues.

3.

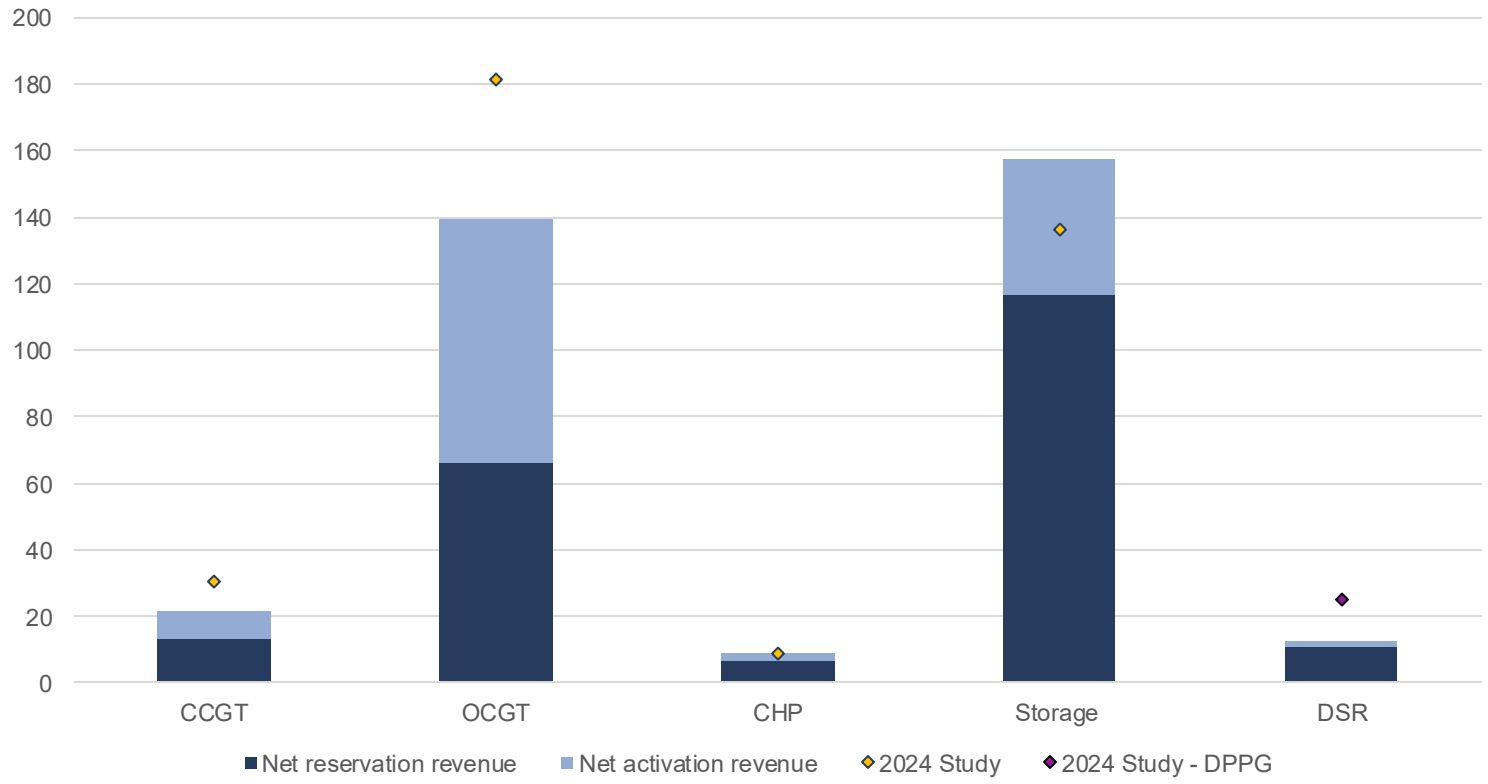
Calculation of gross revenues



Gross revenues adjusted for installed capacity

Batteries now earn the highest revenues per kW, followed by OCGTs which see a decline in capacity-adjusted revenues by about a third.

Yearly gross balancing revenue per kW installed capacity Jun. 2022 – May 2025 [€/kW/year]



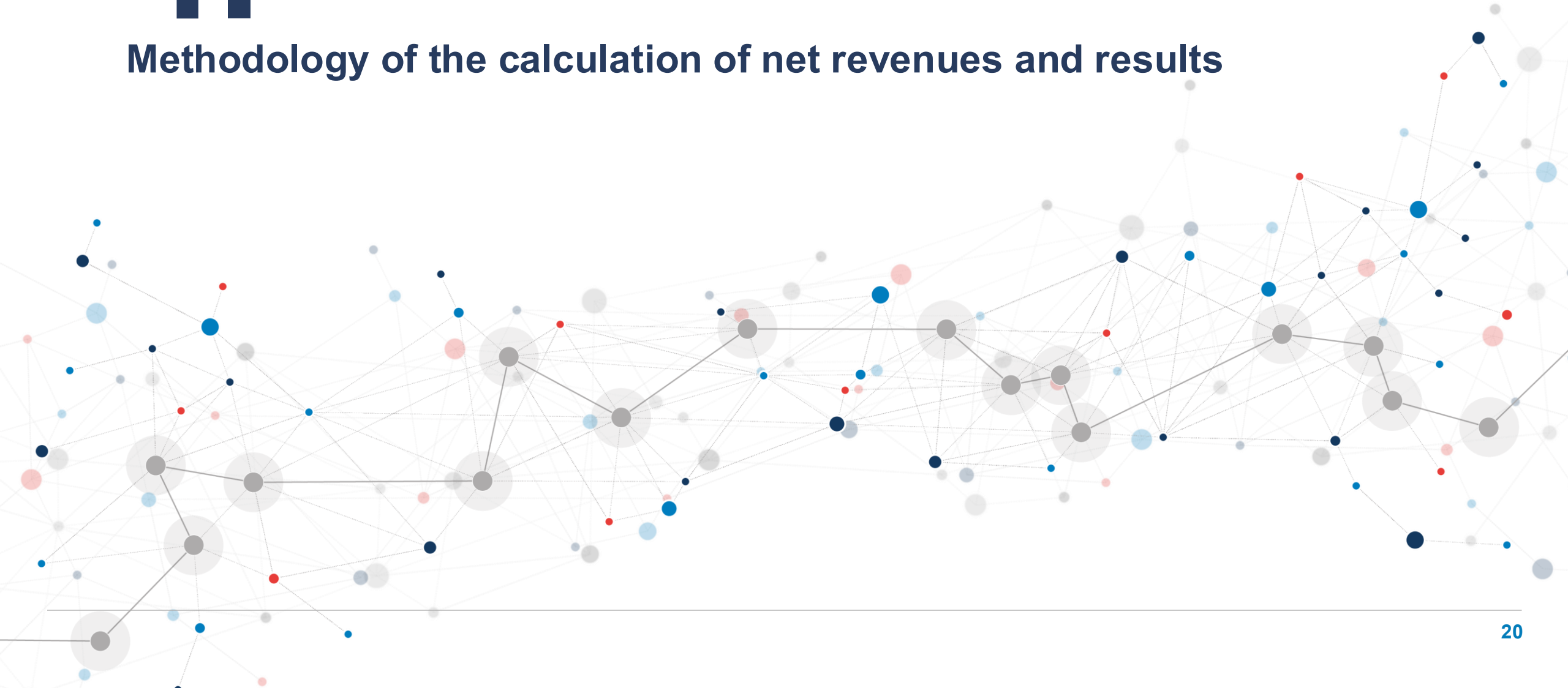
- We compute the **yearly gross balancing revenue per kW of installed capacity** for each technology
  - For more accurate results, we used a monthly interpolation between years to capture capacity evolutions every month.
- When corrected for installed capacity, **Storage** units now earn the highest revenues per kW, spread across FCR and aFRR Up in particular, reaching >150 €/kW/year, in increase compared to last year's, incl. 15% aFRR DPPG revenues allocated to Storage.
- **OCGTs** continues to earn high revenues per kW, driven by aFRR and mFRR upward reservation and activation – at around 140 €/kW/year (down from c. 180 previously). The decrease in revenues is due to Elia's update in plant categorization, as Elia updated some CCGT units to OCGTs.
- As **CCGTs** have a larger installed capacity, their revenues per kW are smaller – reaching c. 21 €/kW/year (lower than last year given lower revenues due to capacity adjustments).
- As Elia split revenues attributable to DSR within DPPG, DSR revenues are lower than last year's.

Source: Compass Lexecon analysis based on Elia data.

Notes: * mFRR split between DSR and the rest of DPPG is based on the decomposition of the revenues done by Elia since 2024. aFRR-Up split is based on prequalified capacities.
** In 2024, DSR revenues was isolated, so revenues from all DPPG was attributed.

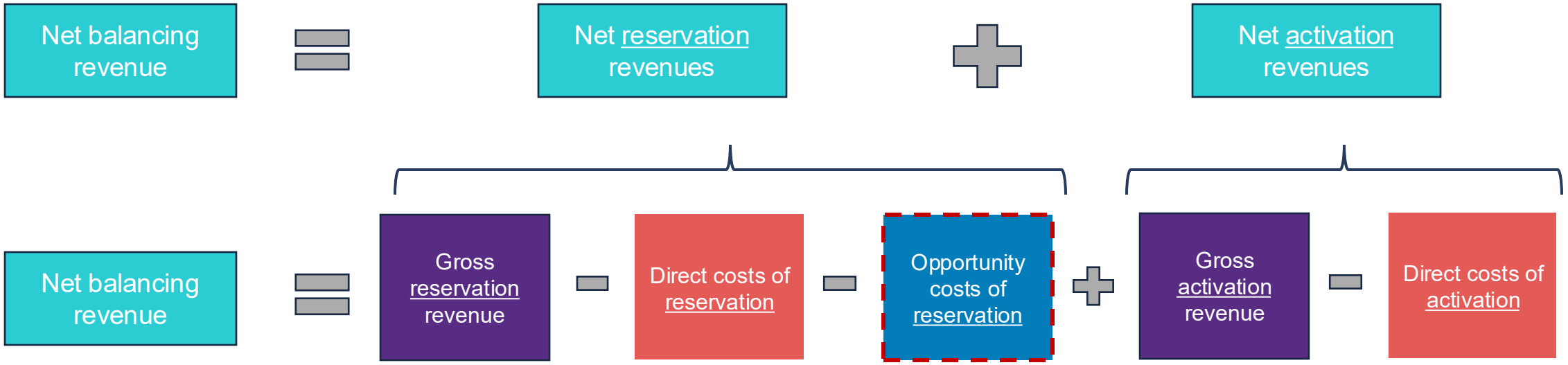
4.

Methodology of the calculation of net revenues and results



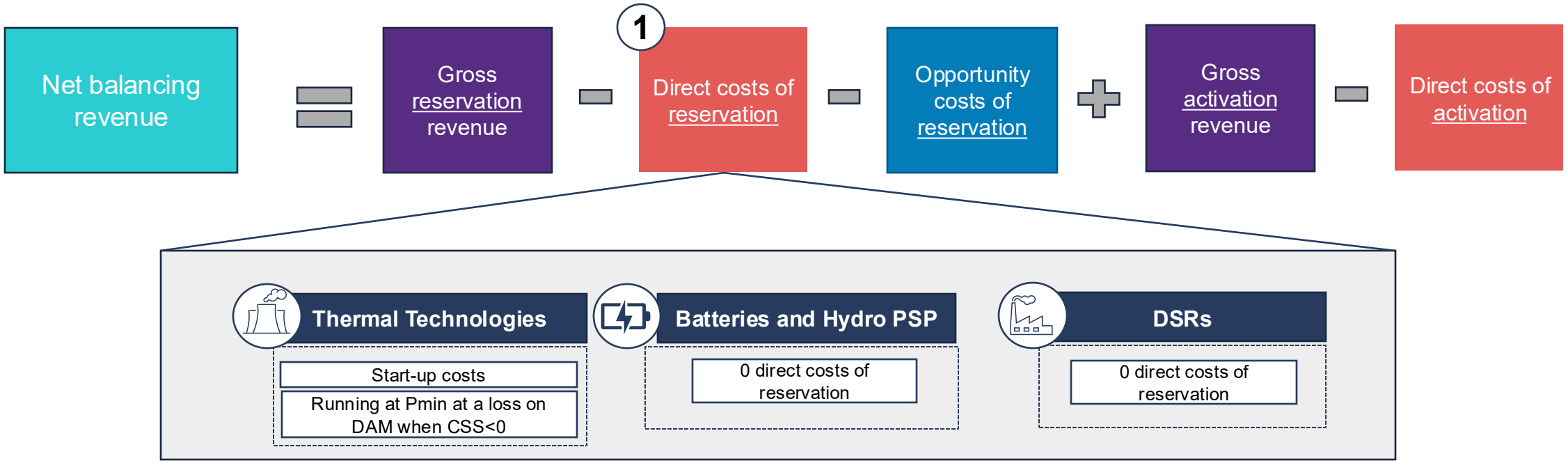
Net balancing revenue calculations

We obtain net balancing revenues by subtracting reservation and activation costs from gross revenues



*We use the Zeebrugge Gas Hub price to calculate the gas SRMC

We obtain net balancing revenues by subtracting reservation and activation costs from gross revenues – direct costs of reservation

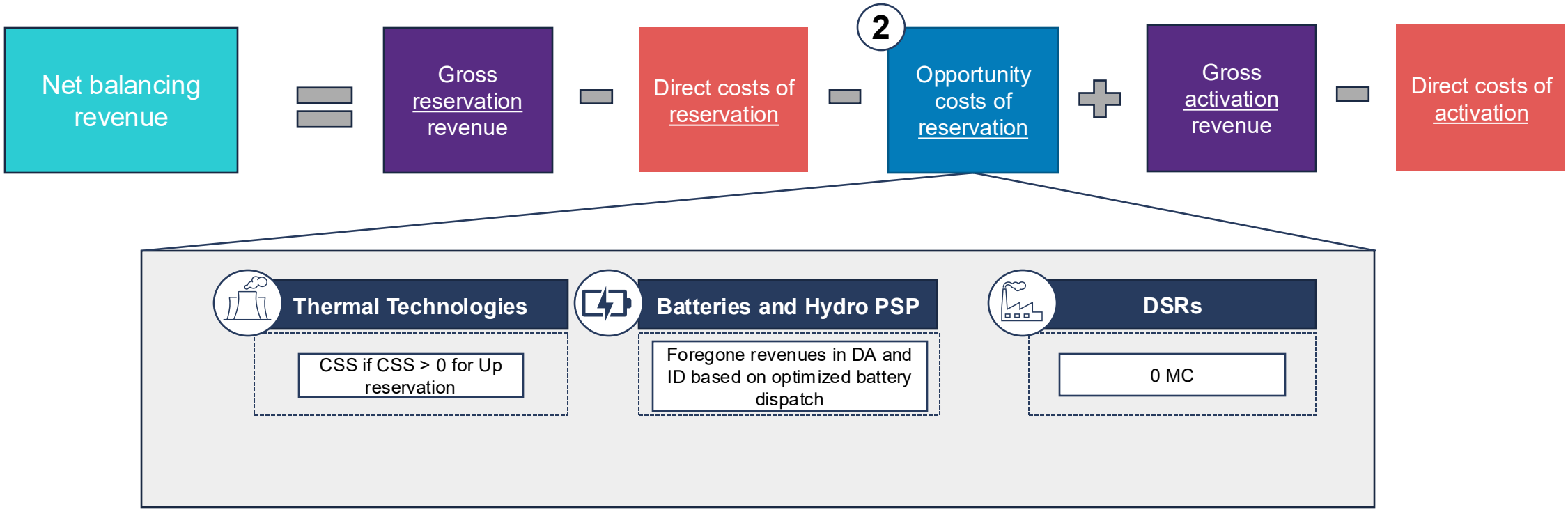


We assume that only thermal technologies have a direct cost for reservation in the case where they have to specifically start and run for the service provision.

For mFRR Up, we assume that only CCGTs have a reservation cost, while OCGTs and CHPs can react more quickly if activated, implying a start-up cost relevant only for activation net revenues.

Abbreviations: DAM … Day Ahead Market; CSS … Clean Spark Spread

We obtain net balancing revenues by subtracting reservation and activation costs from gross revenues – opportunity costs of reservation



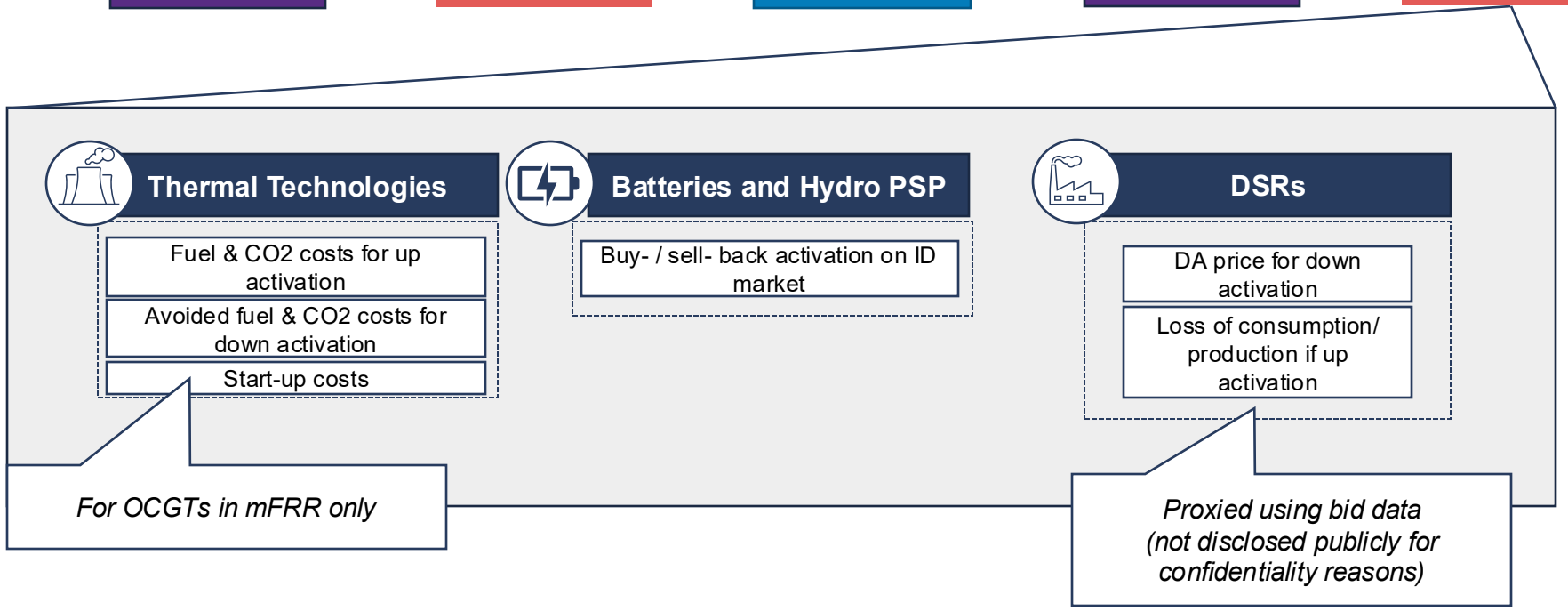
- We assume that **DSR** has no opportunity cost of reservation. For batteries / hydro PSP, see detailed slides.
- For **thermal units**, we assume that the Clean Spark Spread is the opportunity cost when it is positive for **upward reservation**.
- For **downward reservation**, the opportunity cost is 0 when the CSS is positive, but equivalent to the CSS when CSS is negative. However, since DA losses at negative CSS are already considered in the direct costs, we do not subtract them again as opportunity costs.

Abbreviations: CSS … Clean Spark Spread

PRE-READ

We obtain net balancing revenues by subtracting reservation and activation costs from gross revenues – direct costs of activation

Net balancing revenue = Gross reservation revenue − Direct costs of reservation − Opportunity costs of reservation + Gross activation revenue − Direct costs of activation (3)

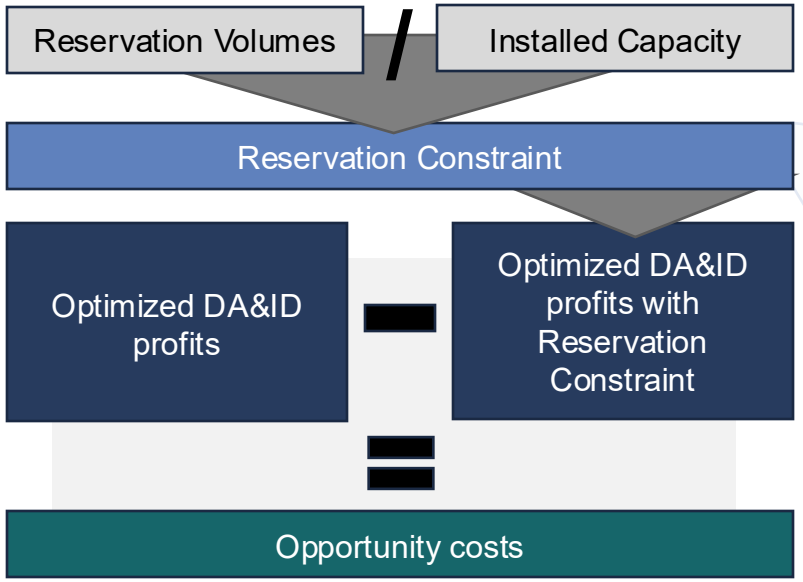


*We use the Zeebrugge Gas Hub price to calculate the gas SRMC

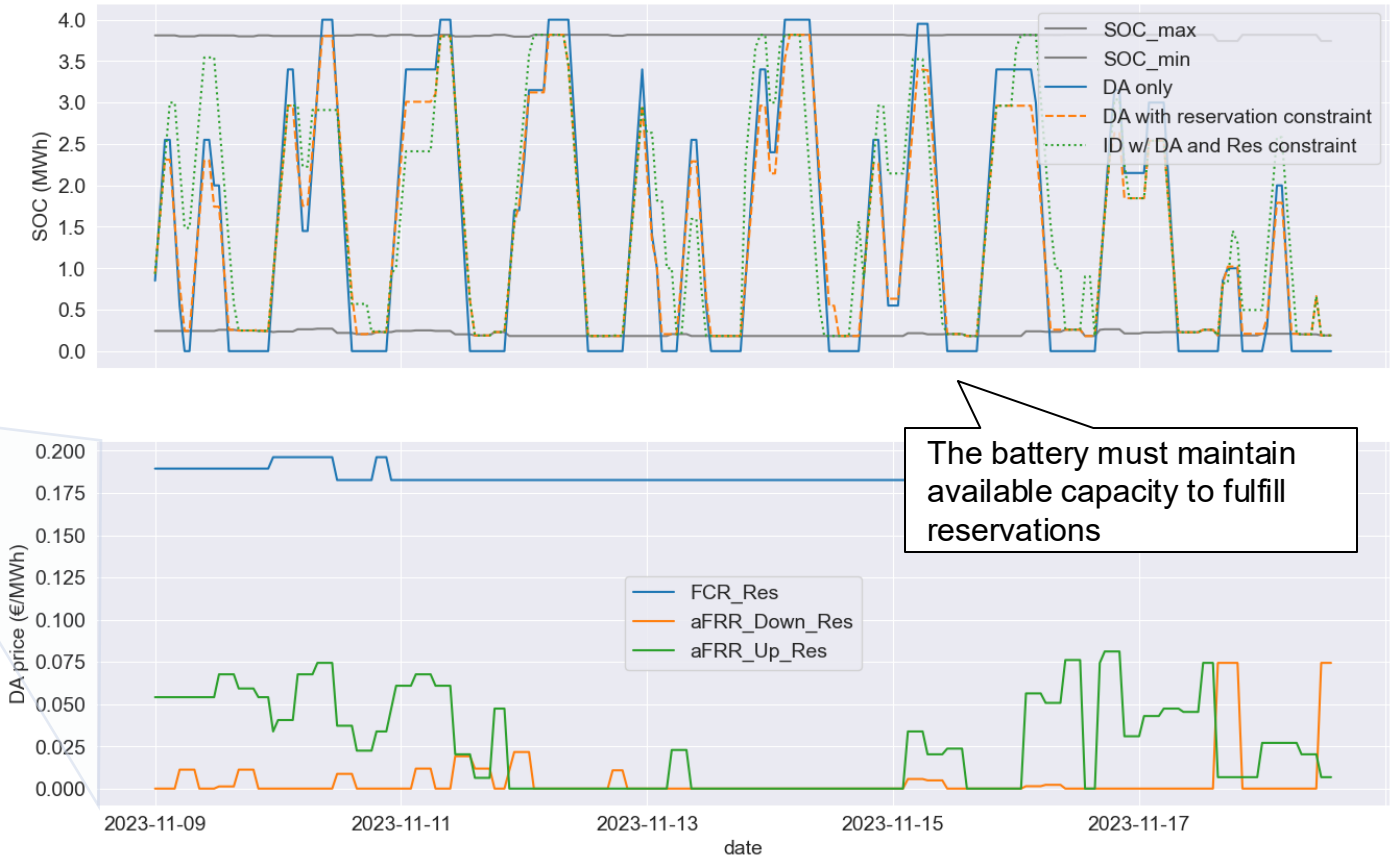
Methodological choices – Battery Reservation Constraint

Using installed capacity and reservation volumes, we compare no-reservation DA&ID revenues to revenues under reservation constraints, to directly allocate opportunity costs

- The battery is assumed to be reserved on FCR and aFRR markets and is optimized on the DA and ID markets, while maintaining available capacity (up or down) to fulfil reservations
- The **profits in this scenario are subtracted from unconstrained optimal behaviour profits** to obtain opportunity costs that are allocated hourly.



Optimized SOC* for a 1MW/4MWh battery under reservation constraints over 10 days

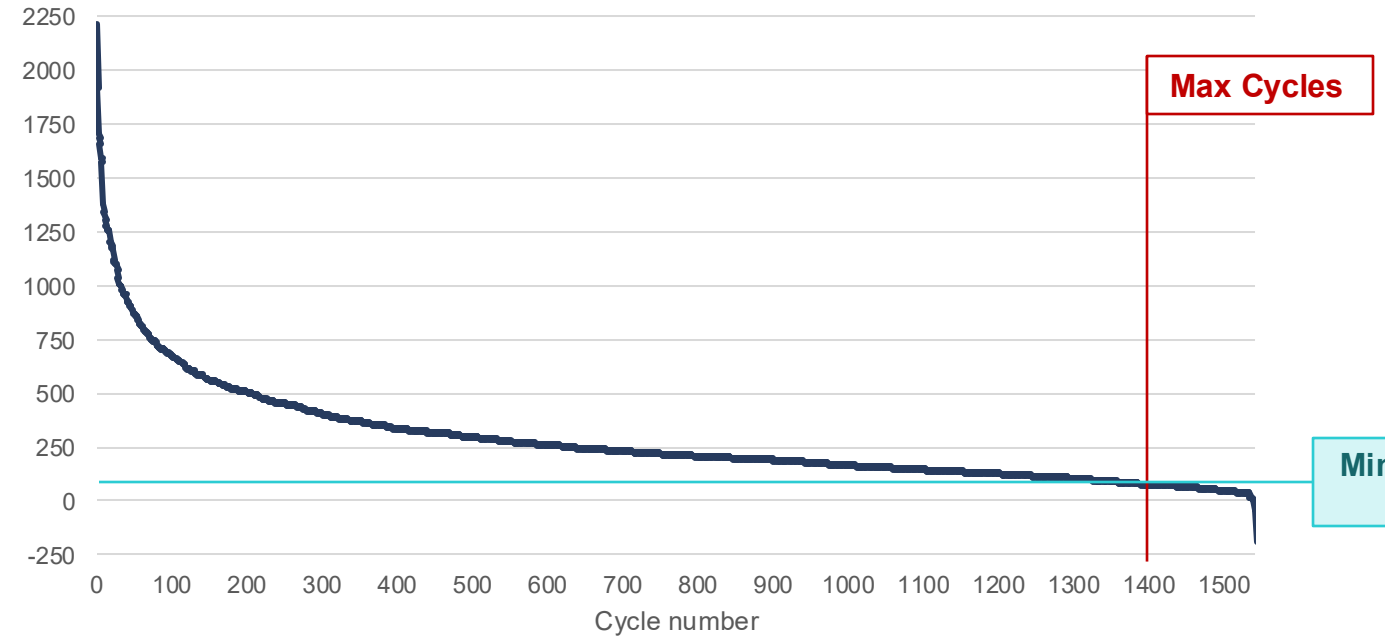


Note : * SOC stands for state of charge, it is the level of charge of the battery at hour t, it is the result of DA/ID buy and sell orders, and charge and discharge efficiencies.

Methodological choices – Battery Minimum Revenue Threshold

We calculate a minimum revenue below which a battery operator would not perform a cycle due to long term maintenance considerations, these cycles are not considered in opportunity cost calculations

Duration curve of profits per cycle of optimized battery, Jun. 2022 – May 2025 [€/cyc]



7000 max lifetime cycles

15-year lifespan

3 years in assessment period

1400 maximum cycles
to be achieved in assessment period

Minimum Revenue Threshold =

81.15
€ / cycle

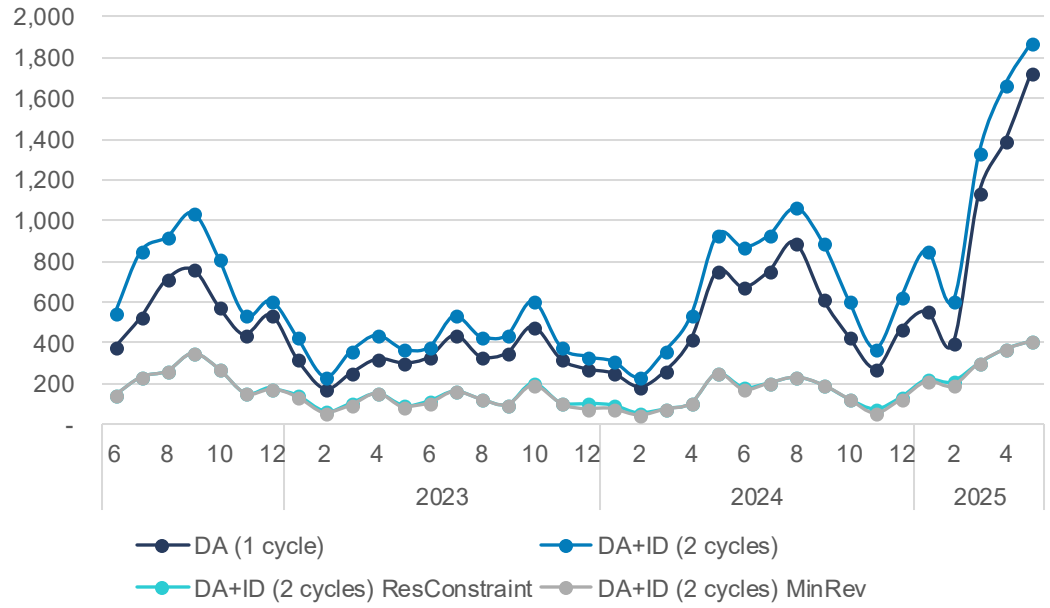
All cycles that obtain profit below the minimum revenue threshold are not considered in opportunity cost calculations, as they would not have been performed due to durability and maintenance considerations. This removes low-profit cycles, and therefore has a minor effect.

Notes: * 2024 values were used, which may overestimate typical PHS specifications.

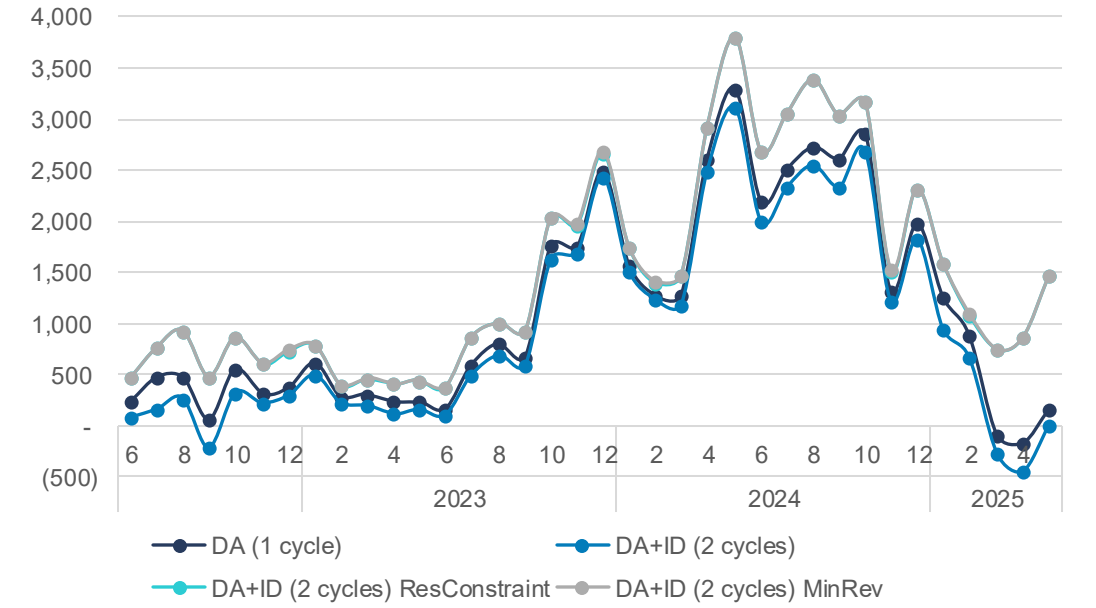
Batteries – Reservation revenue sensitivities

New opportunity costs methodology with constrained optimization leads to lower opportunity costs which increases total net reservation revenues over the assessment period by c. 30%

Total monthly opportunity cost of reservation, Jun 2022 – May 2025 [k€]



Total monthly Net Reservation Revenues, 2022 – May 2025 [k€]

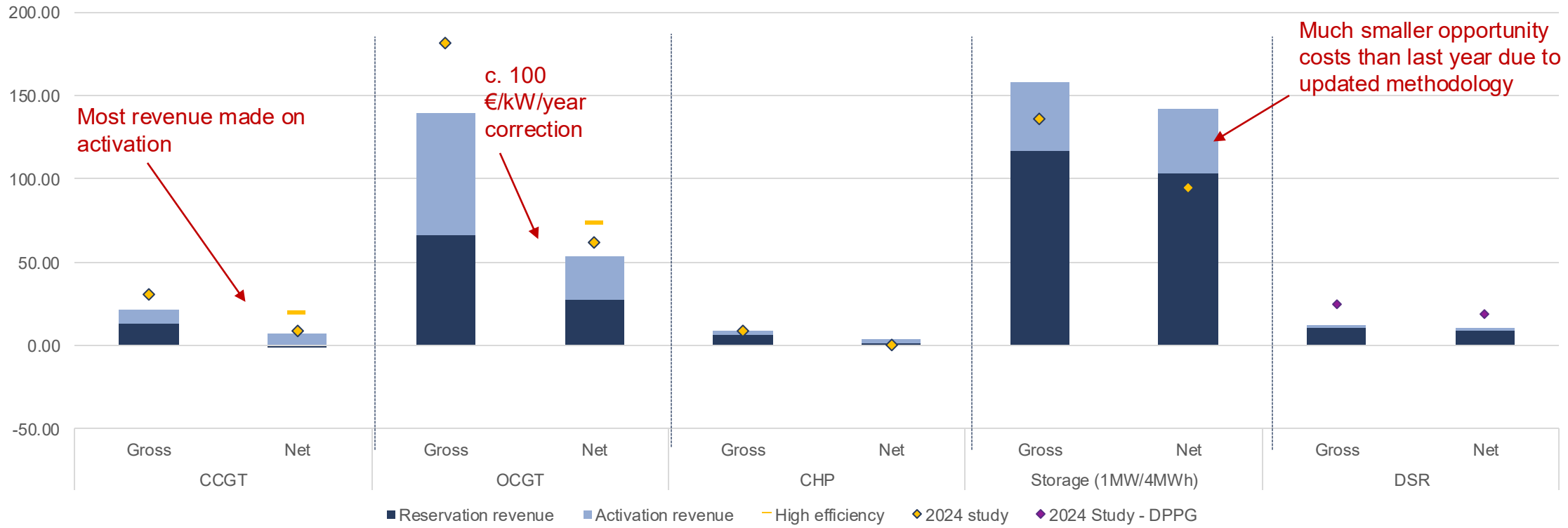


Methodological improvements	**DA (1 cycle)** 2024 methodology	**ID & 2 max daily cycles** Optimize on intraday and allow for 2 cycles per day.	**ResConstraint** Simulate optimization under reservation volumes constraint to calculate opportunity costs	**MinRev** Remove opportunity costs for lowest revenue cycles leading to over-cycling
				Version used
Total Net Revenues over assessment period	**€40.8 million**	**€35.5 million**	**€53.5 million**	**€53.7 million**

Net balancing revenue results by technology

Correcting the revenues by direct costs and opportunity costs significantly reduces CCGT and OCGT revenues. Batteries have much lower opportunity costs.

Average annual gross and net balancing revenues per kW of installed capacity Jun. 2022 – May 2025 [€/kW/year] -

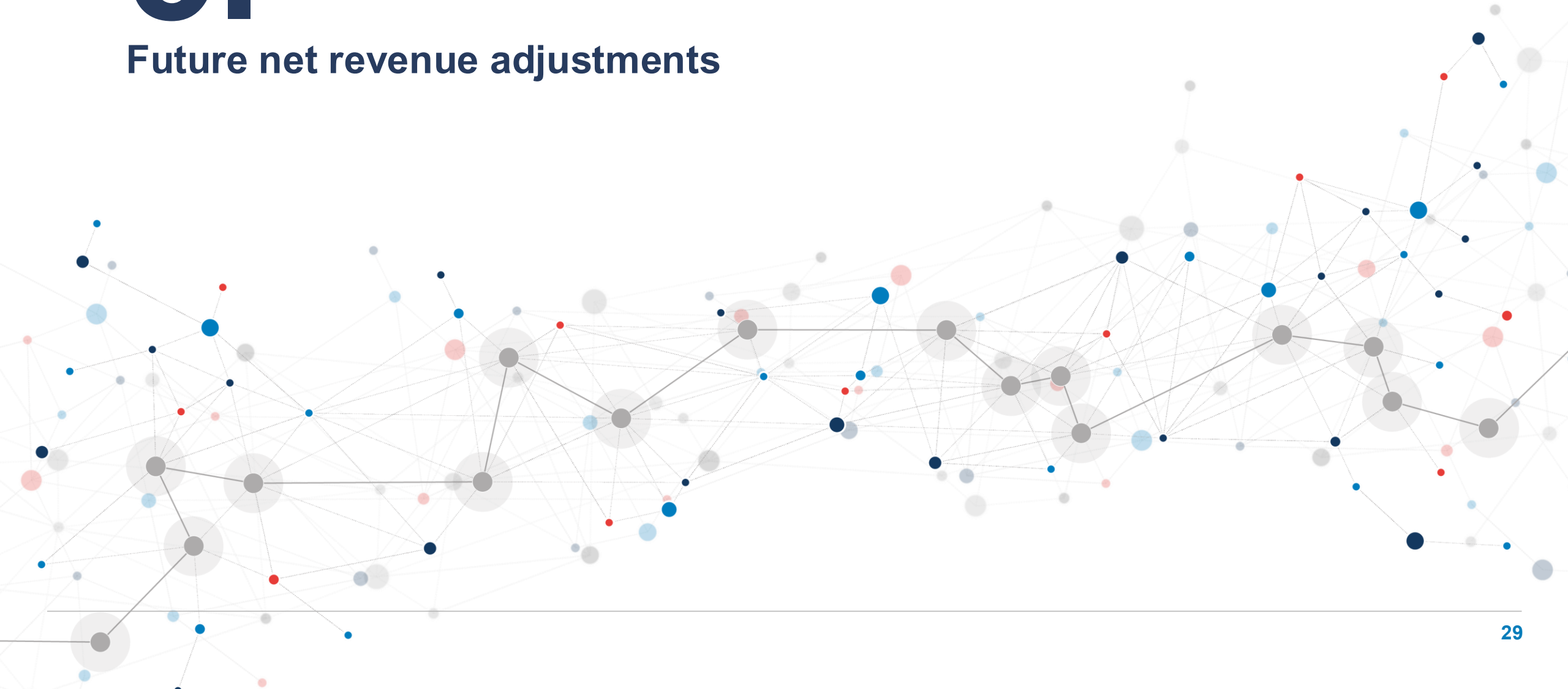


The increase in net revenues for storage is compounded by the change of the methodology to calculate opportunity costs (leading to lower opportunities costs, and therefore higher net revenues)

Note: CCGT and OCGT revenues refer to the average revenue earned by existing assets. In addition, revenues generated by new high efficiency plants are displayed through a marker on the graph.

5.

Future net revenue adjustments



Future net balancing revenue adjustments

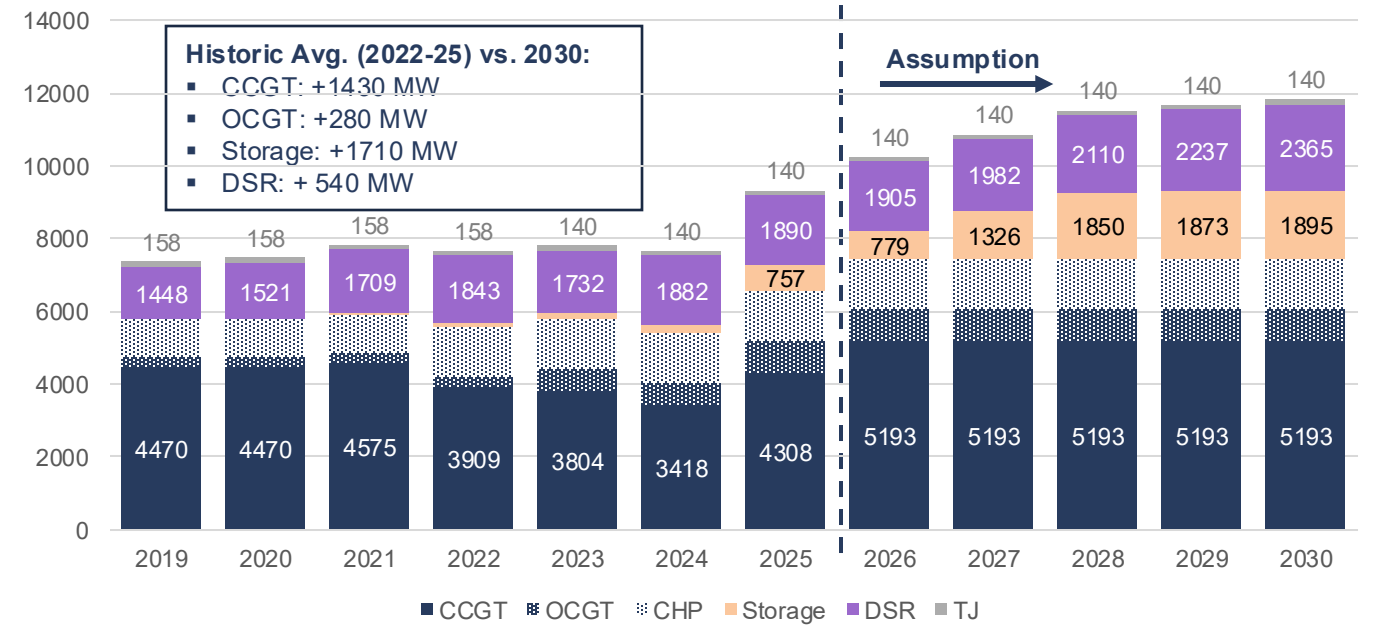
We propose that the future net revenue adjustments follow the same approach as in the 2024 study, based on updated data and assumptions

	2024 study	2025 study
FCR convergence	▪ Several approaches were investigated to define an adjustment factor for FCR price convergence. The chosen approach assumed a **price convergence towards the German average price outside a crisis period** (09/2021 – 03/2023).	▪ For consistency, the **same approach was taken as a baseline**. Based on recent FCR price hikes, we assume full convergence only to happen for the Y-4 auction, with a linear development for the Y-1 auction.
Installed capacity evolution	▪ Future revenues are adjusted by a factor corresponding to the **ratio** of Elia's estimate on **future installed capacities to historic average** installed capacity over the study period.	▪ **Same approach as last year**. Updated capacity evolution assumptions were submitted by Elia, with noteworthy changes particularly with parts of future DSR capacity being allocated to storage
Technology mix evolution	▪ Future revenues are adjusted by a factor corresponding to the **ratio of the future market share in each balancing market** as estimated by Elia **to the historic average** market share over the study period.	▪ **Same approach as last year**. Updated future technology mix assumptions were submitted by Elia. A split of aFRR down and aFRR up market share assumptions leads to a refined view. **For DSR participation in mFRR activation,** we applied to **share growth to DSR activation shares.**
Crisis period adjustment	▪ Several approaches were investigated to define a crisis period and adjustment factor in each market. The chosen method defined a **common 12-month contiguous crisis period for all aFRR and mFRR products respectively**, based on the period of highest net revenues.	▪ For consistency, the **same approach/period was taken as a baseline**. However, the previous methodology now over-corrects mFRR up reservation revenues, we have therefore aggregated markets into aFRR, and mFRR to compute correction factors for the compared periods.

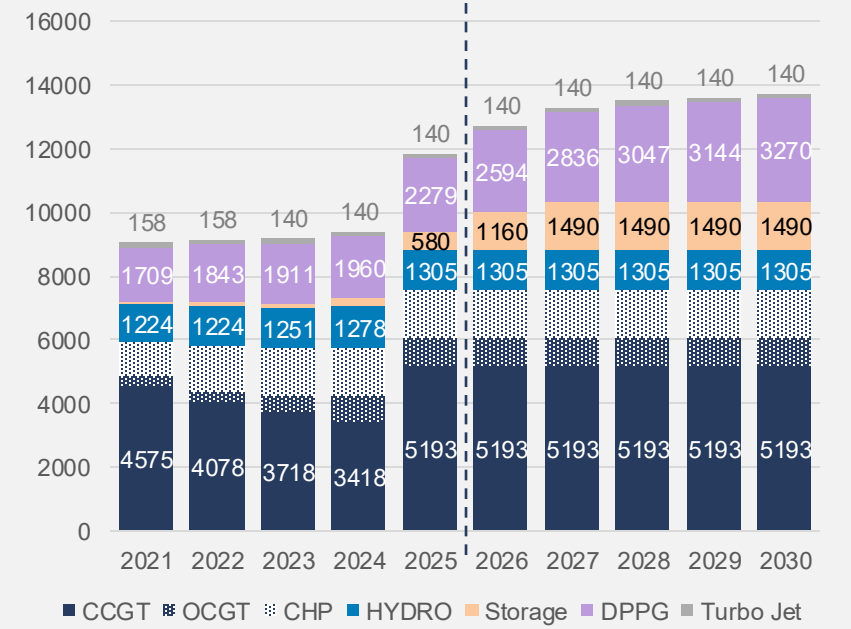
Future installed capacity evolution

CCGT, OCGT, Storage and DSR installed capacities are all set to increase in the years to come

Installed capacity development for key technologies of interest (MW)



For comparison: 2024 study assumptions (MW)



- **Capacities of CCGTs, OCGTs, Storage and DSR are all set to rise**, calling for a downward correction of future net revenues per kW. However, compared to the 2024 study, Elia expects a more limited growth of installed capacity, likely due to more efficient identification of DSR installed capacity and large amounts of unidentified DPPG capacity.
- Compared to the 2024 study, a particularly noteworthy change concerns the **allocation of DPPG capacity to storage rather than to DSR**, which limits the growth of the DSR capacity.
- Otherwise, as noted last year, several CCGTs have converted to OCGT in recent years: taking these shifts into account, an almost tripling in OCGT capacities is observed since 2021, calling for a **downward correction of future capacity-adjusted net revenues** compared to the historical average

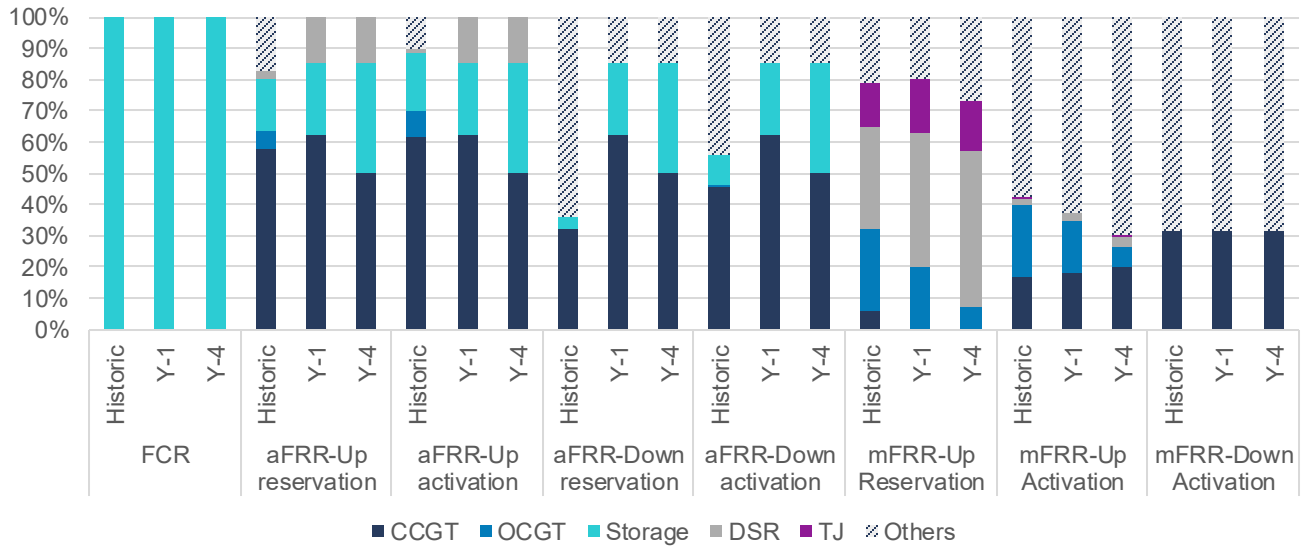
Source: CL analysis based on installed capacity data provided by Elia

The mix of technologies providing balancing services will shift, with DSR and Storage taking over a substantial share of volumes

- Substantial storage and DSR capacity expansions will mean that a larger fraction of balancing volumes in the future will be provided by these technologies
- This will particularly come at the expense of CCGTs in aFRR markets and OCGTs in mFRR markets, currently providing a large share of these volumes
- In mFRR activation, future market share assumptions lead to large capacity shifts which do not reflect historic shares.

We use the ratio between the historic market share of a technology and its expected share in 2027-28 and 2030-31 (estimated by Elia) to calculate adjustment factors that we apply to historic revenues. Although the merit order effect is likely to reduce revenues, it could not be taken into account.

Historic (22-25) and expected 27-28 (Y-1) and 30-31 (Y-4) technology mix by market [%]



2030-31 technology mix adjustment coefficients

	FCR	aFRR-Up reservation	aFRR-Up activation	aFRR-Down reservation	aFRR-Down activation	mFRR-Up Reservation	mFRR-Up Activation	mFRR-Down Activation
CCGT	0.00	0.87	0.81	1.00	1.00	0.00	0.00	0.00
OCGT	0.00	0.00	0.00	0.00	0.00	0.27	0.23	0.23
Storage	1.00	2.09	1.84	9.00	3.66	0.00	0.00	0.00
DSR	0.00	6.57	12.61	0.00	0.00	1.54	1.35*	1.35*

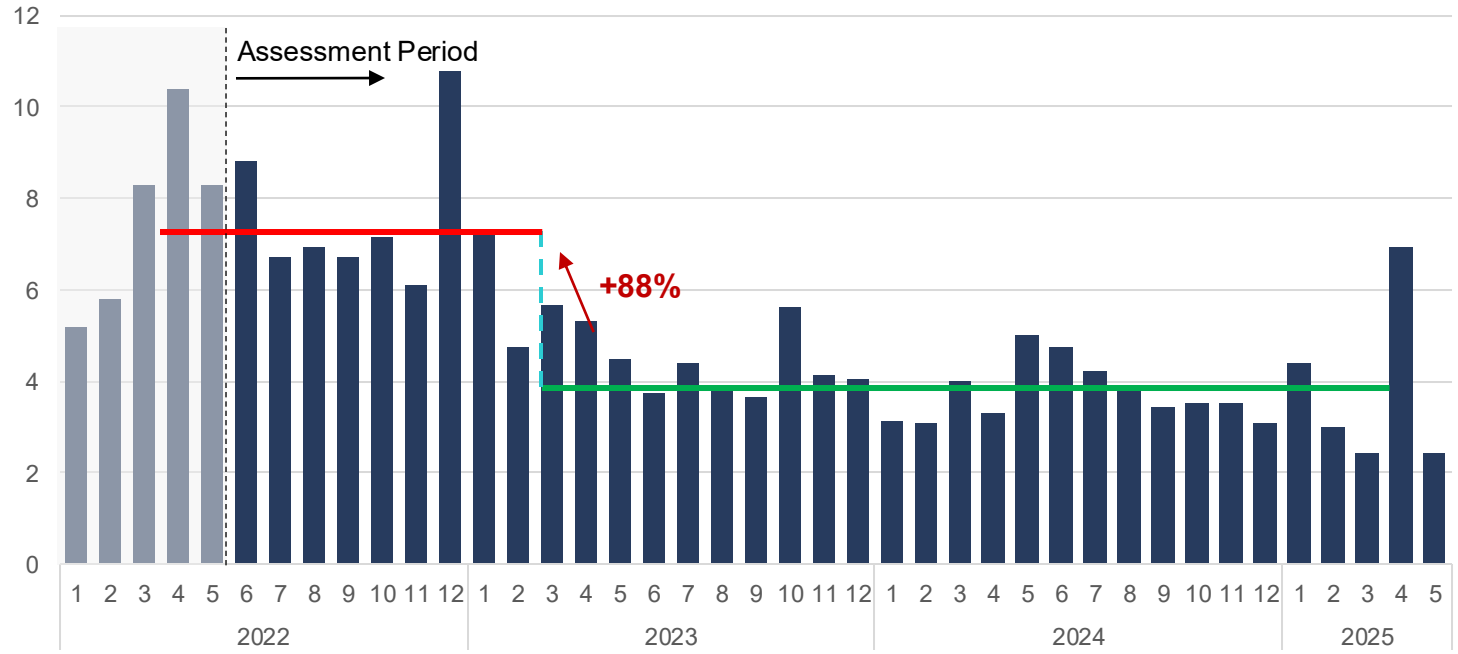
Note: Others represent the different technologies that make the historical mix, such as wind and hydro.
** mFRR activation adjustment coefficients were calculated as percentage of historical share, with projected evolution of shares. This is to minimize high impact assumptions, e.g., DSR going from no mFRR down activation to 37%, which lead to overestimation of net revenues.*

Across all technologies, there was a marked increase in revenues per kW during the crisis

There were higher net revenues observed during the second part of the crisis

- **There was a marked increase in net revenues across all technologies from Q2 2022** (+68% between the two average total revenues) .
- To allow for a better view of future revenues, we correct for the period of higher net revenues during the energy crisis for the different technologies.

Annualized net balancing revenues per kW of installed capacity, Jan. 2022 – May 2025 [€/kW/year]



Correction method for high revenue periods

- While the total balancing revenues peaked from Q2 2022, the timing of highest revenues differs between markets (FCR, aFRR, mFRR).
- To account for this, we explore **two correction methods** to rescale revenues during these unrepresentative high-revenue periods:

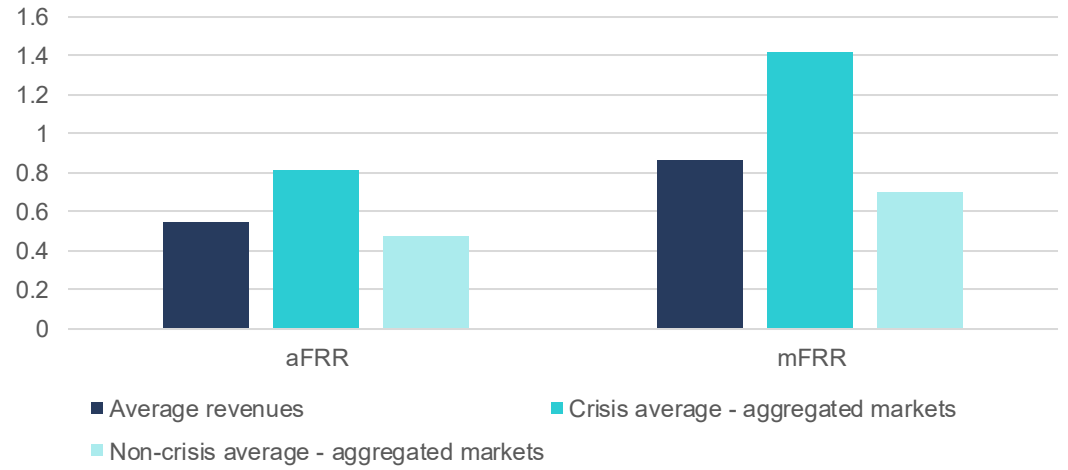
1. **Market specific 12-month period:** Consistent with the approach chosen last year, For each product (FCR, aFRR, mFRR) the 12-month period of highest revenues is determined.
2. **Data driven outlier month identification:** Define outlier months based on a one standard deviation range around the mean over the study period.

Average net revenues in aggregated markets differ between the crisis and non-crisis periods

Crisis effects differ across markets, which leads to market-specific correction factors

- **Following the 2024 methodology,** we chose the Market specific 2 adjustment, corresponding to a crisis period aggregated for all aFRR and mFRR markets respectively, of the 12 months of highest net revenues over the past 5 years.
- Compared to last year, we have updated the methodology **to aggregate average net revenues for aFRR and mFRR to derive correction factors** we apply to crisis months, to better take into account varying behaviours between specific markets.
- A data driven approach (based on deviation from mean revenues over the period) was tested, but did not yield substantially different results.

Average net revenues in the crisis vs. non-crisis period for the market specific methodology, [€/MW/yr.]



The data driven methodology allows for a market-specific approach while the market specific 2 methodology aggregates aFRR and mFRR markets.

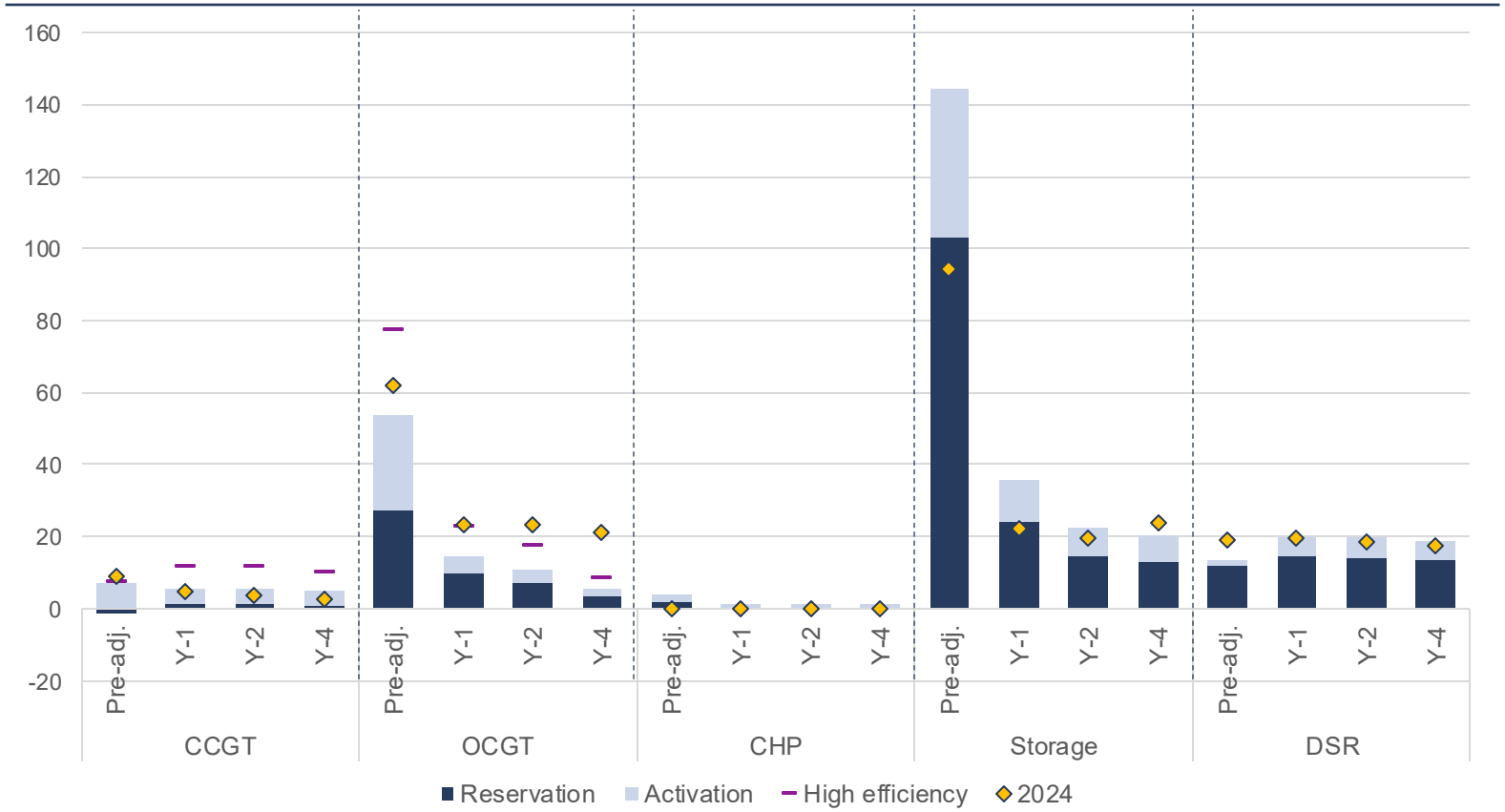
Corresponding coefficients to correct for the crisis average revenue difference

	FCR	aFRR Up RES	aFRR Down RES	aFRR Up ACT	aFRR Down ACT	mFRR Up RES	mFRR Up ACT	mFRR Down ACT
Market specific – 2025	1	0.58	0.58	0.58	0.58	0.49	0.49	0.49
Data driven	1	0.59	0	0.48	0.32	0.23	0.56	0.63

Final adjusted net revenue results

While adjustments cut down high revenues for storage and OCGTs, it increases revenues for DSR, leading storage and DSR to get the highest prospective revenues, around 20€/kW/year).

Final adjusted net revenues for Y-1 (2027-28), Y-2 (2028-29) and Y-4 (2030-31) auctions (€/kW/year)



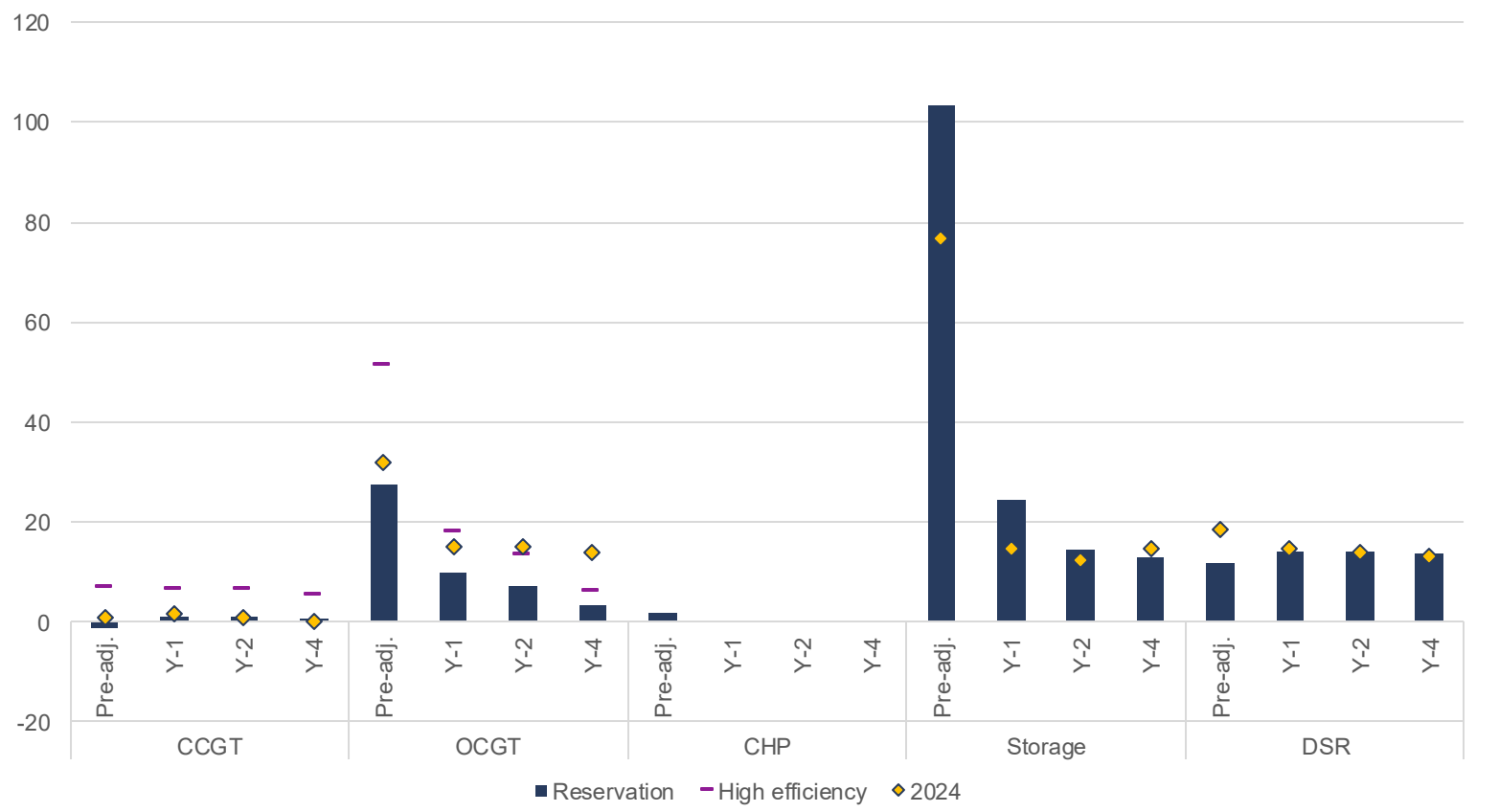
- **Reservation revenues** make the greatest portion for most technologies, yet activation revenues nevertheless present an important source of revenues.
- The **continuity in adjustment method** yields similar results to last year's study for CCGTs and OCGTs.
- For **Storage** a significant reduction for Y-1 and onwards is observed largely due to a FCR price correction (converging to German prices) and capacity adjustments with a large increase in capacity in coming years, notably considering the capacity assumption of small batteries in the DSR category.
- For DSRs, large upwards adjustments in activation revenues are due to predicted shares in aFRR and mFRR.
- For CHP, future reservation market shares are evaluated as zero, leading to low overall revenues.

Note: For the 2024 study Y-1 refers to the period 2026-27 and Y-4 to 2029-30.

Final adjusted net reservation revenue results

Storage and DER both earn relevant reservation revenues between 10 - 20 €/kW/year, while CCGT and OCGT revenues are lower with the magnitude differing between existing and new plants.

Adjusted net reservation revenues for Y-1 (2027-28), Y-2 (2028-29) and Y-4 (2030-31) (€/kW/year)



- The **continuity in adjustment method** yields similar results to last year's study for CCGTs, DSR and Storage
- For **Storage** a significant reduction for Y-1 and onwards is observed largely due to a FCR price correction (converging to German prices) and capacity adjustments with a large increase in capacity in coming years, notably considering the capacity assumption of small batteries in the DSR category.
- For **OCGTs**, the reduction relative to the 2024 study is predominantly caused by the overall lower net revenues over the assessment period.
- For CHP, future reservation market shares are evaluated as zero, leading to no revenues.

Note: [1] For the 2023 study Y-1 refers to the period 2025-26 and Y-4 to 2028-29. [2] CCGT and OCGT revenues refer to the average revenue earned by existing assets. In addition, revenues generated by new high efficiency plants are displayed through a marker on the graph.

Further conceivable adjustment parameters

There could be other adjustments to net revenues in order to better reflect future expected revenues for each technology

These could also affect future revenues for each technologies in the CRM

Merit order price effects in markets due to technology share evolutions

- The observed **shift in technology mix will most likely also affect prices due to a merit order effect** and the entry of cheaper technologies.
- This effect is only **partially considered in the context of this study** – through the correction of FCR revenues due to price convergence with Germany.
- As a result, further adjustments to the revenues, in particular for aFRR and mFRR, could be justified, although difficult to assess.

Future evolutions of balancing markets

- **Potential market design changes** (e.g. Elia partial procurement in mFRR reservation) could also affect future revenues.
- **Future market dynamics**, as well as **volume/price evolutions.**
- **Elia's connection to the European balancing platforms** will additionally affect activation revenues: this is gradually taken into account as we gain experience and data.

Upcoming CRM auction results

- The upcoming **CRM auction results** will reveal **additional insights, e.g. on the capacities in place in the future.**
- Based on this information, it might be appropriate to **recalibrate net revenues** calculated in this study**.**

Locations

Europe

Berlin
Brussels
Copenhagen
Düsseldorf
Helsinki
Lisbon
London
Madrid
Milan
Paris

North America

Boston
Chicago
Houston
Los Angeles
Miami
New York
Oakland
Washington, DC

Latin America

Buenos Aires
Santiago

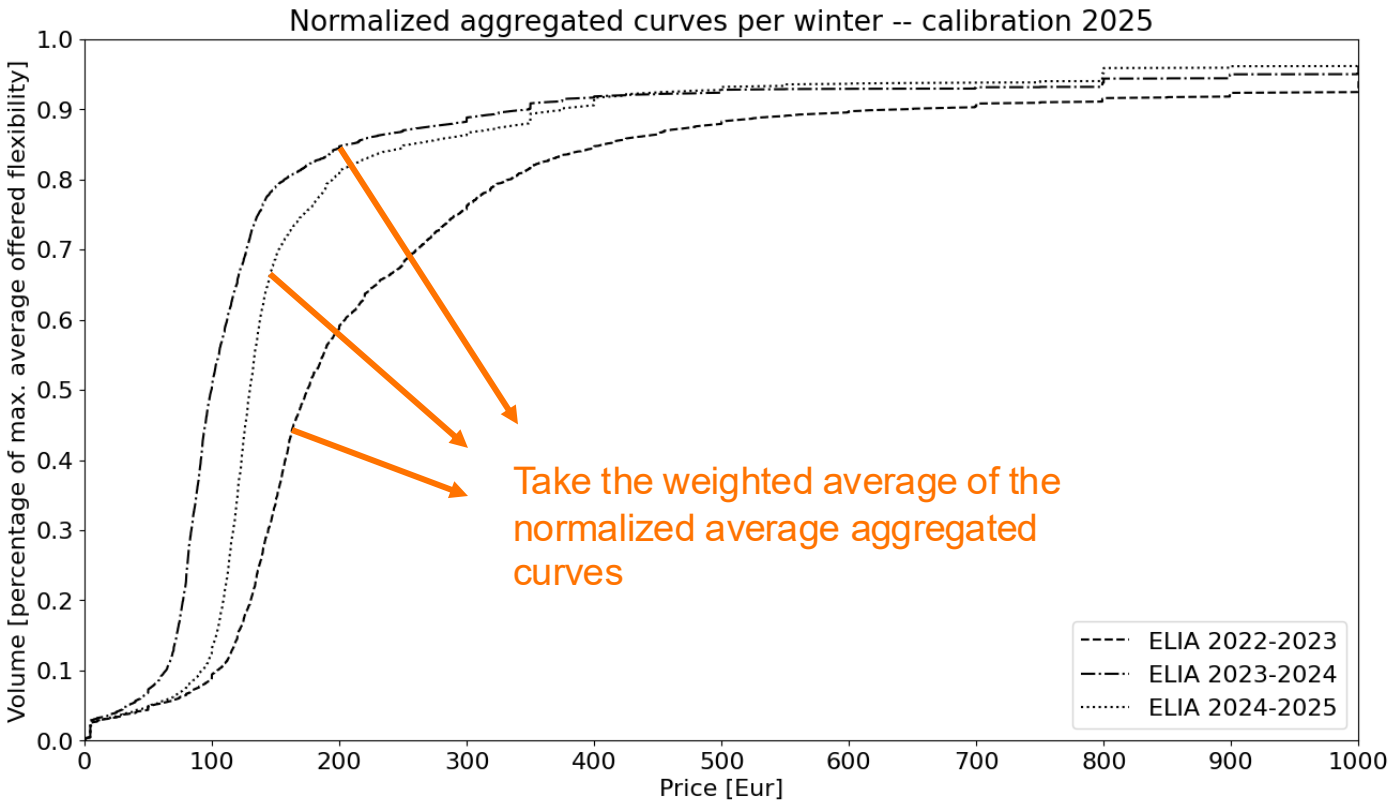
Asia Pacific

Beijing
Hong Kong SAR
Shanghai
Singapore

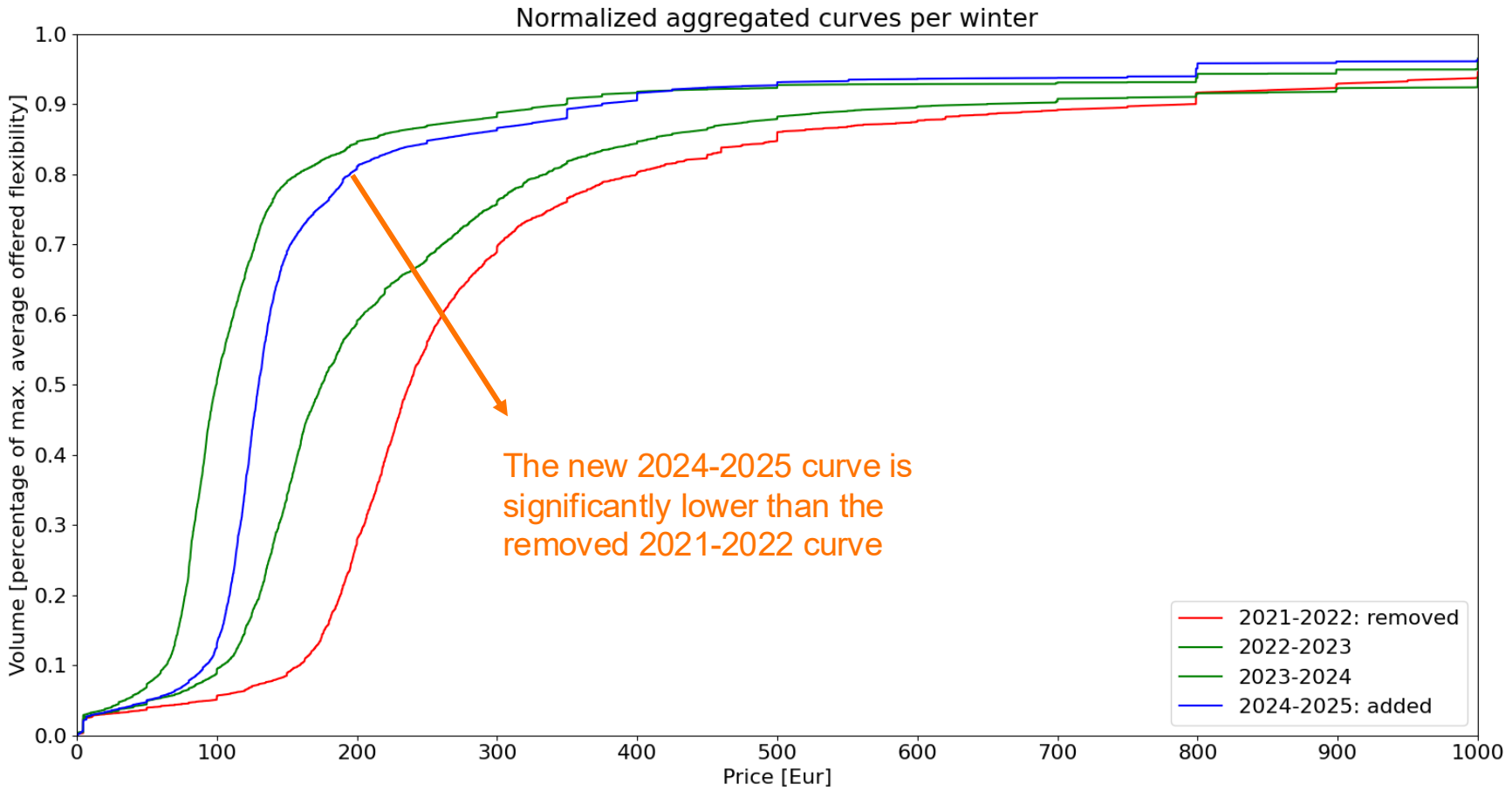
Strike Price for the 2026 Auctions

Strike Price Calibration – methodology reminder

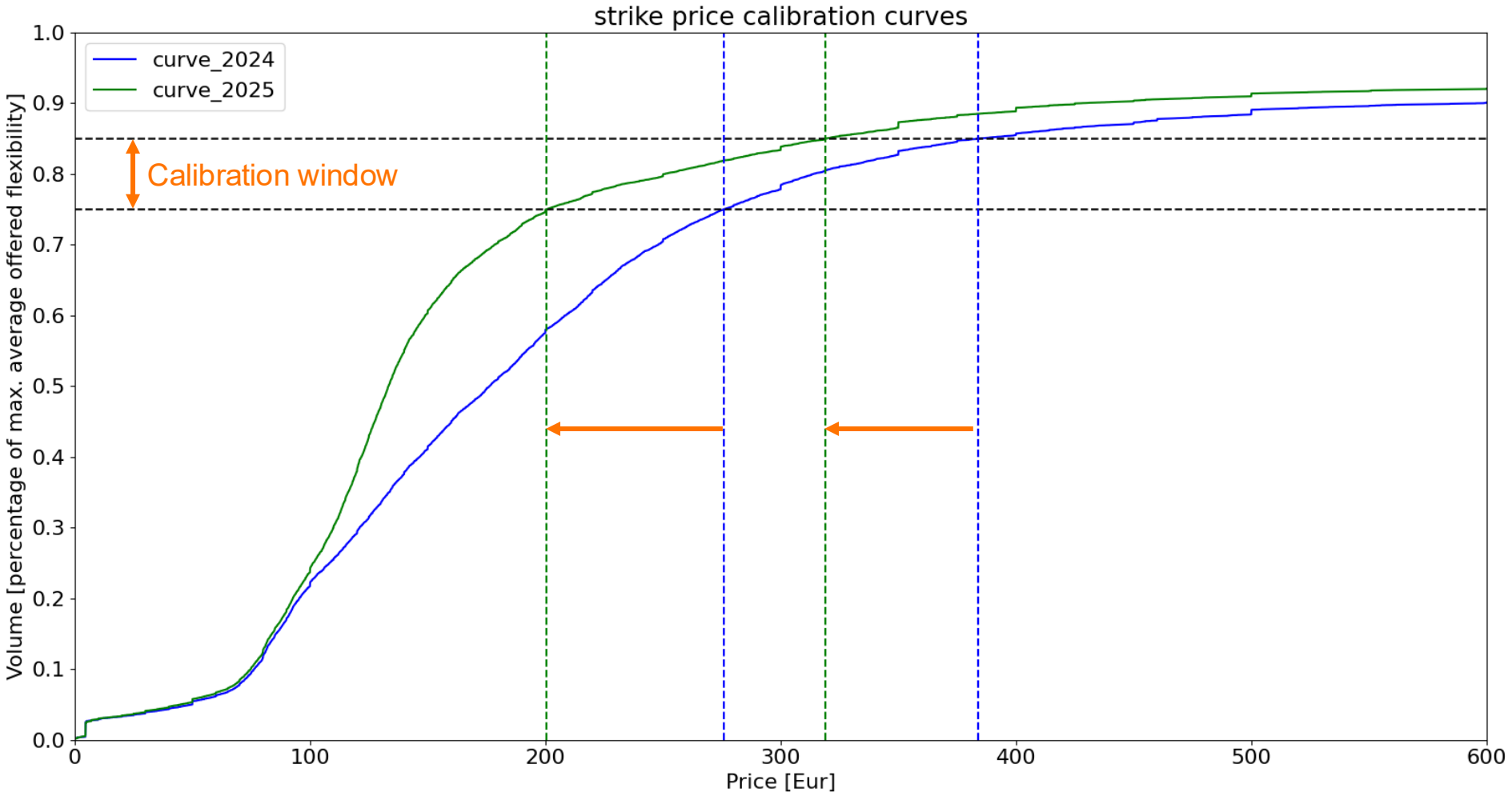
1. Gathering information on submitted DA bids (both demand/supply, simple/complex) based on N-SIDE input
   - Aligned with methodology for N-SIDE MRV study
2. Create a single aggregated curve for each peak hour (8-20) on winter working days
3. Take the average aggregated curve for each winter
4. Create a weighted average curve for the past three winters, weights are the total average volume offered in each curve
5. Normalize the final curve, and define a 75% and 85% of total offered volume



Evolution of normalized aggregated curves used to determine the 2025 Strike Price



Comparison of the Strike Price calibration curves of 2024 and 2025



Strike Price calibration - results

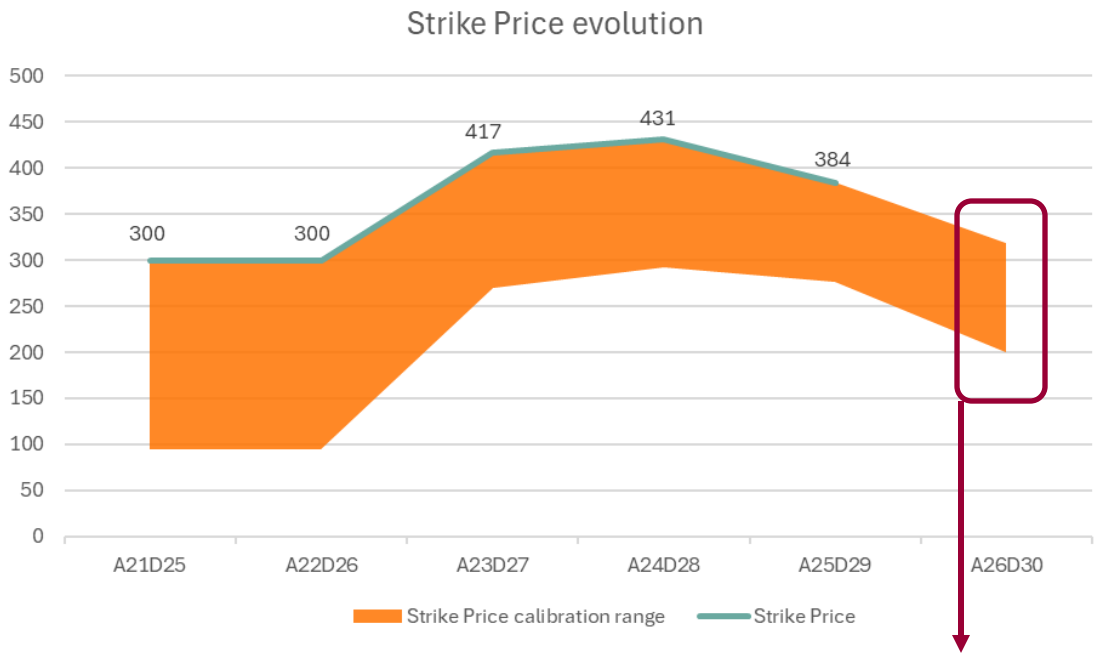
The calibrated strike price range:

Year of calibration	Auctions	Lower bound [€/MWh]	Upper bound [€/MWh]
2024	2026-27 Y-1 2027-28 Y-2 2029-30 Y-4	276	384
2025	2027-28 Y-1 2028-29 Y-2 2030-31 Y-4	200	319

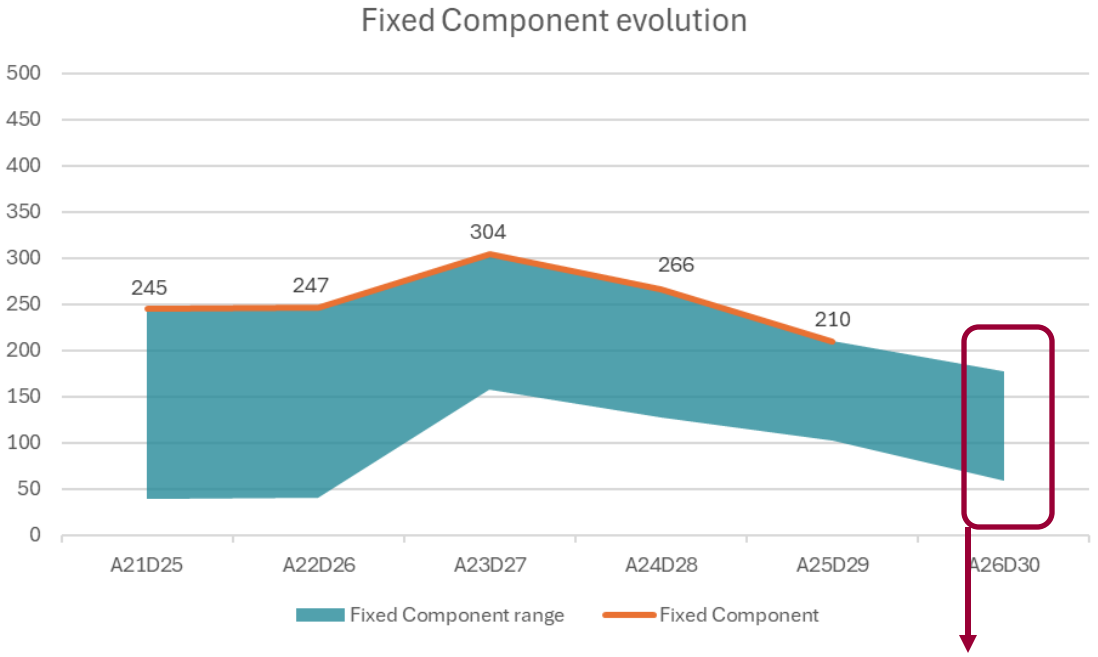
The fixed component:

Year of calibration	Auctions	Strike Price	Fixed Component
2024	2026-27 Y-1 2027-28 Y-2 2029-30 Y-4	384	210
2025	2027-28 Y-1 2028-29 Y-2 2030-31 Y-4	[TBD]	[TBD]

Strike Price calibration – strike price evolution



Strike Price will fall within this range



Consequently, the Fixed Component will be in this range

CRM Design update

Timeline for CRM FR v6

WG 28/08
- Financial Securities
- Predelivery Monitoring

WG 13/10
- PQ
- AMPBO
- Net balancing rev.

WG 21/11
- Auction results
- Minor changes to the FR

WG 19/12
- Calibration results

Jan 2026:
- consultation report

Feb 2026
- Elia submission FR v6

Public consultation 21/11 – 05/01

- Elia expects to propose minor changes to the CRM FRv6. Focusing om implementation REX & simplification.
- A broader REX on the design will be organized with market parties early 2026 after the delivery of the first MDARs

Definitions

Reordering of the definitions

- At present, definitions are ordered alphabetically in each language separately
  - The same definition is located someplace entirely different when looking at different languages
  - Troublesome to find the same definition in a different language
  - Potential confusion when carrying out the translation
- Many ‘linked’ definitions are scattered due to the alphabetic order
  - E.g. Eligible Volume, Associated Eligible Volume, Remaining Eligible Volume, …
  - The fact that these are not right next to each other decreases understandability

Proposal to reorder the definitions

Number		Term	Def
113		(…)	(…)
114		Nominal Reference Power (NRP)	(…)
114	i	Aggregated Nominal Reference Power	(…)
114	ii	Declared Nominal Reference Power	(…)
114	iii	Expected Nominal Reference Power	(…)
114	iv	Fast Track Nominal Reference Power	(…)
115		Nominated Electricity Market Operator (NEMO)	(…)
116		(…)	(…)

Number		Term	Def
113		(…)	(…)
114		Puissance Nominale de Référence (NRP)	(…)
114	i	Puissance Nominale de Référence Agrégée	(…)
114	ii	Puissance Nominale de Référence Déclarée	(…)
114	iii	Puissance Nominale de Référence Attendue	(…)
114	iv	Puissance Nominale de Référence Fast Track	(…)
115		Opérateur Désigné due Marché de l'Electricité	(…)
116		(…)	(…)

Number		Term	Def
113		(…)	(…)
114		Nominaal Referentievermogen (NRP)	(…)
114	i	Geaggregeerd Nominaal Referentievermogen	(…)
114	ii	Aangegeven Nominaal Referentievermogen	(…)
114	iii	Verwacht Nominaal Referentievermogen	(…)
114	iv	Fast Track Nominaal Referentievermogen	(…)
115		Benoemde Elektriciteitsmarktbeheerder	(…)
116		(…)	(…)

- A uniform order for the definitions is proposed across the three languages
  - Based on alphabetical order in English
- "Clusters" of definitions are identified so that linked definitions stand together
- A numbering is introduced that allows for much easier referencing to FR definitions in other documents related to the CRM

Availability Obligation

AS corrections

- In the FR v5, Elia proposed and adopted a methodology for the allocation of contracted capacity volumes
  1. A scaling is made for all contracted capacity bids $$V_{energy,UP,p,scaled}(Bid,t) = V_{capacity,UP,p}(BSP,t) \cdot \frac{V_{energy,UP,p}(Bid,t)}{\sum_{b \in B} V_{energy,UP,p}(b,t)}$$
  2. For every bid, the volume is allocated to the Delivery Points $$V_{capacity,UP,p}(DP,t) = V_{energy,UP,p,scaled}(Bid,t) \cdot \frac{\sum_{t \in T} V_{energy,UP,p}(DP,t)}{\sum_{DP \in BSP} \sum_{t \in T} V_{energy,UP,p}(DP,t)}$$

!! It is not included explicitly that for the final correction, the sum must be taken over all the bids that include the Delivery Point

➢ Elia will rectify this

Derating Factor in the Availability Obligation

- Officially defined in chapter 3 of the Functioning Rules
  - Non-energy Constrained CMUs: based on Derating Factor of most recent Transaction
  - Energy Constrained CMUs: weighted average over all Transactions

- Some Derating Factors used in the formulas of the Availability Monitoring do not fully comply with this definition and can lead to inconsistencies, e.g. Obligated Capacity for Non-energy Constrained CMUs:

> - $Derating\ Factor(CMU, t)$ is the weighted average Derating Factor of all Transactions in annex A of the CMU's Capacity Contract that constitute the $Total\ Contracted\ Capacity_{ex-ante}(CMU, t)$ during AMT MTU t, calculated in accordance with the definition in chapter 3.

➢ Elia will correct the usage of the Derating Factor when necessary to fully align with the definition

Payback Obligation

At present, the Functioning Rules include no less than 4 different formula for the Payback Obligation

Non-energy Constrained	$$Payback\ Obligation\ (CMU_{id}, Transaction_{id}, t) = \\ = \left(Reference\ Price\ (CMU_{id}, t) - \ Actualized\ Strike\ Price(CMU_{id}, Transaction_{id}, t)\right) \\ * Contracted\ Capacity\ (CMU_{id}, Transaction_{id}, t) \\ * \frac{NRP\ (CMU_{id}, Transaction_{id}) - \sum_{i=1}^{n} NRP\ DSR, STORAGE\ DP_i\ (CMU_{id}, Transaction_{id})}{NRP(CMU_{id} Transaction_{id},)} \\ * Min\left(Availability\ Ratio\ (CMU_{id}, t), Activation\ Ratio(CMU_{id}, t)\right)/4$$
Energy Constrained Ex-ante, SLA MTU	$$Payback\ Obligation\ (CMU_{id}, Transaction_{id}, t) = \\ \left(Reference\ Price\ (CMU_{id}, t) - Actualized\ Strike\ Price(CMU_{id}, Transaction_{id}, t)\right) \\ * \frac{Contracted\ Capacity\ (CMU_{id},\ Transaction_{id}, t)}{Derating\ Factor(\ Transaction_{id}\ )} \\ * \frac{NRP(CMU_{id}, Transaction_{id}) - \sum_{i=1}^{n} NRP\ DSR, STORAGE\ DP_i\ (CMU_{id}, Transaction_{id})}{NRP(CMU_{id}, Transaction_{id})} \\ * Min\left(Availability\ Ratio\ (CMU_{id}, t), Activation\ Ratio(CMU_{id}, t)\right)/4$$
Energy Constrained Ex-ante, Non-SLA MTU	$$Payback\ Obligation\ (CMU_{id}, Transaction_{id}, t) = 0$$
Energy Constrained Ex-post	$$Payback\ Obligation\ (CMU_{id}, Transaction_{id}, t) = \\ \left(Reference\ Price\ (CMU_{id}, t) - Actualized\ Strike\ Price\ (CMU_{id}, Transaction_{id}, t)\right) \\ * Contracted\ Capacity\ (CMU_{id}, Transaction_{id}, t) \\ * \frac{NRP(CMU_{id}, Transaction_{id}) - \sum_{i=1}^{n} NRP\ DSR, STORAGE\ DP_i\ (CMU_{id}, Transaction_{id})}{NRP(CMU_{id}, Transaction_{id})} \\ * Min\left(Availability\ Ratio\ (CMU_{id}, t), Activation\ Ratio(CMU_{id}, t)\right)/4$$

- Though each formula addresses a different situation, in essence the only element that is different is how **Contracted Capacity** is taken into account
- The rules can be simplified by only using one formula for the Payback Obligation, where the definition of the volume is treated elsewhere

Definition of Payback Volume

- A correct definition of a Transaction's volume subject to the Payback Obligation actually already exists
- It is equal to the "**Equivalent Capacity**", which is at present only used to determine the Availability Ratio

➢ Elia suggests to generalize the concept of the Payback Volume, which will simplify
  - ➢ The definition of the Availability Ratio
  - ➢ The formula of the Payback Obligation
  - ➢ Overall understandability of the Payback Obligation chapter
  - ➢ The Payback Volume is to be defined in the existing section 12.3.1 "parameters of the calculation formula of the Payback Obligation"

Prequalification

Introduction

Following the latest round of CRM Operations, ELIA proposes several changes to the CRM which aim at simplification as well as a reduced operational burden for both ELIA and CRM Candidates.

ELIA has split up its proposals into two categories:

1. Amendment of CRM Functioning Rules needed
   - ELIA will follow due process with the CREG and the market parties in the preparation of the CRM FRv6.
2. Amendment of RD / E-Law needed.
   - Several simplifications are being investigated; albeit they require a broader change in the regulatory framework (as well as support through amendment of the CRM FRv6).
   - Ongoing discussions at CdS-level, resulting in amendments to the regulatory framework if & when agreed.

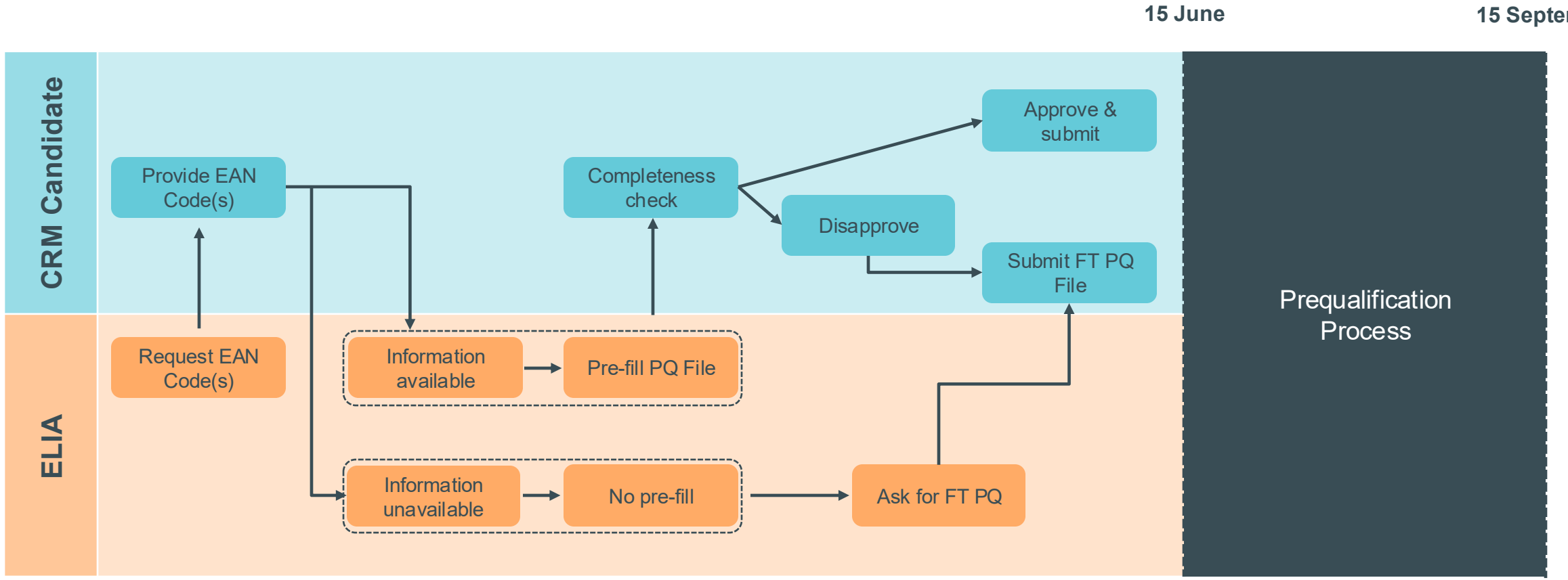
As always, further ideas and/or suggestions for simplification are welcome!

Review of the Obligation to Prequalify
Fast Track Prequalification Files

- As a first step towards reviewing the Obligation to Prequalify, an intermediary solution is being assessed by ELIA in order to ease up the Prequalification process;
- The envisaged solution consists in requesting the CRM Candidate to introduce the EAN Code of its Delivery Point – upon which ELIA can determine if the already existing data is accurate or if adjustment is needed.
- The simplified process would, among others, follow these steps:
  1. The Obligation to Prequalify remains unchanged (> 1 MW derated);
  2. Instead of asking the submission of a FT PQ File, ELIA requests an EAN Code, based on which, ELIA pre-fills information using the previously submitted PQ Files*:
     - If the information is available, ELIA asks the Candidate to login and to confirm it is complete; or
     - If the information is not available, & ELIA can't pre-fill, ELIA requests the Candidate to initiate a FT process.
  3. (if information is complete) The Candidate either confirms or rejects the information pre-filled by ELIA:
     - If confirmed, ELIA approves the FT PQ File; or
     - If not confirmed, ELIA requests the Candidate to complete or correct the File via the FT process.

* Checks include all information related to the NRP, the permits and the GUD to ensure the file remains up to date.

Fast Track Prequalification Files



Documents for Prequalification

#	Title	Level	Signature	STD PQ		FT PQ	
				E	A	E	A
1	Single Line Diagram	Delivery Point	No	**Y**	N	N	N
2	CO_2 Calculation Module (& additional documents if required)	Delivery Point	No	**Y**	**Y**	N	N
3	Non-representative days for NRP determination	Delivery Point	Yes	**Y**	N	**Y**	N
4	Grid User Declaration	Delivery Point	Yes	**Y**	N	**Y**	N
5	Production / storage permit	Delivery Point	Yes	**Y**	**Y**	N	N
6	CDSO Declaration	Delivery Point	Yes	**Y**	**Y**	**Y**	**Y**
7	CDS User Declaration	Delivery Point	Yes	**Y**	N	**Y**	N
8	Project Execution Plan	CMU	Yes	N	**Y**	N	N
9	Renunciation of operating aid	CMU	Yes	**Y**	**Y**	N	N
10	Declaration of commitment to the energy transition	CMU	Yes	**Y**	**Y**	N	N

A significant number of documents must be provided for Prequalification. Erroneous submissions often lead to back-and-forth communication with CRM Candidates – an issue that ELIA aims to address by simplifying the requirements for certain documents.

Change in regulatory framework needed – discussion ongoing in CdS

Elia Group

Simplification
Documents for Prequalification

Document	Description	Considered Changes	Standard Process	
			Existing	Additional
Single Line Diagram	Indicates exact location of the Delivery Point	Declarative basis of the requirement so as to only provide such document upon request of ELIA before end of Prequalification process	**Mandatory**	Optional
Project Execution Plan	Summarizes the proceeding of the project	Mandatory only for non-contracted Additional CMUs, excluding systematic signature of the document	Optional	**Mandatory**
Renunciation of Operating Aid* *Legal analysis ongoing	Guarantees no operating aid is received during whole Capacity Contract duration	Signed if contracted through an Auction, at the time of the Capacity Contract signature	**Mandatory**	**Mandatory**

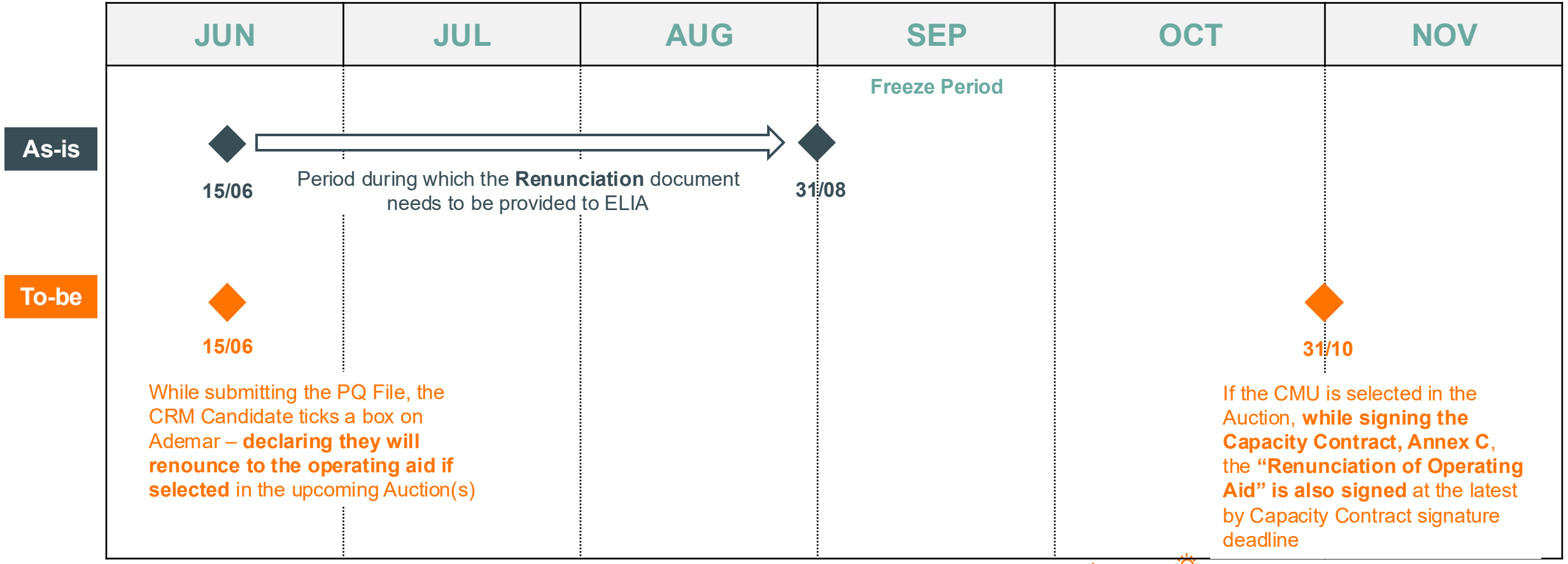
- The simplification, among others, consists of:
  - Changing sequence of document submission so as to reduce administrative workload for both Capacity Provider & ELIA;
  - Transforming the requirement to submit certain documents to a declaration to provide if not relevant;
  - Removing the requirement if not applicable.

Legal analysis ongoing

Change in regulatory framework needed – discussion ongoing in CdS

Adaptation of requirement for some documents in Prequalification

Renunciation of Operating Aid



Change in regulatory framework needed – discussion ongoing in CdS

Elia Group

Simplification

Permit requirement deadline for Existing CMUs

Context

- As stipulated in the E-Law, the submission of the permits in the last administrative instance at the latest on the Bid submission deadline day (September 30) at 06:00 is a criterion for Prequalification;
- Despite incentive in the FR v5 to *preferably* receive the permits by August 31, the CRM Candidates usually only send permits on September 30 by 06:00;
- In practice, this leads to an overload on September 30 as the verification of all provided permits constitutes an operational challenge, including the exchanges with the legal service provider Liedekerke.

Proposal

- Dissociate the timing aspect from the E-Law by wording change while keeping the requirement;
- Insert the deadlines in the Functioning Rules, fixing them on:
  - **August 31** for **Existing CMUs**
  - **September 30** for **Additional CMUs** (as-is)

Change in regulatory framework needed – discussion ongoing in CdS

Simplification

Removal of VCMU – Specific Prequalification Process

Year	Delivery Period	Final Approved (MW)	Rejected (MW)	Archived (MW)
2024	25-26	0	40	1
	28-29	**1,3**	31,58	126

Current

- The available volume in the Auction Y-4 for VCMUs as per the Ministerial Decree published on March 31 is 400 MW.

Drawbacks

- Only 1,3 MW participated and were contracted, highlighting a clear discrepancy between expectations and actual VCMU participation.
- Restricting Secondary Market volumes to reduce exposure to risk encountered during $t_{control\ 1}$ and $t_{control\ 2}$.

Alternative

- Facilitating the participation of VCMUs as Aggregated CMUs through the Standard Prequalification Process—treating them as New Build or Additional CMUs—would be a more efficient approach and would help encourage new projects.

Change in regulatory framework needed – discussion ongoing in CdS

Simplification

Vergunning voor de bouw en exploitatie van installaties voor elektriciteitsproductie en energieopslagfaciliteiten

Context

- In line with Table 1 of the FR, to prequalify, Additional Delivery Points must provide either:
  - Production or energy storage permit itself; or
  - Proof that it has been requested at the latest 15 calendar days after publication of the MD “Volume & Parameters”.
- Given that the deadline is set as 15 calendar days after MD “Volume & Parameters”, the deadline is always evolving.

Proposal

- ELIA proposes to change the deadline into a fixed deadline to simplify the operational procedures and to remove complexity;
- For instance, setting the deadline on April 15 of the year of the forthcoming Auctions could bring clarity.

Change in regulatory framework needed – discussion ongoing in CdS

Elia Group

Simplification

Merging of Pre-Auction & Admission Process in Auction & Prequalification

Context

- Admission Process and the Pre-Auction were designed as additional processes for the Cross-Border capacities so as to filter the participation from abroad to only keep serious candidates;
- The requirements in the Admission Process consists in ticking boxes to declare one will provide the required documents during the Prequalification process;
- Selection in the Pre-Auction obliges the Foreign Capacity Provider to participate to the Auction with the exact same parameters;

Proposal

- Having carried out these processes two years in a row, ELIA observes that these are largely redundant processes and can be included in the regular Prequalification and Auction, and thus, reduce the operational workload
  - For instance, the Maximum Entry Capacity for each relevant border can easily be incorporated in the Auction algorithm, removing the necessity to organize a Pre-Auction at all;
  - The operational procedures with the neighboring TSOs for these processes already exist.
- This step requires an adaptation of the RD XB / E-Law but would present a massive operational simplification

Clarifications & Refinements

Topic	Summary
Overview of Auctions to send to CREG & FPS Economy	The rule binding ELIA to send the overview of the Auction(s) to CREG & FPS Economy is adjusted so as to reflect the need for information transmission for the forthcoming Auctions only.
Unsheddable margin for offtake-only Linked CMUs	The methodology of NRP calculation for Linked CMUs if the NRP can't be calculated with injection data only required clarification.
Wording change regarding classification of "Full Opt-Out" for New-Build CMUs	The discrepancy of Opt-Out treatment between Auctions is treated.

- Along with the efforts to simplify the Prequalification process, ELIA is also working towards refinements within the Functioning Rules in order to remove grey zones;
- Among others, these modifications aim to bring clarity regarding the application of certain rules in certain cases;
- Wording changes and adjustment will remove discrepancies

Start delivery preparations

Start delivery preparations: IT tool & AMT moments

What has been prepared by Elia

- The Go Live of the CRM will start on the 1st of November.
- As of the 31st of October, the AMT moment will be published daily on the Elia website and on OpenData.
- The IT interface is available for all CRM actors with at least one CMU prequalified for the 1st Delivery Period

What the CRM actors need to do

- The CRM actors need to select a NEMO for each of their CMUs **before the 31st of October.**
- Non-Daily schedule CMUs need to declare their price in Day-Ahead **before the 31st of October.**
- As of the 1st of November, the Delivery period will start. The contracted capacities need to be available for the CRM in case of **monitoring and/or testing**

Start delivery preparations: CRM Settlement

What has been prepared by Elia

- As of the 15th of October, the CRM Settlement module IT interface will go live and be accessible for the CRM Actors
- The CRM IT Settlement interface is available for the contracted capacities for Delivery Period 2025-2026

What the CRM actors need to do

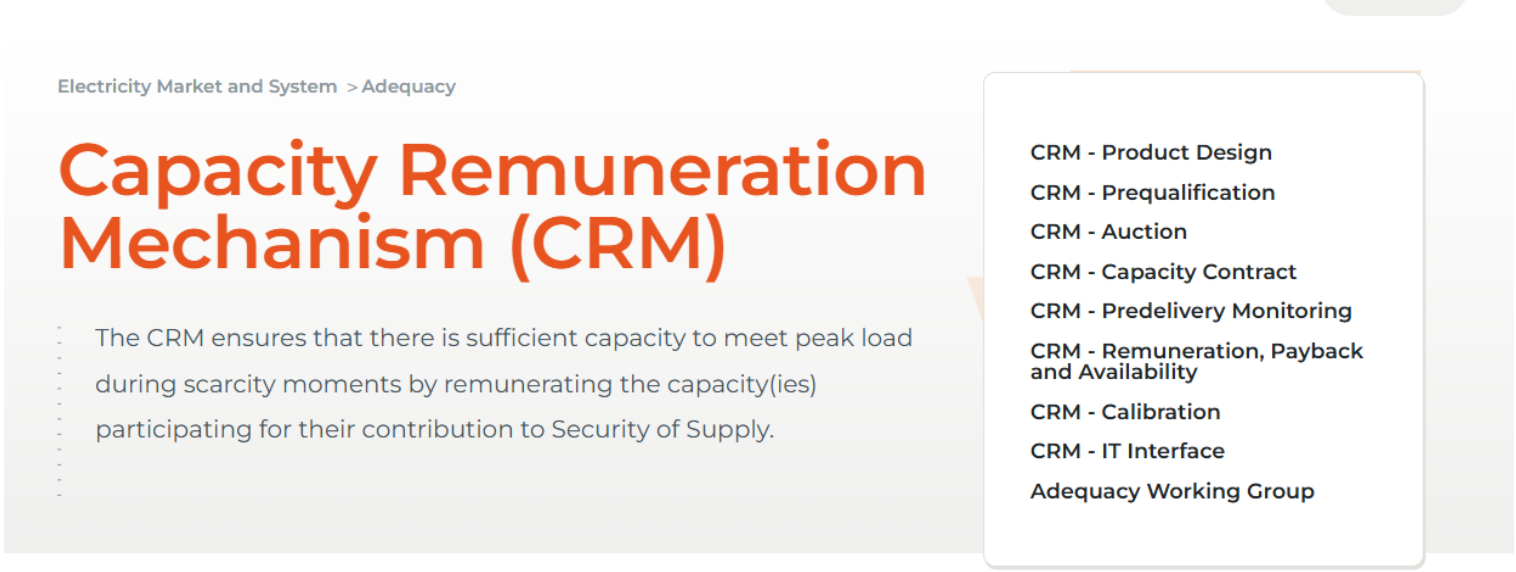
- The CRM actors need to submit the first Ex-Ante Remuneration invoice **before the 29th of October.**
- As of the 1st of November, the Delivery period will start. The contracted capacities need to be available for the CRM in case of **monitoring and/or testing**

New CRM Website

For your information

Launch CRM website

Announcing a new version of the website



Take a look around: [Capacity Remuneration Mechanism]

AOB

Next meetings

Next meetings

- **Friday 21/11/2025 : Additional WG Adequacy (**13:30-16:30 PM)
- **Friday 19/12/2025 : WG Adequacy** (13:30-16:30 PM)
- **Tuesday 27/01/2026 WG Adequacy** (9:30-12:30)

Please find further information on the next meetings through the WG Adequacy webpage

Thank you.