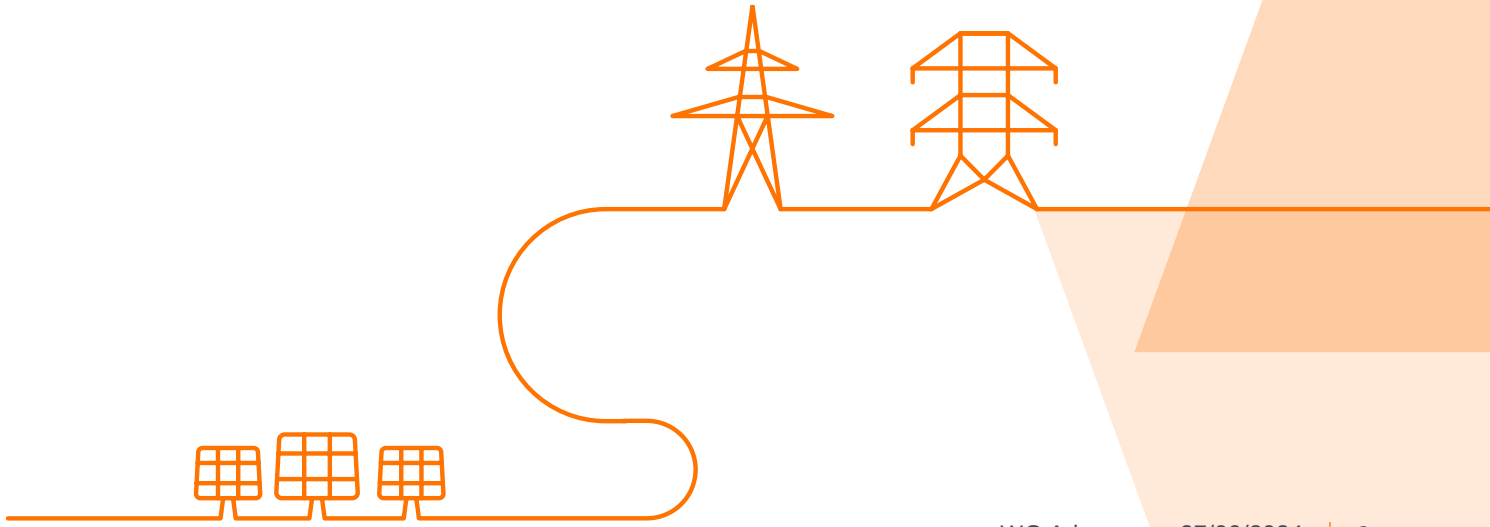
WG Adequacy #33

27/09/2024

Agenda

- Welcome
- Net balancing revenue presentation - Compass Lexecon
- Strike price determination for the CRM auctions 2025
- CRM design
    - Minor CRM design evolutions
    - Baseline
    - Grid constraints
- Timeline for the CRM FRv5
- AOB & Next meetings



Welcome

Net balancing revenue presentation - Compass Lexecon

Assessment of the balancing revenues earned by technologies in the Belgian electricity market

Public Report

Compass Lexecon

23rd September 2024

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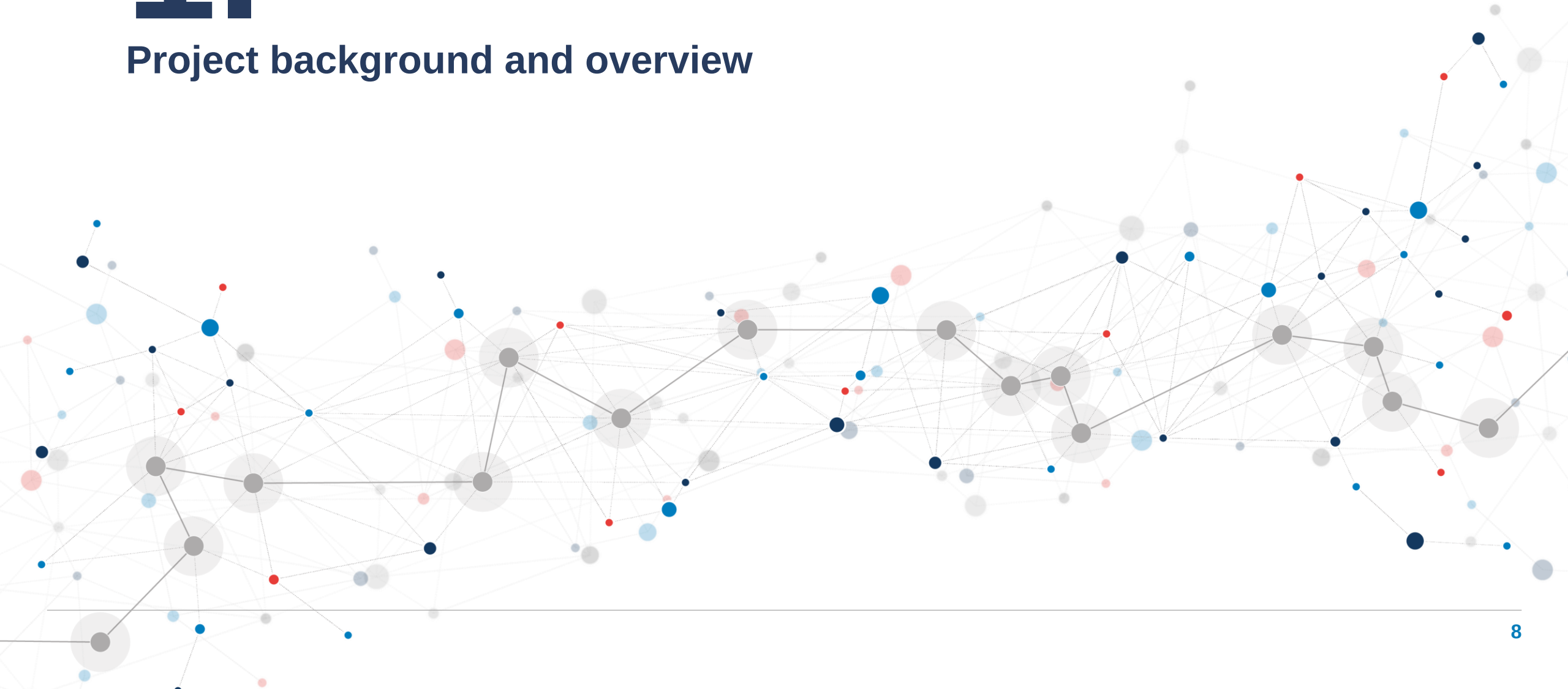
Outline

- 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

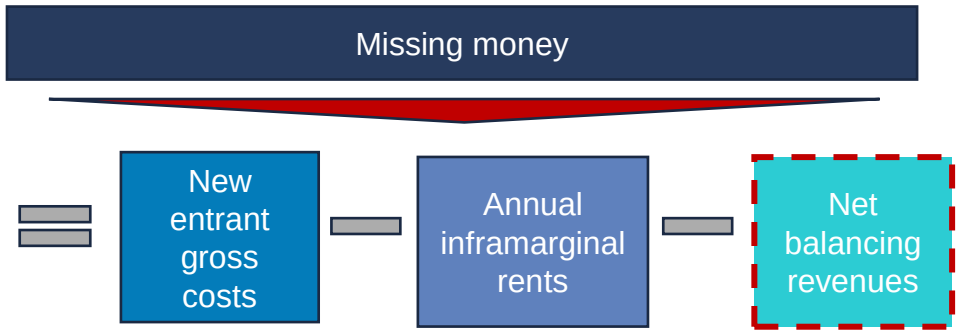
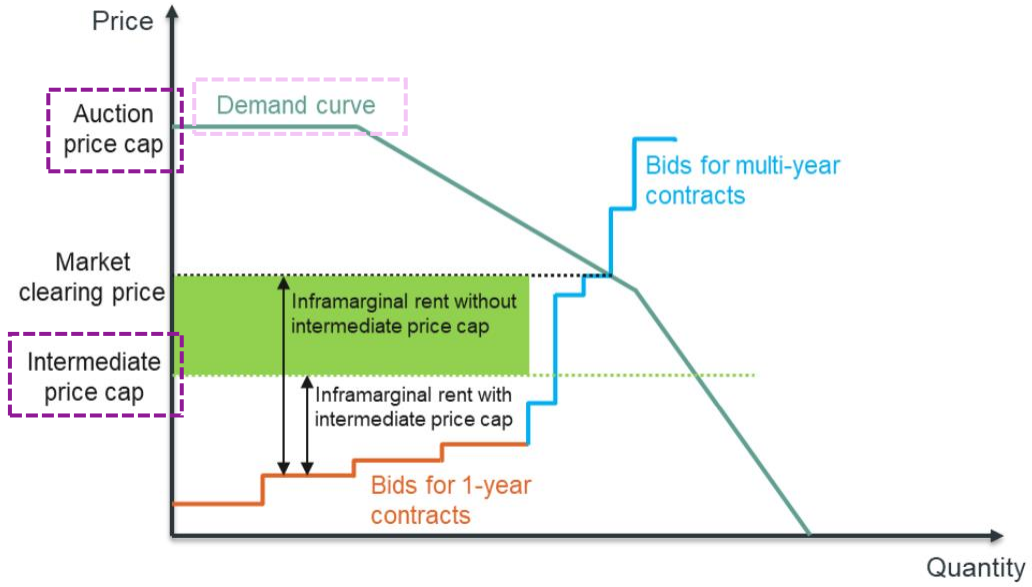


Illustration of the parameters requiring a missing money assessment for the yearly Belgian CRM calibration



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)

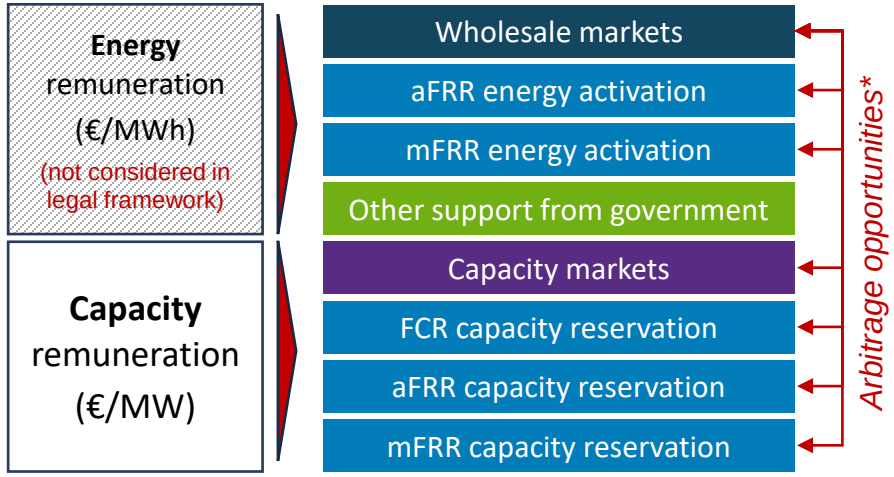
Note: The demand curve is defined by the Minister based on a proposal made by CREG and on inputs and calculations by ELIA.

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



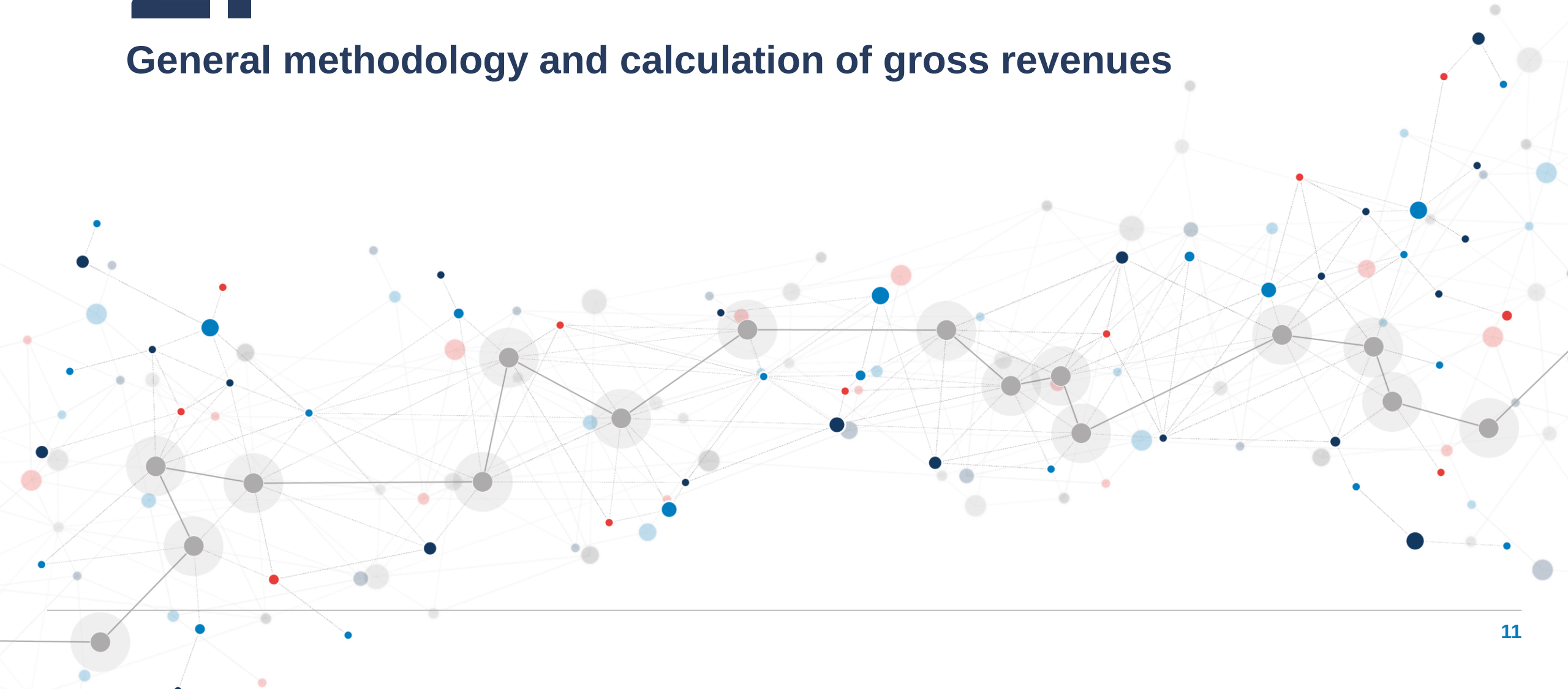
Strictly speaking, the Royal Decree Methodology only considers reservation. However, the present assessment targets a broader framework by looking at both reservation & activation revenues.

Source: Royal Decree Methodology (2021)

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

2.

General methodology and calculation of gross revenues



To calculate net balancing revenues, we have followed a similar approach as last year

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Compass Lexecon's proposed net balancing revenue methodology

Actual reservation and activation revenue for each technology by CCTU

Develop cost assumptions, including opportunity costs, for each technology in activation and reservation

Subtract direct and opportunity costs from revenues of each technology/ market, with a daily/ CCTU granularity

Convert revenues to €/kW/year using installed capacity data

Net balancing revenue by technology

Future revenue adjustments

Evolutions compared to last year's study

While the analysis performed in this study remains largely in line with that conducted last year, several methodological improvements have been implemented to further enhance the revenue estimation.

Thermal plants

- **Improved modelling of reservation costs** through the implementation of **cost optimization** between high and low efficiency capacities within the existing gas fleet (for CCGTs and OCGTs respectively) on a per-CCTU basis
- **Harmonization in the calculation of volumes applicable to direct reservation and opportunity costs**, based on a proportionality assumption to reserved volumes considering all relevant markets (FCR, aFRR, mFRR) on a per-CCTU basis
- Improved consistency and simplification of **start-up costs estimation**

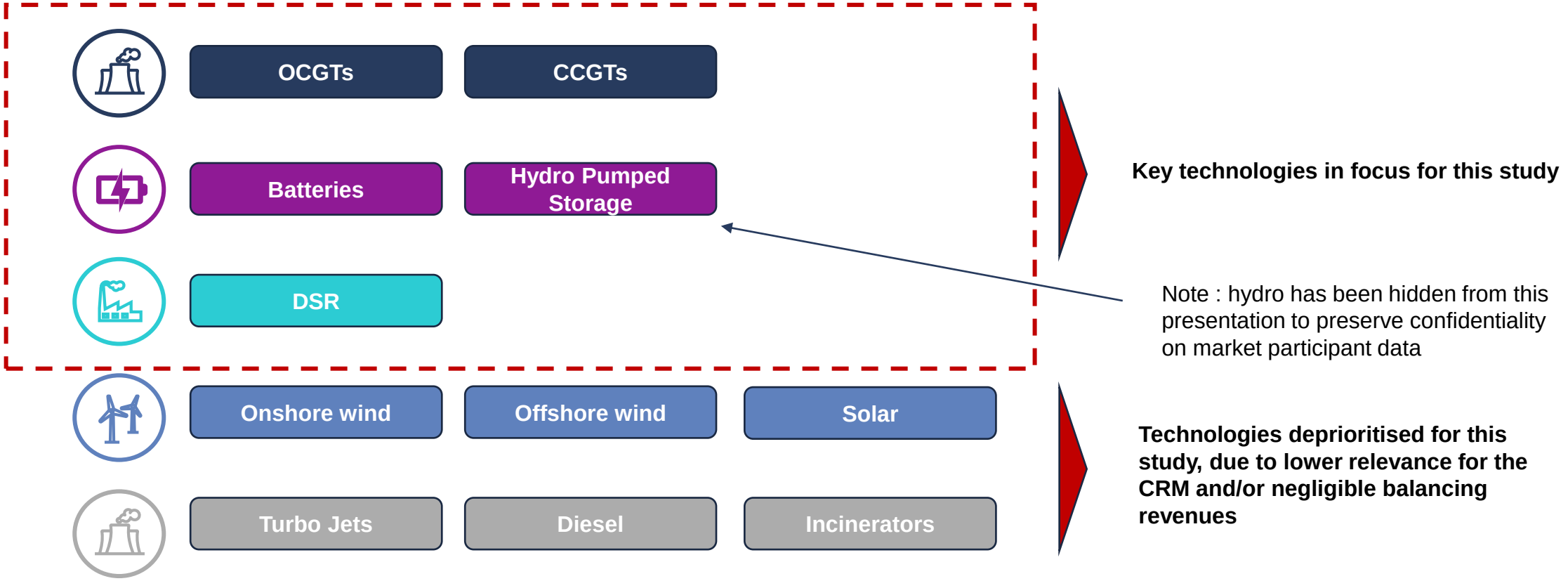
Storage

- **Improved estimation of storage opportunity costs** through the implementation of a detailed battery optimization algorithm based on hourly day-ahead prices over the study period, to ensure chronological consistency
- Corrections in the scaling of FCR revenues

Updated assumptions

- Updated assumptions based on Elia's input on:
  - **Evolution of installed capacity by technology**
  - **Future technology** mix by balancing product

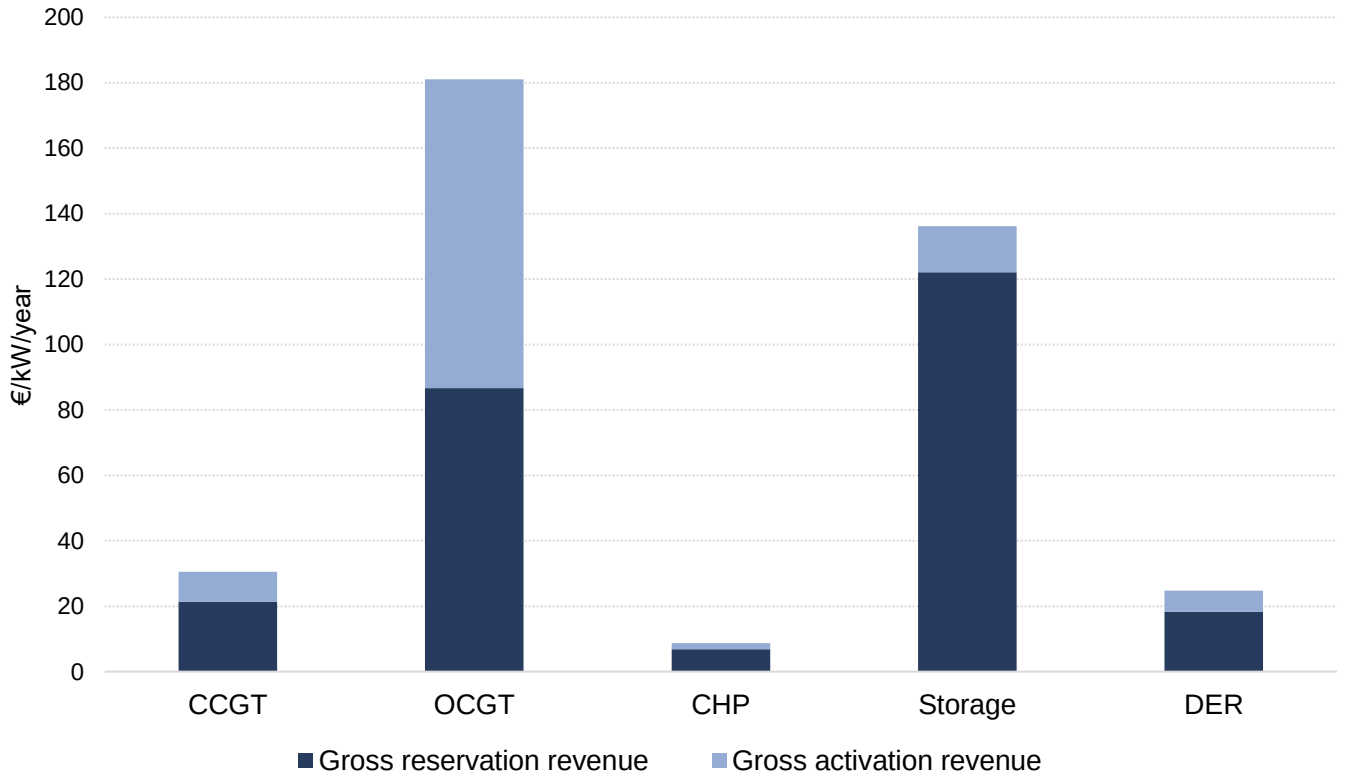
For this study, we focus on the net revenues of gas units, storage assets and demand side response



Gross revenues adjusted for installed capacity

Per kW of installed capacity OCGTs are the highest gross earners in balancing markets, followed by batteries, which dominate FCR

Yearly gross balancing revenue per kW installed capacity May 2021 – Apr. 2024 [€/kW/year]

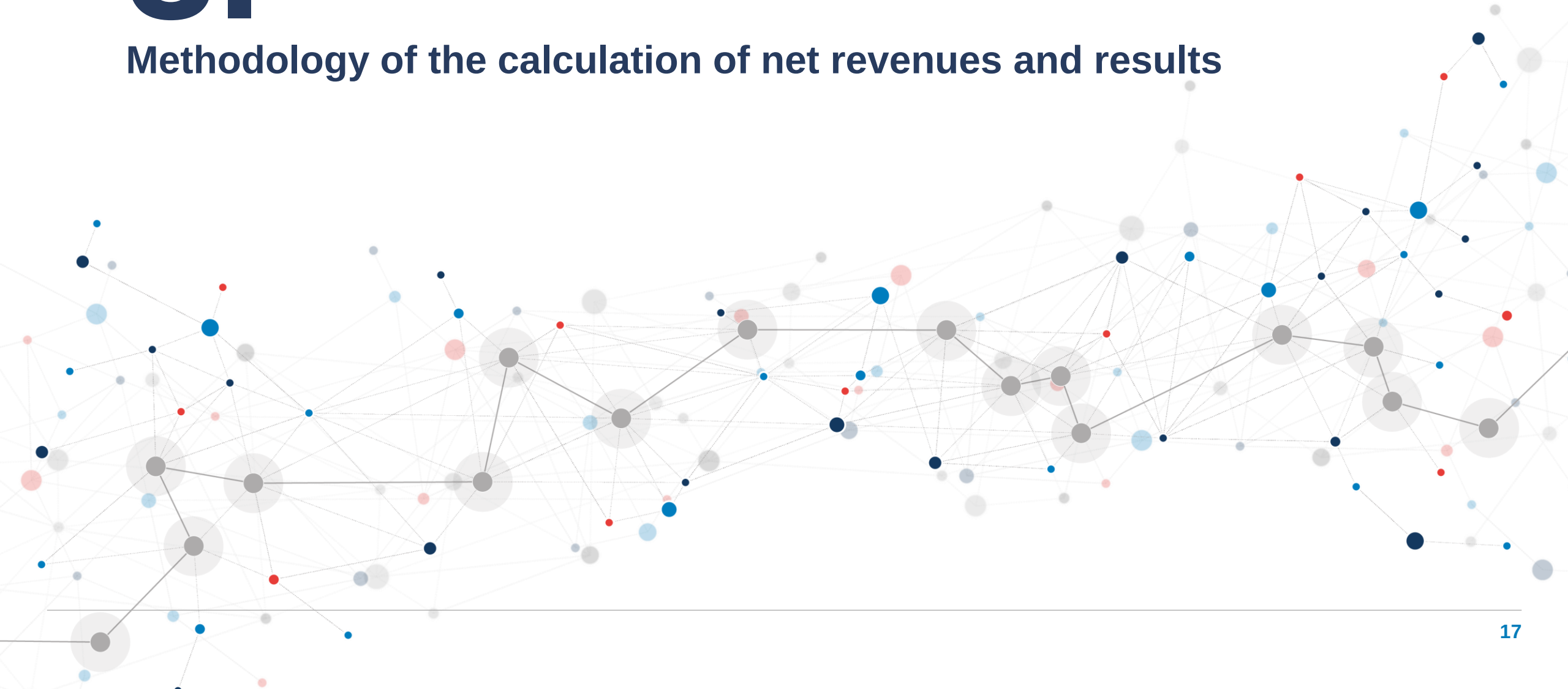


- **Using the installed capacity data, we computed the yearly gross balancing revenue per kW** of installed capacity for each technology
  - For more accurate results, we used a monthly extrapolation across years to capture installed capacity evolutions every month.
- **When corrected for installed capacity, OCGTs earn the highest gross revenues per kW,** driven by high revenues split equally across reservation and activation – at around 180 €/kW/year
- **Storage units also earn high revenues per kW**, particular in FCR, since their total revenues are spread across still limited installed capacity, reaching more than 130 €/kW/year.
- As **CCGTs have a larger installed capacity, their revenues per kW are smaller** – reaching 30 €/kW/year.

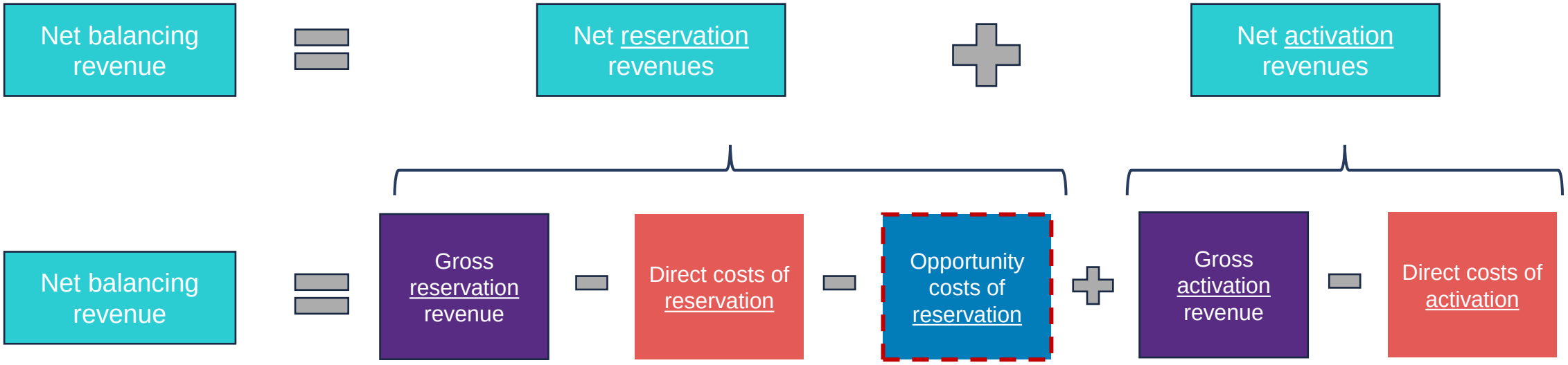
Source: Compass Lexecon analysis based on Elia data.

3.

Methodology of the calculation of net revenues and results



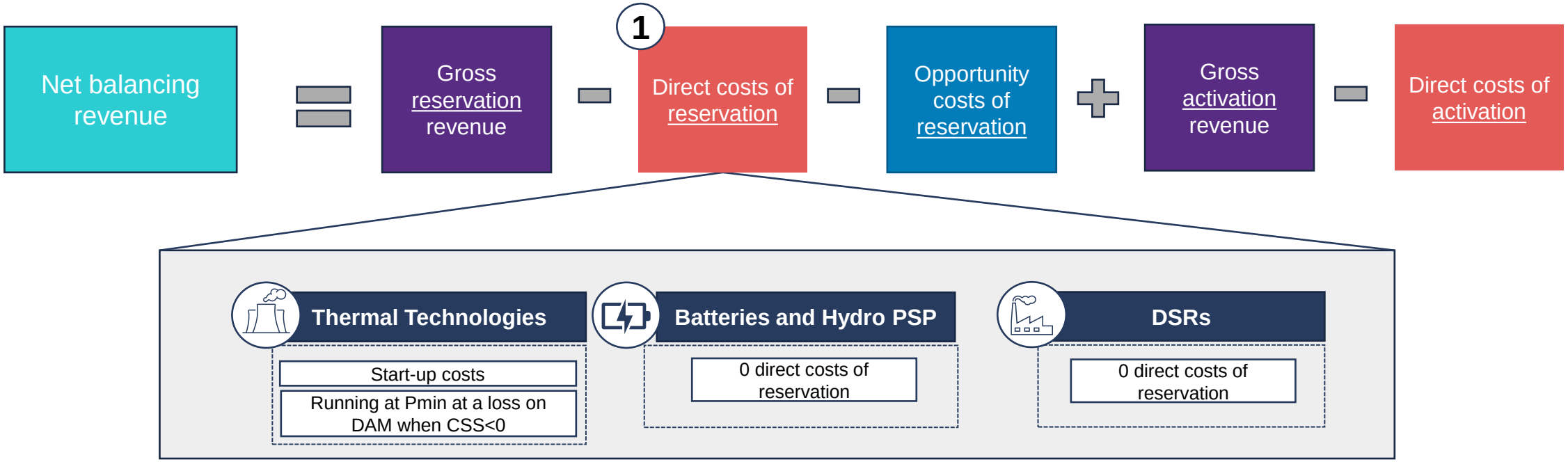
We obtain net balancing revenues by subtracting reservation and activation costs from gross revenues



The aim of the study is to compute net balancing revenues by technology, correcting for the various cost components affecting reservation and activation

Note: 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

Net balancing revenue = Gross reservation revenue − Direct costs of reservation − (2) Opportunity costs of reservation + Gross activation revenue − Direct costs of activation

Thermal Technologies
CSS if CSS > 0 for Up reservation

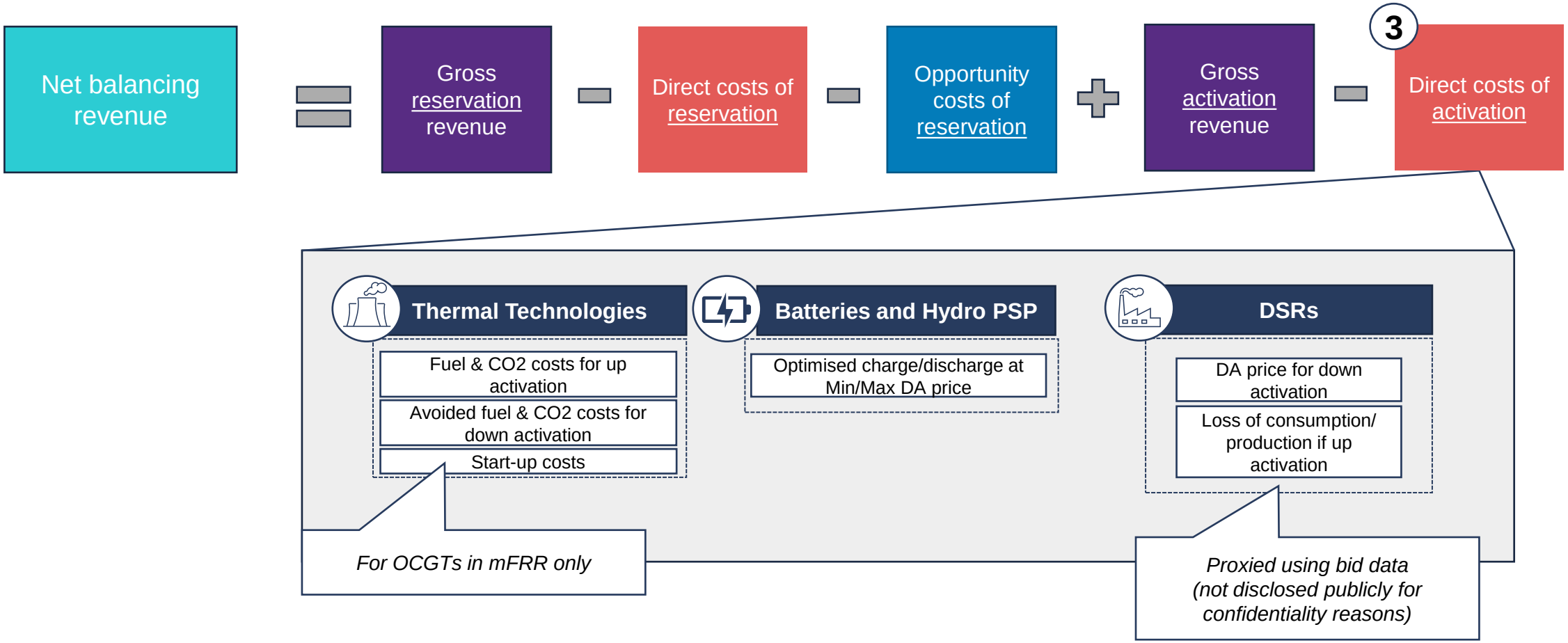
Batteries and Hydro PSP
Foregone revenues in DA based on optimized battery dispatch

DSRs
0 MC

- We assume that **DSR** has no opportunity cost of reservation.
- 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

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

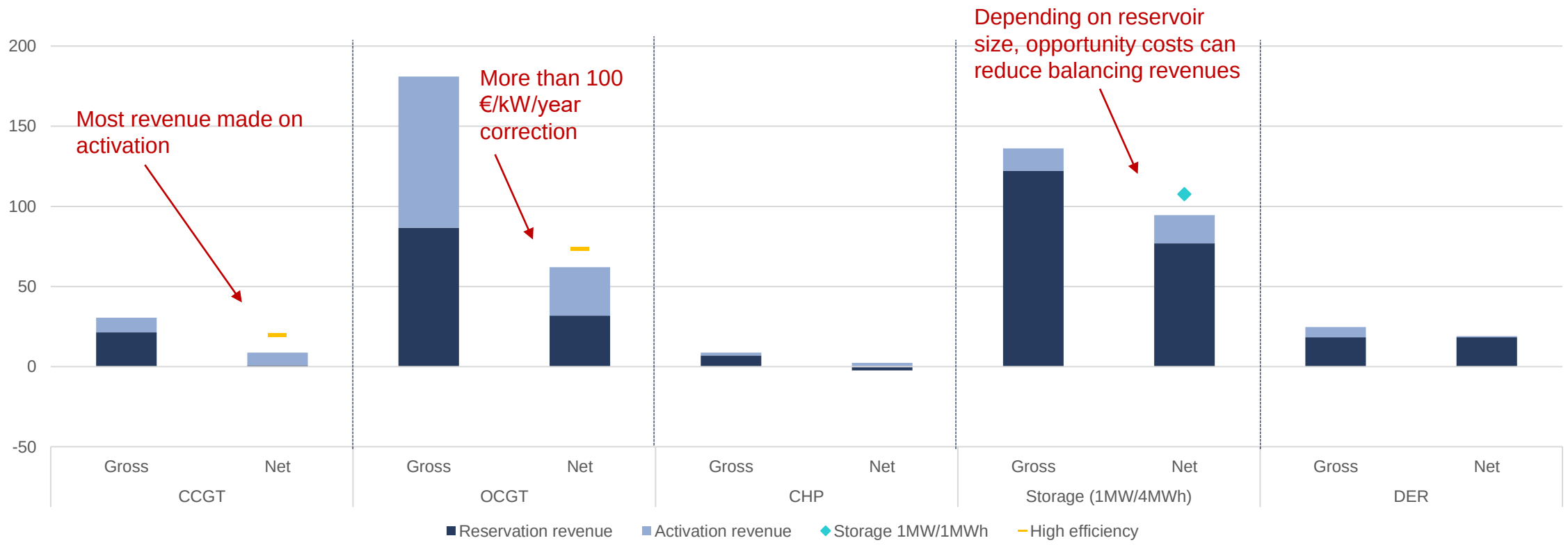


*We use the Zeebrugge Gas Hub price to calculate the gas SRMC

Net balancing revenue results by technology

Correcting the revenues by direct costs and opportunity costs significantly reduces CCGT and OCGT revenues. For batteries the magnitude depends on the assumed capacity-to-storage ratio.

Average annual balancing revenue per kW of installed capacity 2021/05 – 2024/04 [€/kW/year] – gross and net revenues



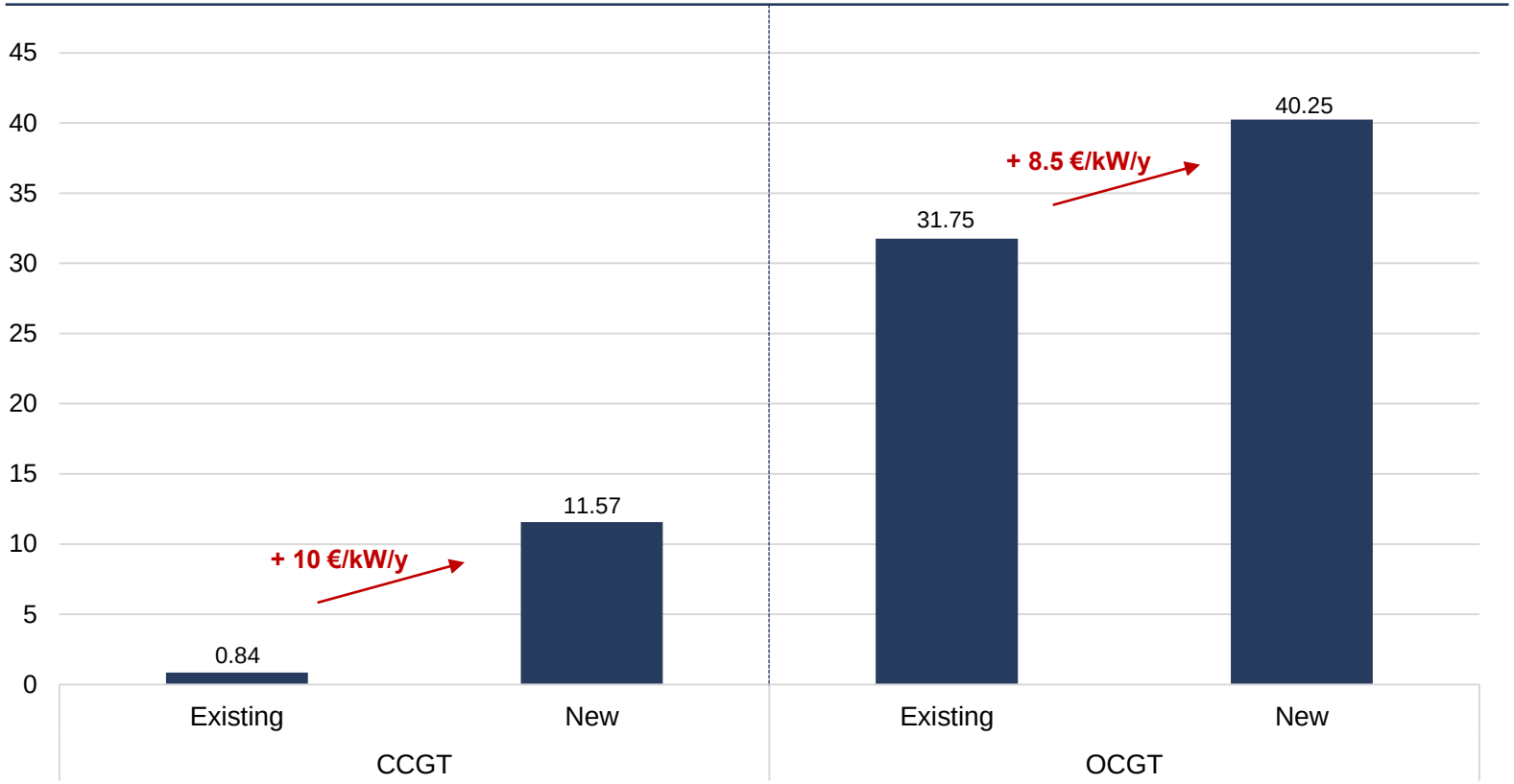
A large share of net revenues can be explained by revenues earned in activation, which was not accounted for previously

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.

Gas Turbines – Net reservation revenue sensitivities

New high efficiency gas turbines could earn significantly higher net revenues in reservation than the average existing plant

CCGT & OCGT: Net reservation revenue per kW installed capacity May 2021 – Apr. 2024 [€/kW/year]



CCGT

- The net revenue calculation for **existing plants** yields revenues of 0.84 €/kW/year.
- **New high efficiency entrants** could earn net revenues around 11 €/kW/year.

OCGT

- Relative to the revenues of existing plants, **new high efficiency plants could earn extra revenues** of c. 8.5 €/kW/year (27%).

Assumptions

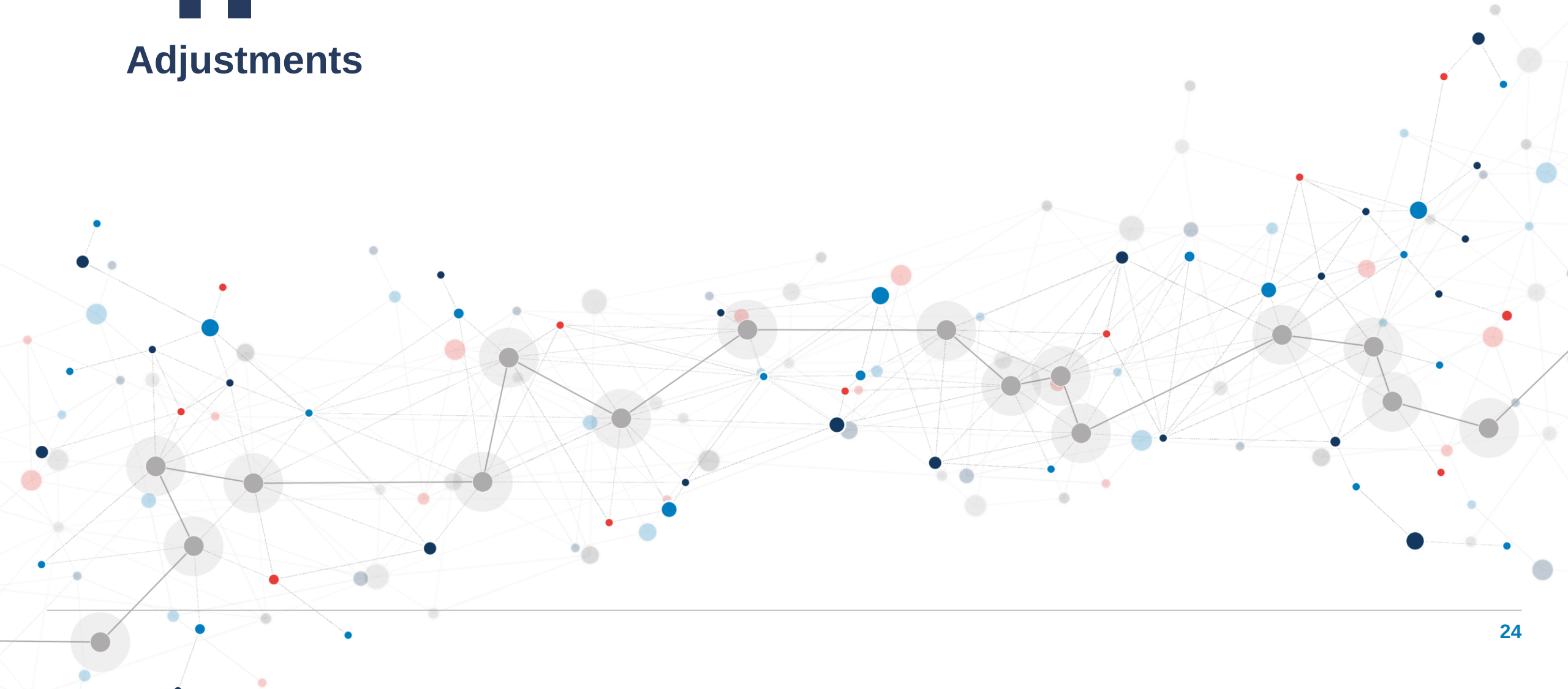
CCGT	Existing	New
Efficiency	50 - 58%	61%
Capacity	4675 MW (2021) – 3418 MW (2024)	876 MW*

OCGT	Existing	New
Efficiency	35 - 42%	42%
Capacity	294 MW (2021) – 849 MW (2024)	244 MW*

**To normalize revenues of new high efficiency plants, as a reference the installed capacities of the current highest efficiency plants were considered for CCGTs (876 MW) and OCGTs (244 MW) respectively. They were then assumed to operate at an increased efficiency as stated in the tables above.*

4.

Adjustments



Future net balancing revenue adjustments

The future net revenue adjustments follow the same approach as in the 2023 study, based on updated data and assumptions

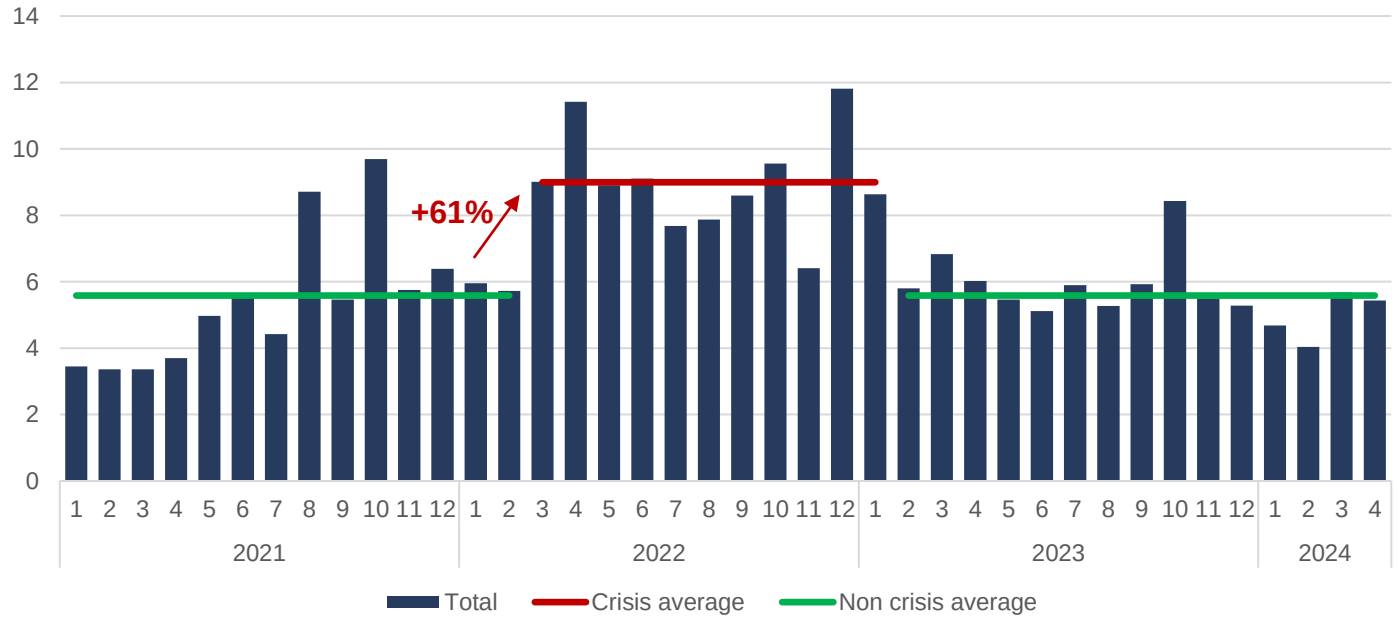
	2023 study	2024 study
FCR convergence	▪ Several approaches were investigated to define an adjustment factor for FCR price convergence. The chosen approach assumed a **price convergence towards the German average price outside a crisis period** (09/2021 – 03/2023).	▪ For consistency, the **same approach was taken as a baseline**. In line with last year, we assume convergence to happen gradually towards 2028, with full convergence for the Y-4 auction, and a linear development for the Y-1 and Y-2 auctions.
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 for OCGTs and to a lesser extent batteries.
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.
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 was taken as a baseline**. Additionally, a purely data driven approach, identifying for each market the months surpassing average net revenues by more than a standard deviation, has been investigated, but did not yield major differences.

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** (+61% 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 2021 - Apr 2024)



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.

Crisis correction factors

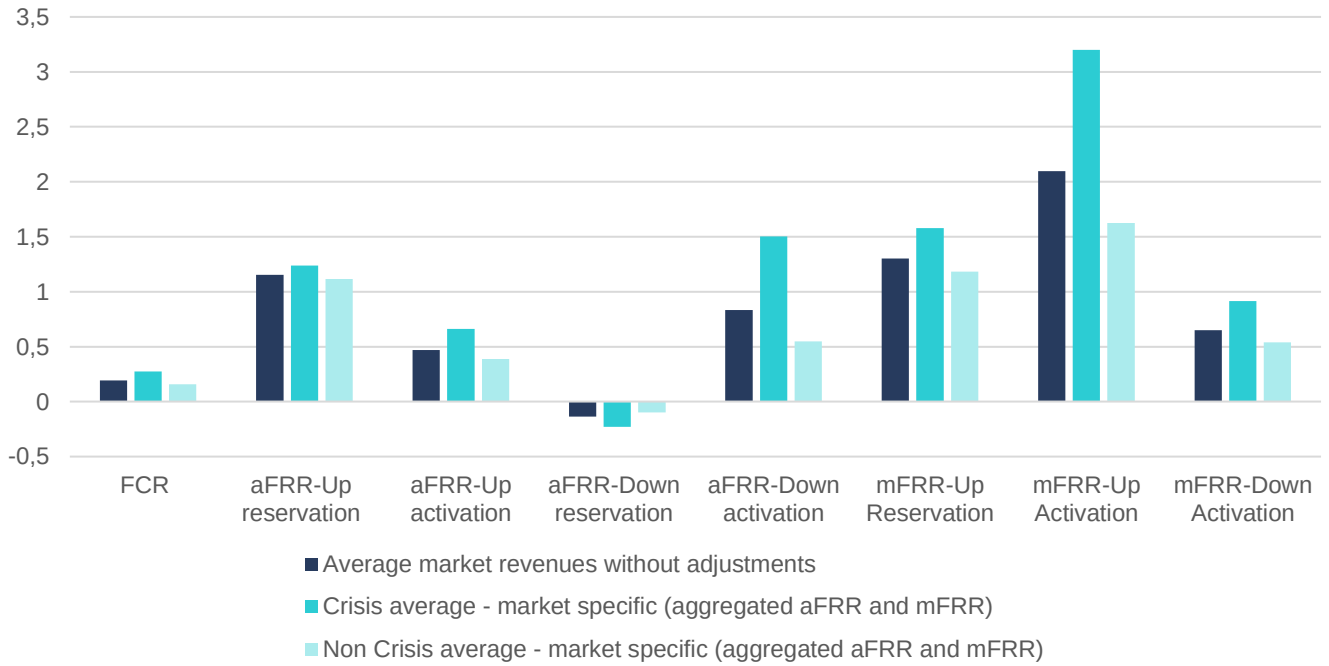
To eliminate the extraordinary effects of the energy crisis we calculate correction factors that are then applied to rebase net revenues and obtain a better view of expected future revenues

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

- **Following the 2023 methodology,** we chose the Market specific adjustment, corresponding to a crisis period aggregated for all aFRR and mFRR markets respectively, of the 12 months of highest net revenues.
- From these differences in mean revenues**, we derive correction coefficients** which we can apply to crisis months in each approach, to account for the crisis effect
- A data driven approach (based on deviation from mean revenues over the period) was tested, but did not yield substantially different results.

The definition of a 12-month crisis period for aFRR and mFRR respectively allows us to calculate a correction factor to be applied to obtain crisis-corrected revenues

Average net revenues in crisis vs. non-crisis periods across products (€/kW/year)



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	1	0,91	0,42	0,61	0,35	0,72	0,51	0,57

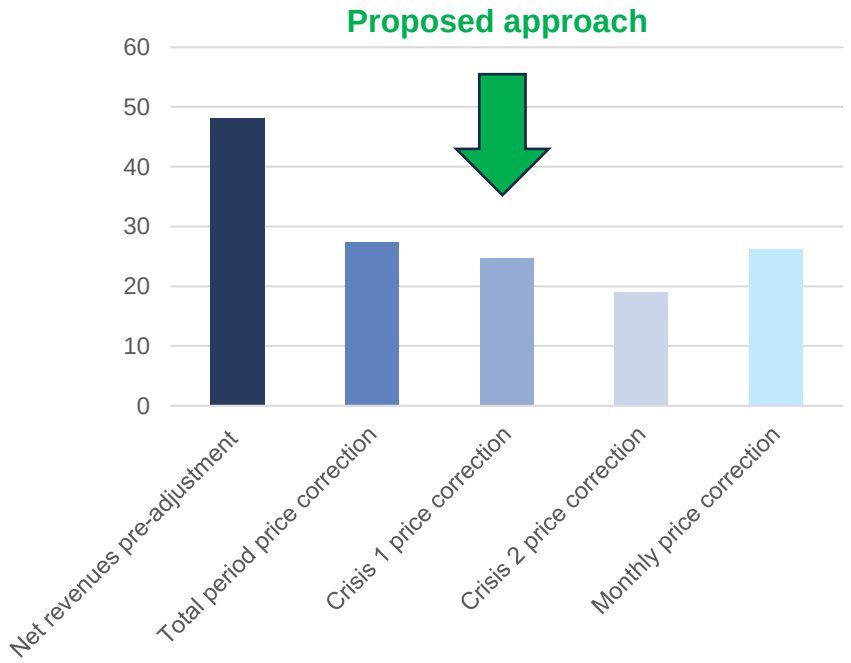
Correcting for expected future FCR price convergence leads to a decrease in FCR revenues for storage, depending on the FCR target price

We correct FCR revenues to account for the expected future convergence of prices with Germany.

- We assume that this convergence will gradually occur **starting in 2025 towards 2028**, reaching full convergence then thanks to market integration and development of batteries in Belgium.
- Here, the correction coefficients can take different values **depending on the expected price towards which FCR prices start converging.**
- We calculate **four correction coefficients** based on the difference between Belgium average FCR prices over the 2021-2024 period, compared to different German/XB average prices.
- For consistency, we propose to select the **same approach as last year's methodology,** assuming a price convergence towards the German average price outside a crisis period (09/2021 – 03/2023).
- 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.

Progressive correction factors							
	Historical	2025	2026	2027	2028	2029	2030
Total period price correction	1.00	1.00	0.86	0.71	0.57	0.57	0.57
Crisis 1 price correction	1.00	1.00	0.84	0.68	0.51	0.51	0.51
Crisis 2 price correction	1.00	1.00	0.80	0.60	0.40	0.40	0.40
Monthly price correction	1.00	1.00	0.85	0.70	0.54	0.54	0.54

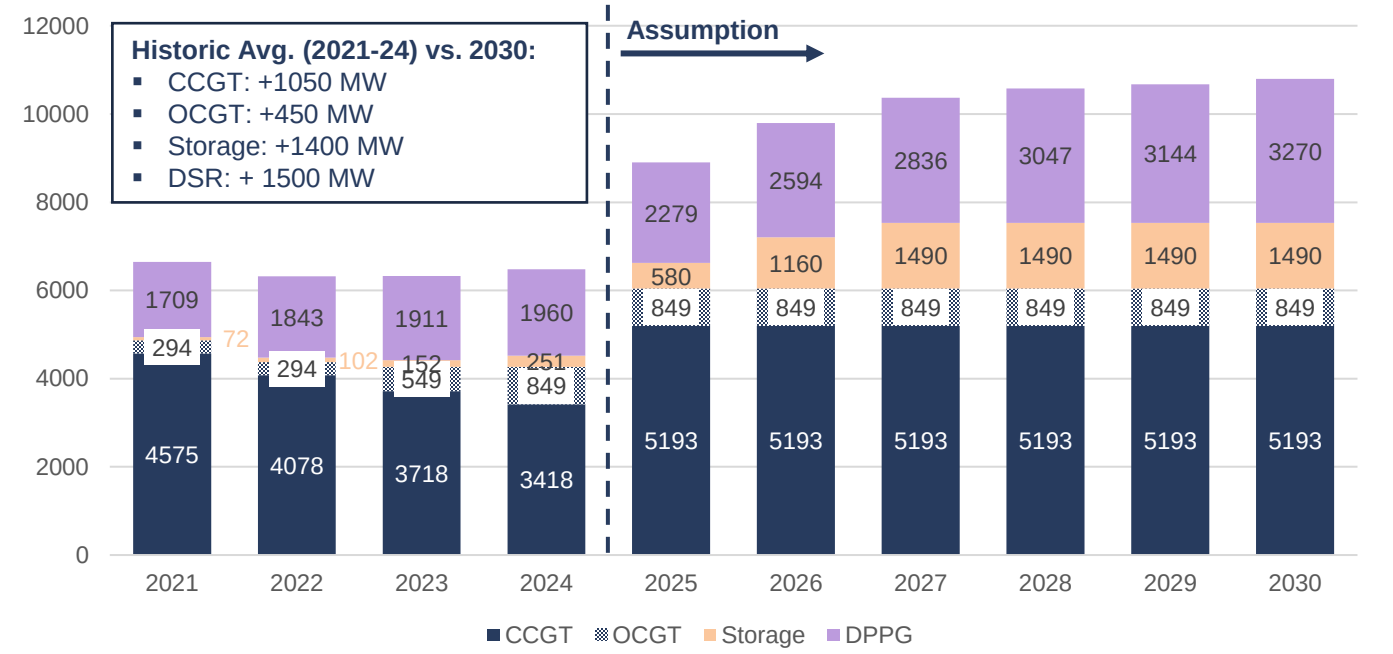
Storage FCR revenues in 2028/2029 [€/kW/year]



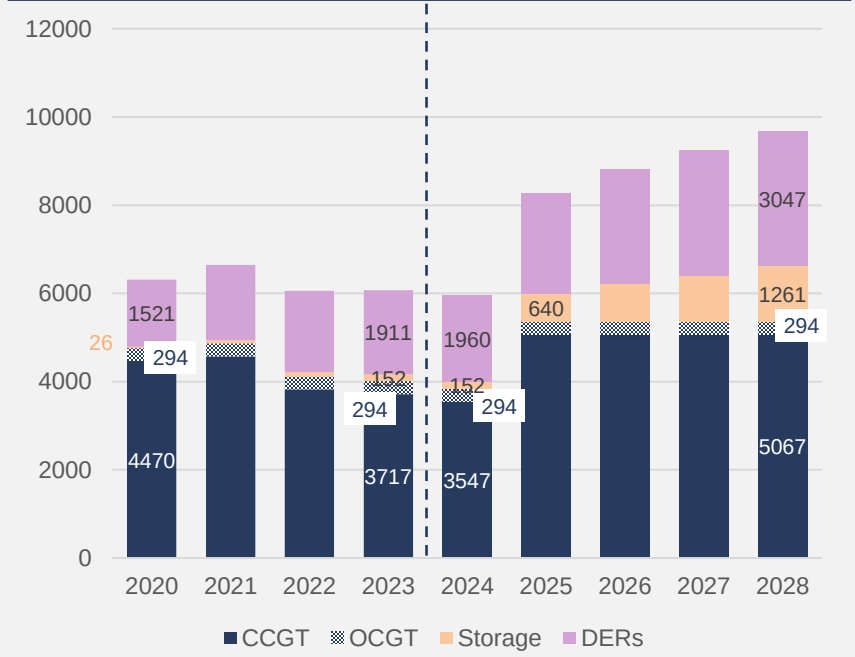
Future installed capacity evolution

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: 2023 study assumptions (MW)



- **Capacities of CCGTs, OCGTs, Storage and DPPG are all set to rise**, calling for a downward correction of future net revenues per kW.
- Compared to the 2023 study, a particularly noteworthy change concerns the **installed capacity of OCGTs**.
  - 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

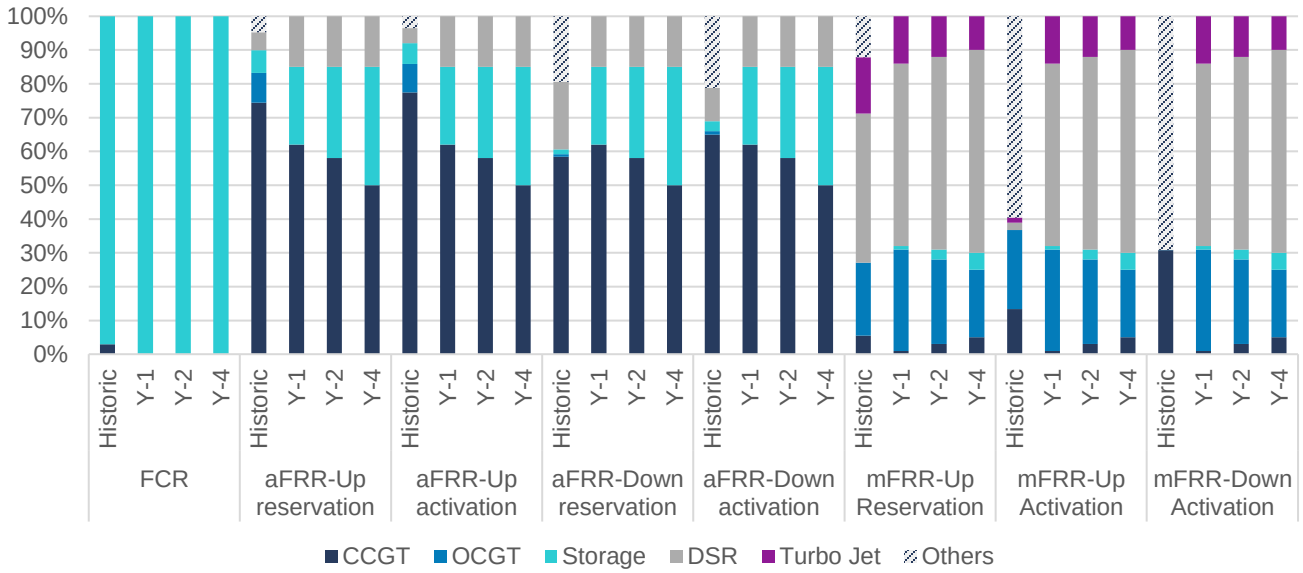
Source: CL analysis based on installed capacity data and future assumptions provided by Elia

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

- Substantial capacity expansions will mean that a large fraction of balancing volumes in the future will be provided by storage and DSR
- For aFRR markets, this will particularly come at the expense of CCGTs currently providing a large share of these volumes
- In mFRR, particularly OCGTs will be affected by this development.

We use the ratio between the historic market share of a technology and its expected share in 2026-27, 2027-28 and 2029-30 (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 (2021-24) and expected 2026-27 (Y-1) and 2029-30 (Y-4) technology mix by



2029-30 technology mix adjustment coefficients

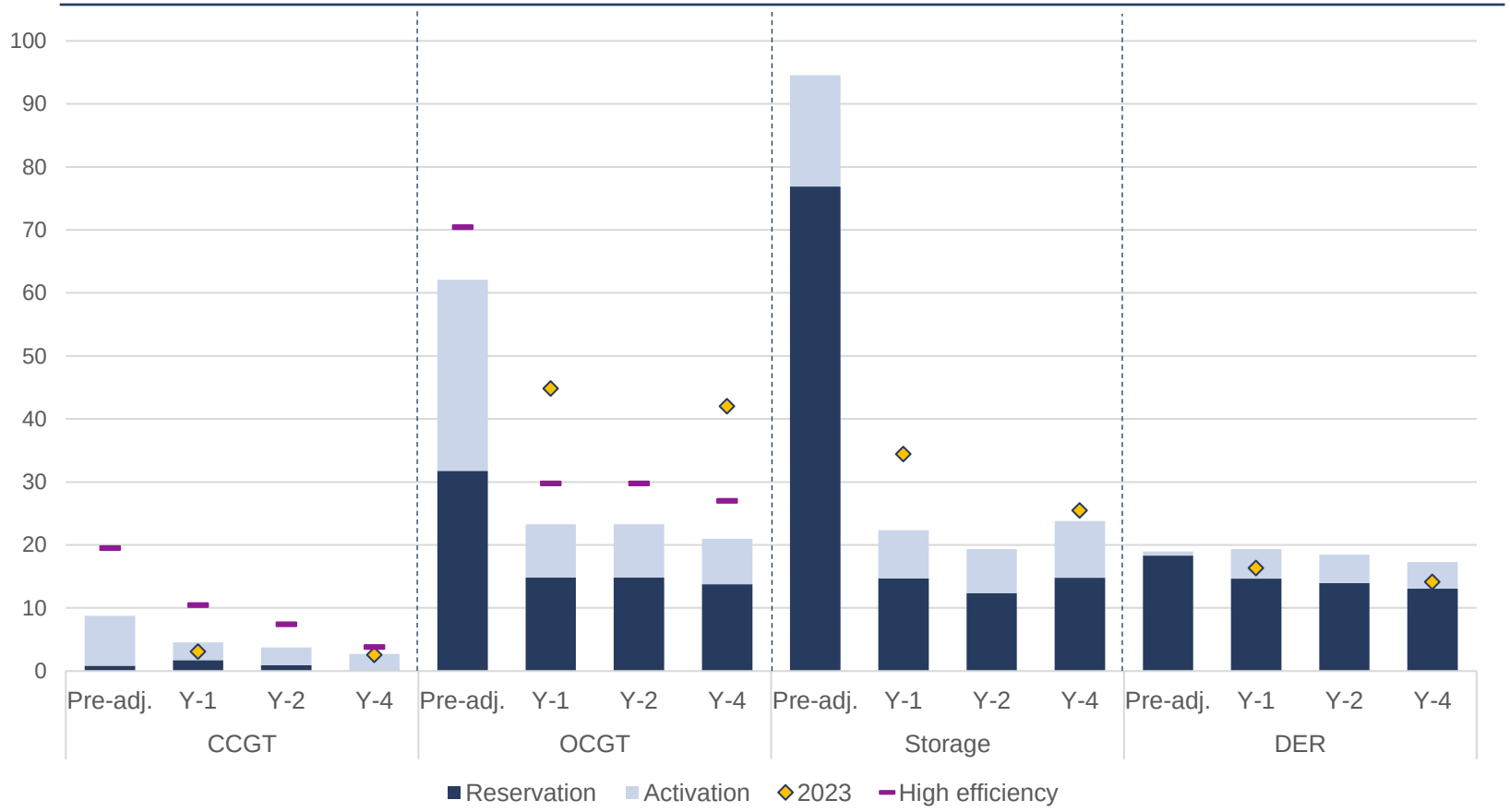
	FCR	aFRR-Up reservation	aFRR-Up activation	aFRR-Down reservation	aFRR-Down activation	mFRR-Up Reservation	mFRR-Up Activation	mFRR-Down Activation
DSR	0.00	1.88	2.26	0.50	1.02	1.36	27.33	-
CCGT	0.00	0.67	0.65	0.86	0.77	0.90	0.37	0.16
OCGT	0.00	0.00	0.00	0.00	0.00	0.93	0.86	1.00
Storage	1.03	6.01	6.54	28.87	13.60	-	-	-

Note: Others represent the different technologies that make the historical mix, such as wind and hydro

Final adjusted net revenue results

OCGTs revenues are now closer to Storage due to updated capacity assumptions.

Adjusted net revenues for Y-1 (2026-27), Y-2 (2027-28) and Y-4 (2029-30) auctions (€/kW/year)



- The **continuity in adjustment method** yields similar results to last year's study for CCGTs, DSR and Turbo Jets.
- For **Storage** a significant reduction for Y-1 is observed largely due to a strong increase in installed capacity for 2026-27 compared to 2025-26 (last year's focus). This difference becomes less important for the Y-4 auction.
- For **OCGTs**, the reduction relative to the 2023 study is predominantly caused by updated assumptions on installed capacity, due to recent CRM auction results.

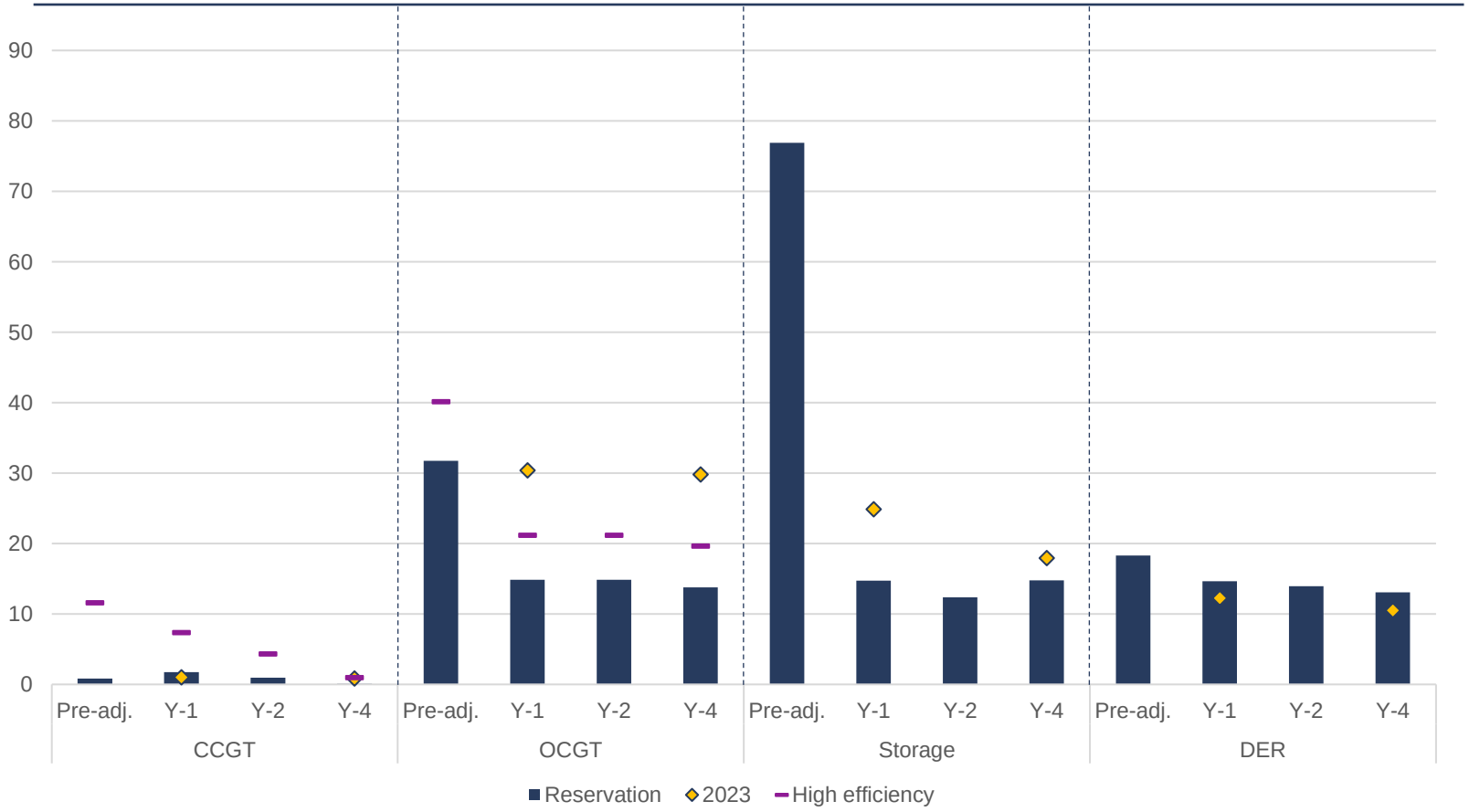
Reservation revenues make the greatest portion for most technologies, yet activation revenues nevertheless present an important source of revenues.

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.

Final adjusted net reservation revenue results

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

Adjusted net reservation revenues for Y-1 (2026-27), Y-2 (2027-28) and Y-4 (2029-30) (€/kW/year)



- The **continuity in adjustment method** yields similar results to last year's study for CCGTs, DSR and Turbo Jets.
- For **Storage** a significant reduction for Y-1 is observed largely due to a strong increase in installed capacity for 2026-27 compared to 2025-26 (last year's focus). This difference becomes less important for the Y-4 auction.
- For **OCGTs**, the reduction relative to the 2023 study is predominantly caused by updated assumptions on installed capacity, due to recent CRM auction results.

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, but is particularly hard to quantify.

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
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
Singapore

CRM Strike price calibration

Strike price calibration – update

In previous years, the strike price has been calibrated by E-Cube in concertation with their Market Response Volume calculation

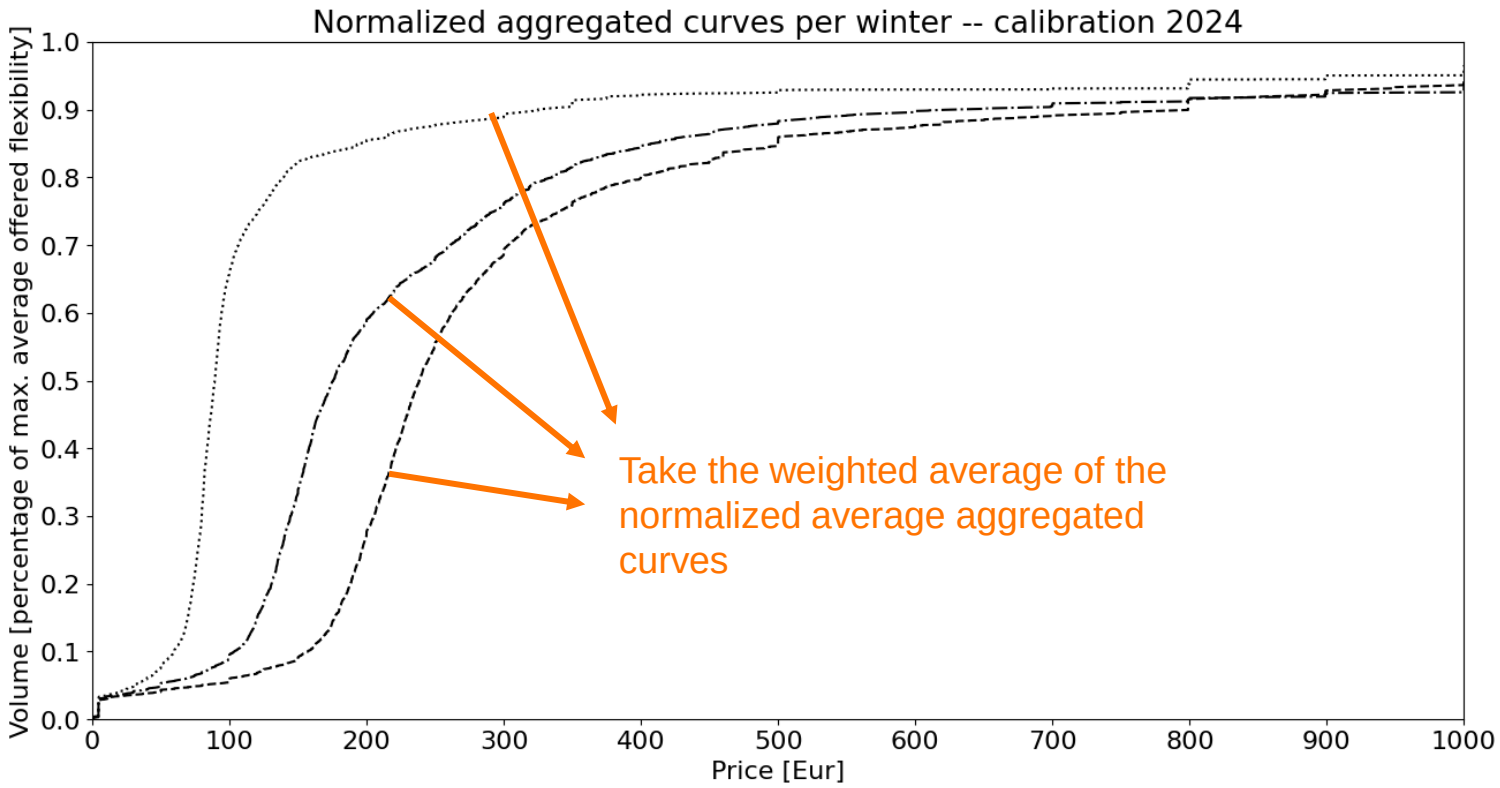
This year, N-Side performed the market response volume study and Elia will calculate the strike price calibration curve:

- Methodology is clearly defined in the legal framework (RD methodology Art 27. §1)
- The bids are processed using N-Side's updated methodology for the MRV calculation

Strike price calibration – methodology reminder

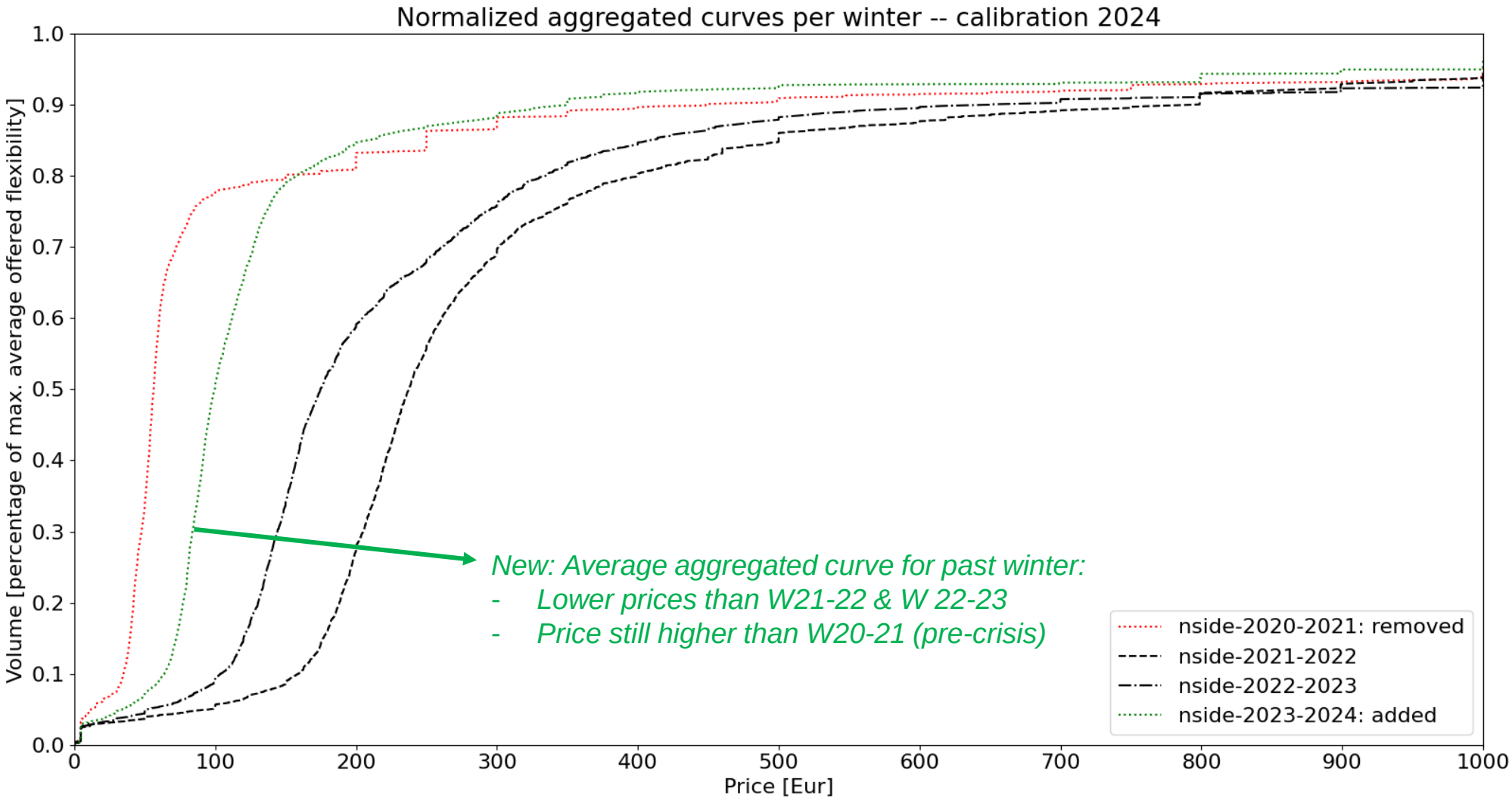
The calculation of the strike price calibration curve consists of the following steps:

1. Gathering all bids submitted in the day-ahead market (both demand/supply & simple/complex)
   - On bids with a price in the range [0; max_price[are kept
   - → **Alignment with N-side MRV methodology is applied in this step**
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 calibration window between 75% and 85% of total offered volume



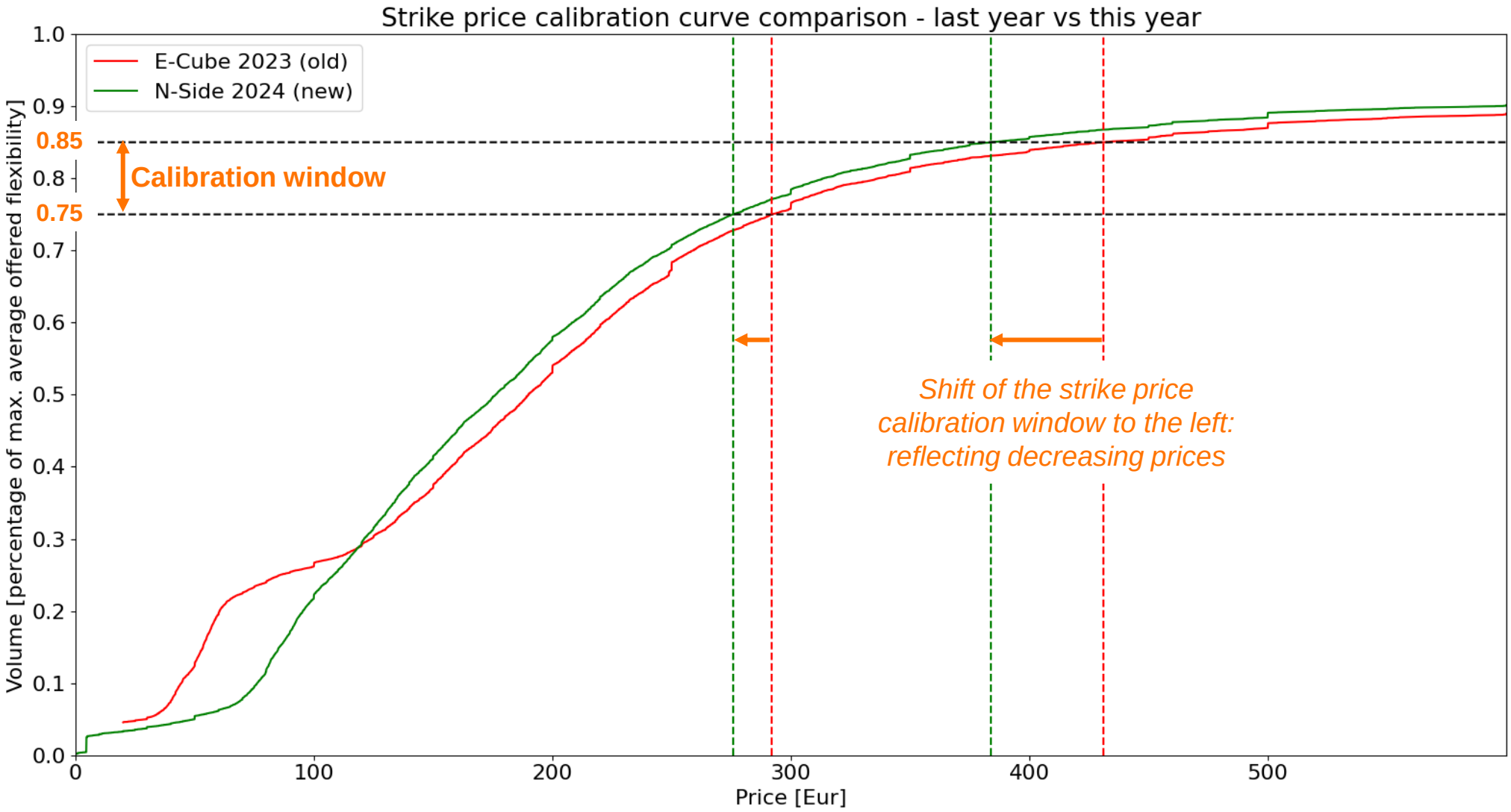
Evolution of the normalized aggregated curves used to determine the strike price in 2024

Added: winter 2023-2024 **Removed: winter 2020-2021**



Comparison of the strike price calibration curves of 2023 and 2024

Calibration curve 2024 (N-Side data) Calibration curve 2023 (E-Cube)



Strike price calibration – results

The calibrated strike price range:

Year of calibration	Delivery Period	Lower bound [Eur/MWh]	Upper bound [Eur/MWh]
2023	2028-2029	292	431
2024	2026-2027 2029-2030	276	384

The fixed component:

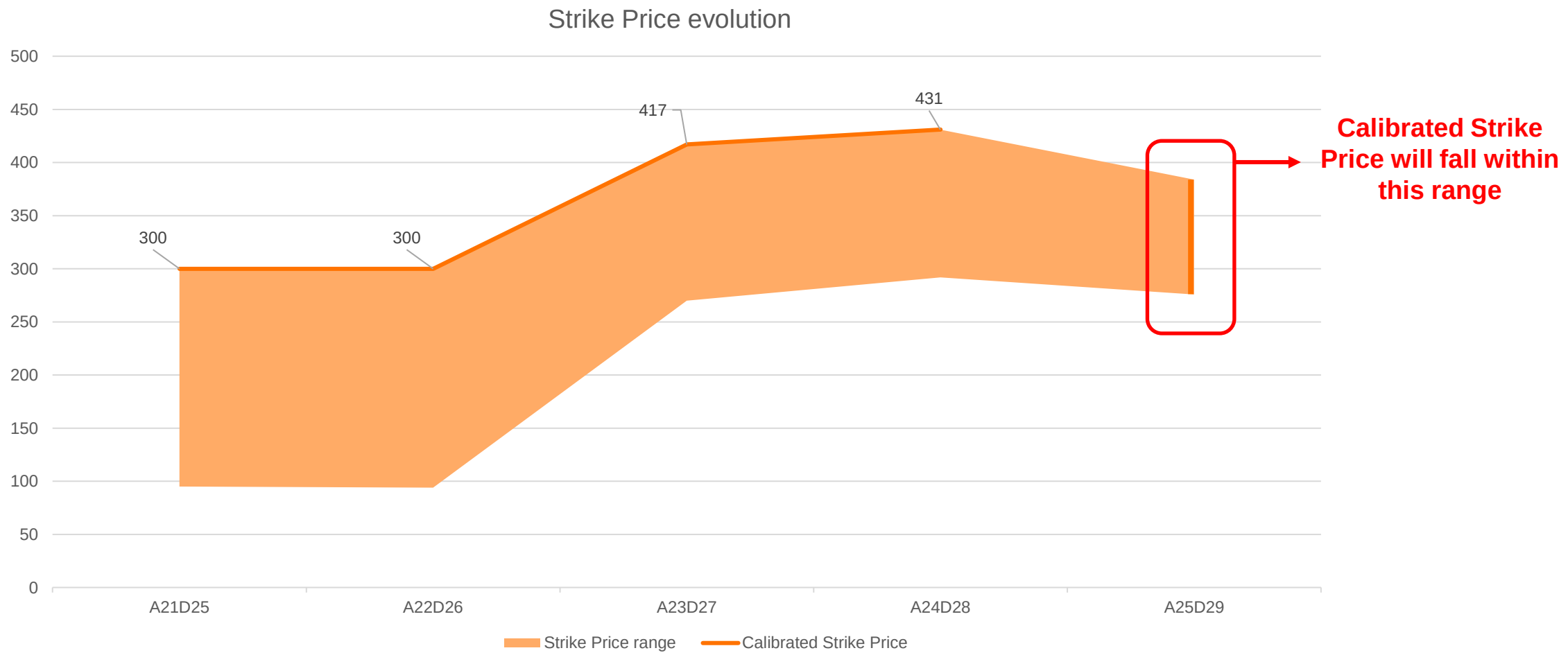
Year of calibration	Delivery Period	Strike price [Eur/MWh]	Fixed component [Eur/MWh]
2023	2028-2029	431	266
2024	2026-2027 2029-2030	[TBD]	[TBD]

Elia makes proposal in calibration report

Strike price calibration – strike price evolution

Evolution of the strike price calibration window

- Strike range is decreasing, the higher weight of last winter's aggregated curve pushes the strike price range down



CRM design evolutions

Topics to be presented today

- Process to evolve from Virtual to Existing
- Downwards Revision
- Decoupling Permitting Milestone & Quarterly Report
- Baselining
- Grid Constraints

Virtual to Existing

Current process

1. The Virtual CMU contracts 100 MW, the linked Existing CMU does not exist yet.

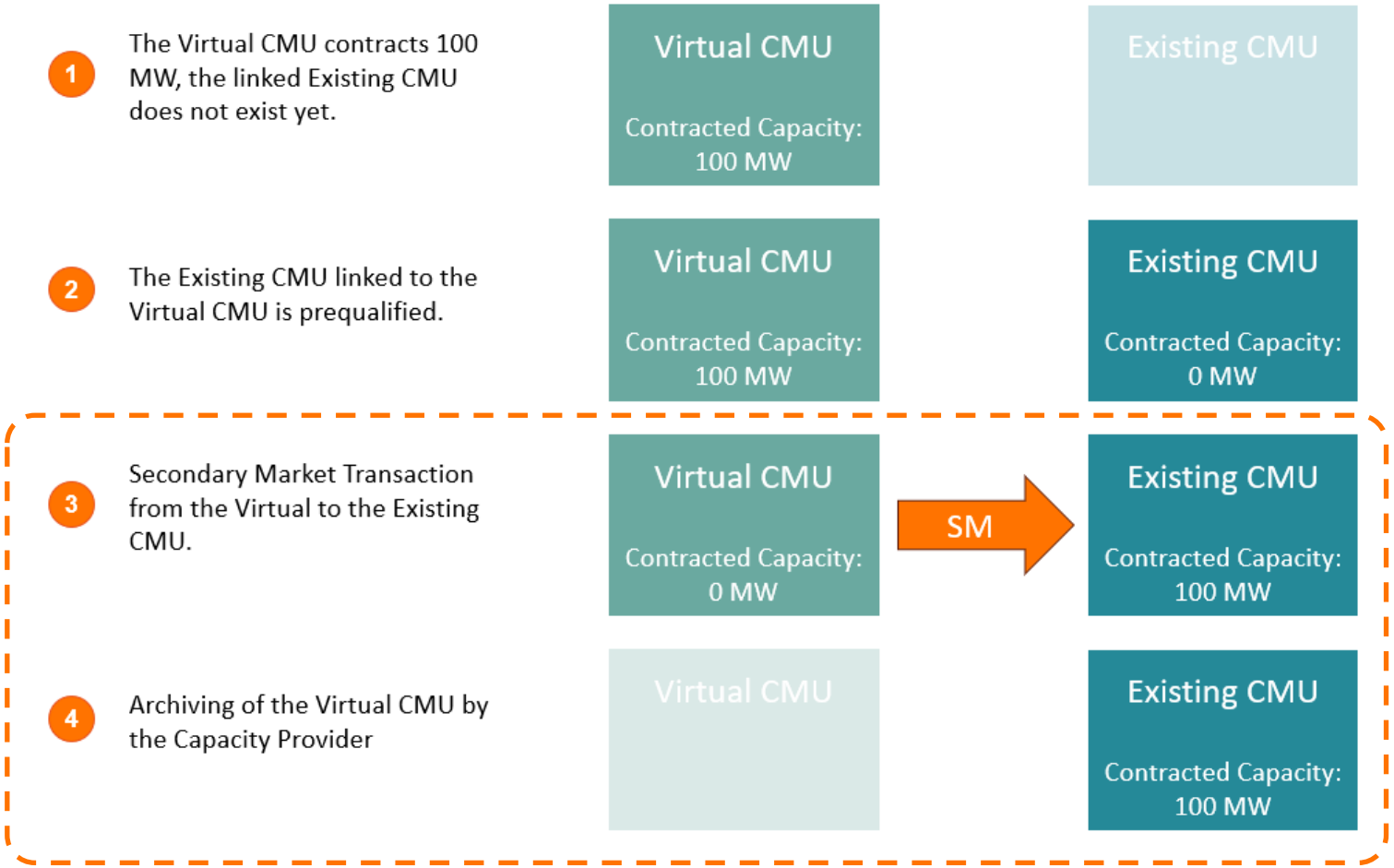
2. The Existing CMU linked to the Virtual CMU is prequalified.

3. Secondary Market Transaction from the Virtual to the Existing CMU.

4. Archiving of the Virtual CMU by the Capacity Provider

- Complicated process that requires input from Market Parties at multiple occasions

Elia proposes to streamline the process



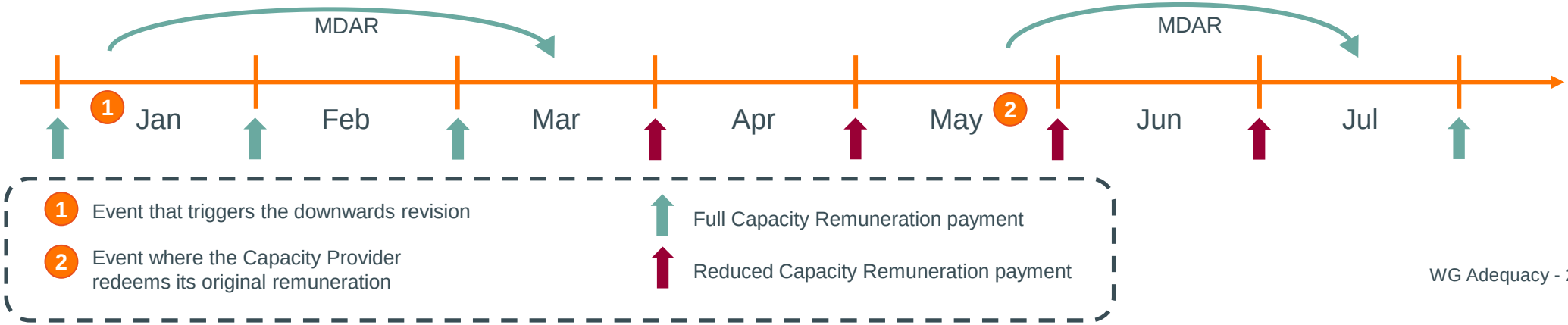
In the new proposal the Contracted Capacity is automatically transferred once the Prequalification of the Existing CMU is complete
No Secondary Market Transaction is required from the Capacity Provider, and when the Virtual CMU is “empty” it is automatically archived.

Downwards Revision

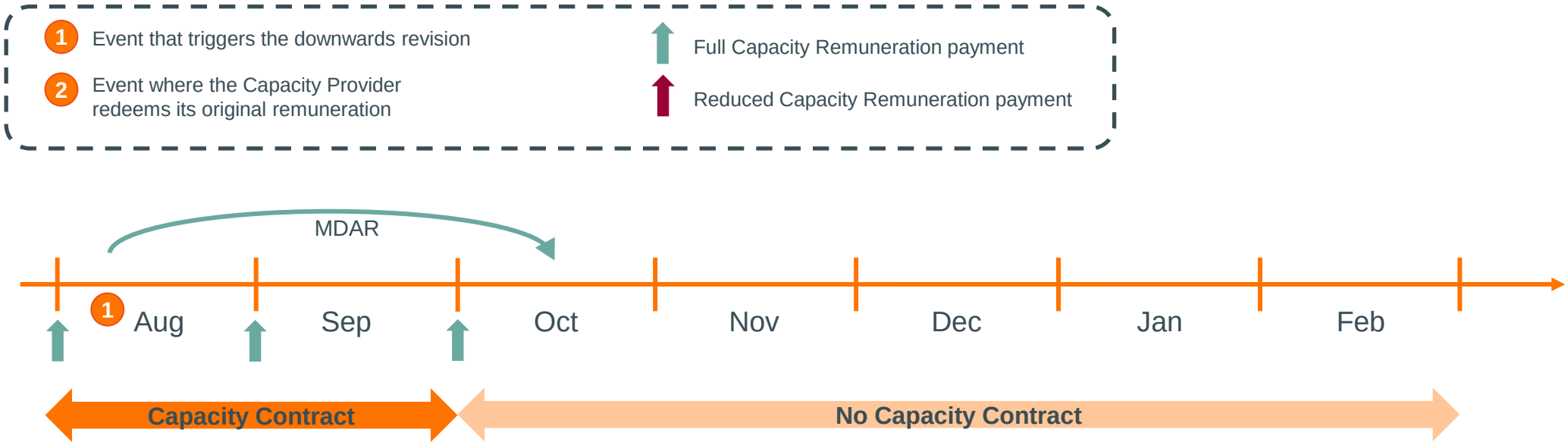
Downwards Revision

Current design and shortcomings

- When a CMU fails its Availability Obligation repeatedly, a downwards revision of its monthly capacity remuneration is applied
- The current Functioning Rules imply that this reduction is carried out at the payment of the remuneration, i.e. at the beginning of each month
- The start of the downwards revision takes place through the Monthly Delivery Activity Report (MDAR)
  - Sent to all Capacity Providers for month M at the 15th of month $M + 2$
  - This delay is needed to use validated metering data for the assessment of the availability
  - As a result, the downwards revision can only be carried out with a delay



The current design fails at the end of the Delivery Period



- The Downwards Revision can carry over to the next Delivery Period, but only when the CMU also has a contract for that Period
- When there is no subsequent Capacity Contract, there is no Capacity Payment that can be reduced
- This creates a possibility to ‘escape’ the downwards revision

Proposal from Elia

- The downwards revision is no longer applied at the Capacity Remuneration Payment
- It is included as a penalty in the MDAR that needs to be paid by the Capacity Provider

- Cons:
  - Counter-intuitive to first do a payment that a Capacity Provider might have to (partially) pay back
- Pros:
  - No possibility to avoid the downwards revision
  - Clearer for Capacity Providers to check whether the accumulated downwards revision adds up to the penalty cap

Decoupling Permitting Milestone & Quarterly Report

Permitting Milestone
Decoupling from the Quarterly Report

Throughout the pre-delivery period, both **Additional** and **Virtual** CMUs provide **quarterly reports (QR)** to ELIA.

- Contains information regarding the project execution plan, permits, as well as potential delays and so forth.
- Among others, the QR enables ELIA to **verify** whether all relevant **permits** have been granted.

Currently

At present, the Permitting Milestone is reached if Capacity Provider demonstrates **through the QR** (i.e., 4 occasions in a year) that all relevant permits have been granted in last administrative instance.

- Therefore, the Permitting Milestone is linked to the QR as it can only be demonstrated through the QR .

Proposal

ELIA proposes to **decouple the Permitting Milestone from the QR** and allow the Capacity Provider to **demonstrate at any time** that all relevant permits have been granted.

- In practical, the Capacity Provider can claim reaching the Permitting Milestone through the CRM IT Interface, at any time, instead of waiting for a QR to demonstrate it.
- Information about the project execution plan, permits, delays and so forth remain to be provided.

Baseline evolutions

Improving the baseline methodology – Reminder

1 Accommodating different consumption profiles

The currently used high X of Y baseline methodology can only accurately estimate the baseline for a specific group of delivery points, a new baseline methodology is needed to accommodate consumption profiles that do not follow a systematic pattern

2 Reducing complexity of the current baseline method

The current version of the High X of Y methodology applied in the CRM is complex. This complexity arises from the possibility of several optional variations of the methodology. This variation lies in the ability to request to remove certain days from the baseline calculation, the ability to request a baseline adjustment, the possibility to request different categories of reference days, etc.

→ Proposals to reach these goals are contained in the **baseline design note** published on 30/08

Improving the baseline methodology – Proposals contained in design note

To improve the existing baseline, four “technical” design modifications are proposed in the design note

1. Default application of the baseline adjustment
2. The baseline adjustment is asymmetrical
3. Remove the “Monday” category for reference days
4. Selection of X representative days per individual MTU

➢ See next slides

In addition, the design note contains a design proposal for the introduction of a declarative baseline.

Default application of the baseline adjustment

High X of Y: current design

A same-day adjustment (SDA) can be applied on the explicit request of the capacity provider

- Request per individual Delivery Point & MTU
- Request is validated based on 80 last days using a complex analysis

High X of Y: Proposal I

To improve the accuracy of the baseline and to eliminate the administrative burden, the adjustment is applied by default

- A same-day adjustment typically results in a more accurate baseline, as it enables to also consider circumstances very close to the moment of delivery

The baseline adjustment is made asymmetrical

High X of Y: current design

The same-day adjustment is a symmetrical adjustment, calculated as follows:

$$P_{Baseline,Adjusted}(t) = P_{Baseline}(t) + P_{Adjust}(t)$$

$$P_{Adjust}(t) = P_{Adjust,D}(t) - P_{Adjust,X}(t)$$

High X of Y: Proposal II

Capacity providers are only expected to request a SDA in case it results in an improvement of their baseline value. Therefore, by making the baseline adjustment asymmetrical, **it is only applied at times when capacity providers request it anyway.**

As a result, the default calculation leads to the exact same outcome as the current design, while it eliminates the administration.

$$P_{Baseline,Adjusted}(t) = P_{Baseline}(t) + P_{Adjust}(t)$$

$$P_{Adjust}(t) = Max\{0;\ P_{Adjust,D}(t) - P_{Adjust,X}(t)\}$$

Removal of the “Monday” category for representative days

High X of Y: current design

The current design foresees the option to consider “Mondays and days following a holiday” as a separate category next to working days and weekends.

High X of Y: Proposal III

The “Mondays and days following a holiday” category is eliminated.

- Improves the accuracy by enabling to use data closer to delivery
- Simplifies the methodology by limiting the number of various options

Selection of X representative days per individual MTU

High X of Y: current design

Currently, the baseline is determined in two steps:

1. Selection of Y reference days
2. Determination of X representative days

→ the same X days are used to calculate the baseline during all delivery MTUs

High X of Y: Proposal IV

Elia proposes to eliminate the second step, instead, the baseline is directly calculated as the average of the X highest values out of the Y identical MTUs on the Y reference days.

- Simplifies the baseline calculation
- More transparent calculation, with equal accuracy

Declarative baseline

The design note also contains a starting design proposal for the potential introduction of a declarative baseline methodology in parallel to the existing high X of Y method.

- Elia requests further input from market parties regarding the design proposal.
- Feedback is both requested on the design itself and on the **need for an additional methodology**

Auction – connection timeline and grid constraint evolutions

Auction – connection timeline and grid constraint evolutions

Elia has identified two potential improvements to the auction design:

1. The grid constraint calculation and the related capacity waiver that could potentially be eliminated
2. The evaluation of a unit's potential contribution to adequacy based on the connection timeline

Grid constraint calculation – context

A grid constraint calculation was introduced in the CRM design to anticipate potential competition for connection capacity (as opposed to “first-come first-served”).

However, this evolution is not materializing:

- It appears that no provisions to enable competition have been foreseen in the next Federal Grid Code v2
- Based on the way the connection process works (and will work in the foreseeable future), **conflicting connection capacity reservation is not possible**

Therefore, the necessity of the grid constraint calculation, and the capacity waiver linked to it can be put into question

- The connection waiver has often been questioned by capacity providers in the past

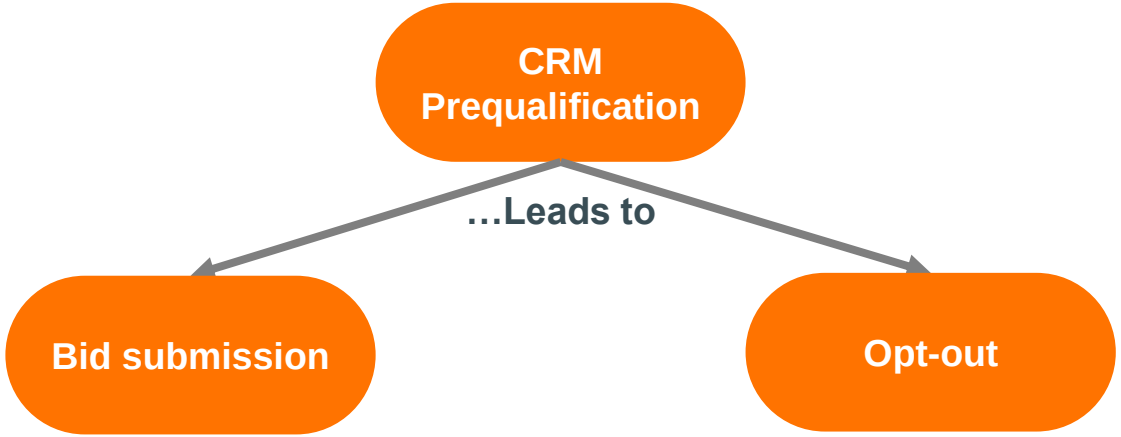
Grid constraint calculation – proposal for FRv5

To improve the way of working towards future auctions, Elia will propose the following way forward:

1. **Grid constraints rules are not completely removed from the Functioning Rules**
   - The rules are kept to anticipate any potential future evolutions of the connection process

2. **Instead, A standstill clause is introduced**
   - As long as the connection process does not change, no grid constraints are calculated for the Elia grid
   - The standstill clause also applies to the connection capacity waiver for Elia connected units: eliminating administrative load from the prequalification process
   - Other grid operators (DSOs, FTSOs) still send GC (if any) to Elia

Auction participation based on connection timeline



No evaluation of timely connection delivery performed

→ Participation still allowed even though connection potentially not ready before start delivery period

→ To-be – Alignment with Opt-out rules makes sense: no contribution to adequacy.

→ Participation not allowed if connection not ready in time: PQ File is rejected

→ Timeline evaluation is required (next slide)

§ 222: *"…based on the information available in the Connection Contract signed with ELIA or with the DSO, as applicable, it appears that the capacity will not be available by the start of the Delivery Period…"*

→ Opt-out considered as **OUT**

Evaluation of connection timeline

In order to evaluate the connection timeline, three different cases must be distinguished:

1 The unit has not signed a technical agreement before 25/08

- Prequalification file is rejected
- This case is already covered in the Functioning Rules today

→ No design changes foreseen

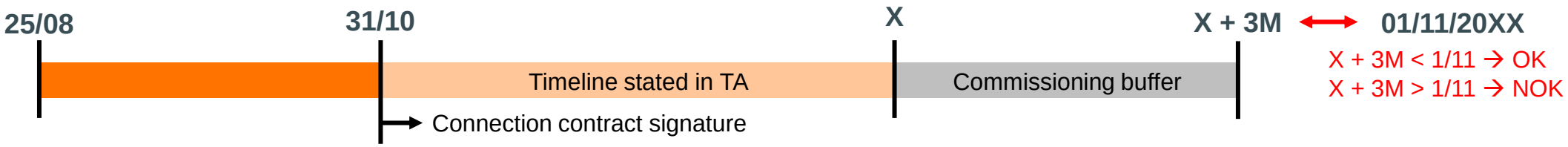
Evaluation of connection timeline

PROPOSAL

In order to evaluate the minimum connection timeline, three different cases must be distinguished:

2 The unit has signed a technical agreement (EDS)

- Evaluation based on connection timeline stated in TA
- Timeline starts as of the connection contract signature: earliest signature assumed to be 31/10 (auction results)
  - For units that only have a Technical Agreement, CRM selection prerequisite for project realization, connection contract signature only after CRM selection known
- A commissioning buffer of 3 months is used
  - After the connection is constructed, typically a three-month period is required to put the asset into service (commissioning tests)



→ In case it appears the end of the timeline (X + 3M) is after the start of the delivery period (1/11/20XX), the Prequalification File will be rejected

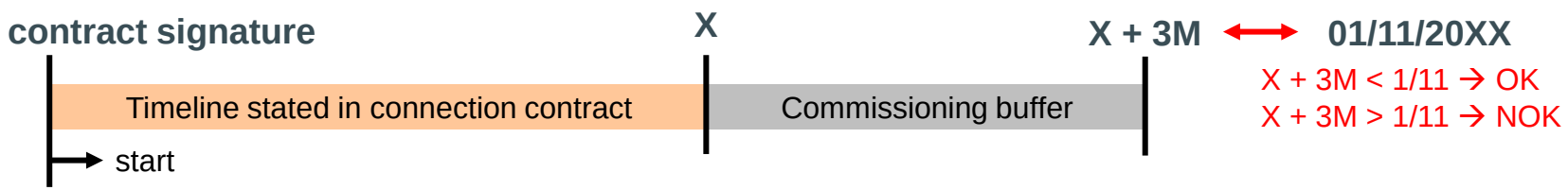
Evaluation of connection timeline

PROPOSAL

In order to evaluate the minimum connection timeline, three different cases must be distinguished:

3 **The unit has signed a connection contract**

- Evaluation based on connection timeline stated in connection contract
- Timeline starts as of the connection contract signature
- A commissioning buffer of 3 months is used
  - After the connection is put into service, typically a three-month period is required to put the asset into service (commissioning tests)



→ In case it appears the end of the timeline (X + 3M) is after the start of the delivery period (1/11/20XX), the Prequalification File will be rejected

Timeline of the CRM FR consultation

Timeline for the coordination of the Functioning rules v5

	2023			2024				
	October	November	December	January	February	March	April	May
Public consultation		22/11	20/12					
Functioning rules publication					★ 01/02 – FR submission			★ 15/05 – FR Publication

The public consultation will run from **November 22nd to December 20th**. In order to identify the major changes, a **cover note** will also be provided during the public consultation.

After processing the comments from the public consultation and approval by CREG, the Functioning rules will be published on the **Elia website on May 15.**

AOB

Recent publications

- The amended CRM Functioning Rules have been published on the Elia website: Capacity Remuneration Mechanism (elia.be)

- The European Commission has published its decision on the 2nd amendment of the Belgian CRM: https://ec.europa.eu/competition/state_aid/cases1/202438/SA_114003_69.pdf

- The amended CRM FR and the EC decision have been published in the Belgian gazette

Next meetings

Next meetings

- **Tuesday 5/11/2024 (moved from 29/10/2024) : WG Adequacy** (09:30 AM to 12:30 PM)

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

Thank you.