

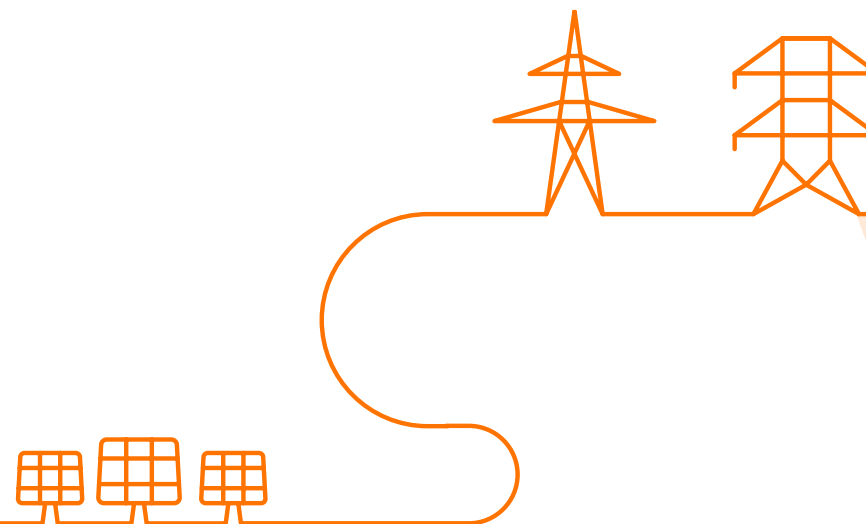


WG Adequacy #22

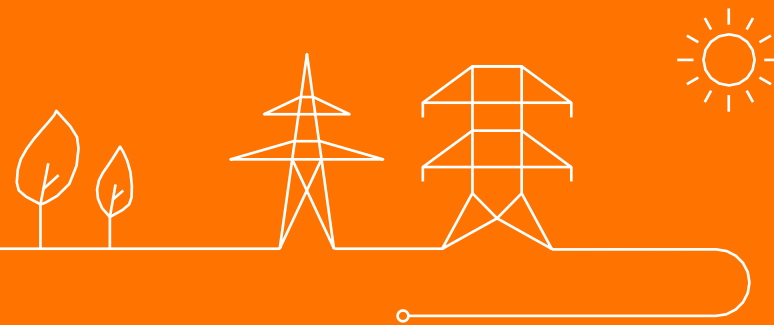
14/09/2023

Agenda

- Welcome
- *Update on Cost of Capacity Study – Entrés – **Not Presented***
- CRM design updates
- Introduction on Y-2 & 200h rule
- Update from Cabinet
- AOB
- Next meetings



CRM design updates



Current scope of design discussions per topic

Availability Monitoring:

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

Payback obligation:

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

Y-2 auction:

- Auction design
- Capacity split

Cross-border CRM:

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

Prequalification:

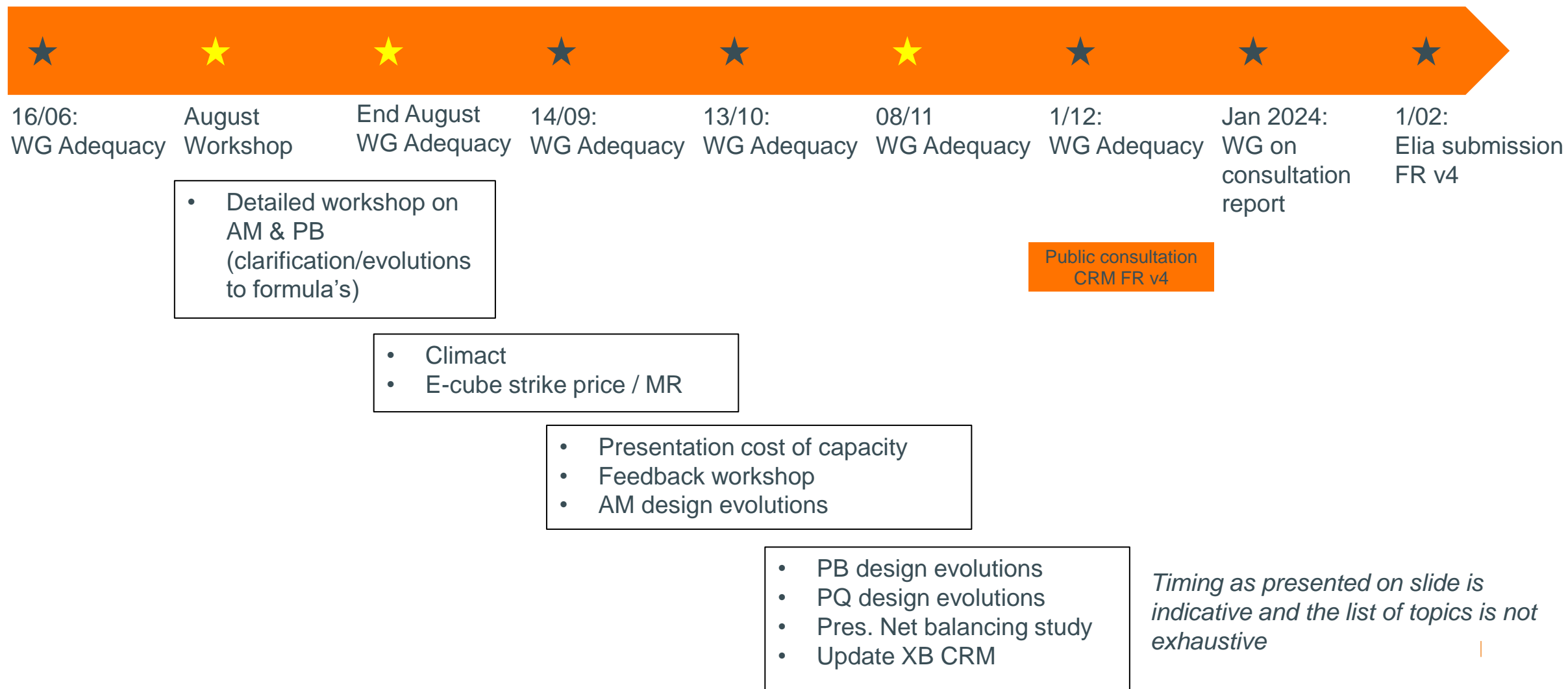
- From Additional to Existing

Consideration of DSM

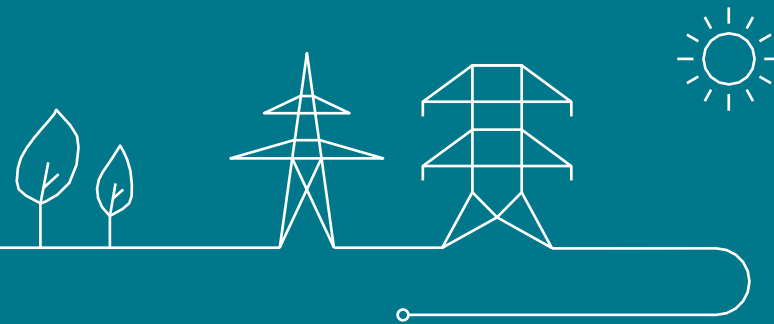
- Revision of 200h rule

Design elements highlighted in green are (amongst others) being presented today

Timing design evolutions discussion



Availability monitoring



Availability Monitoring

Daily Schedule for Available Capacity

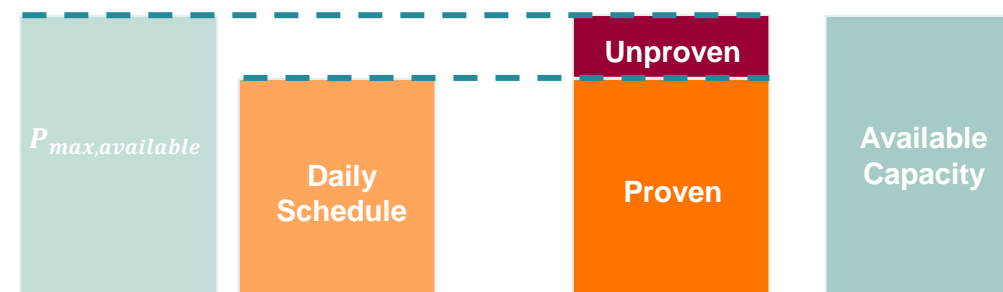
- Elia can verify a unit's performance during the AMT Hours, which occur when a predetermined price, the AMT Price is exceeded
- Under normal circumstances this AMT Price exceeds the Daily Schedule CMUs running cost
- Market parties are concerned that AMT Hours occur on moments when a CMU's running cost is not covered



Availability Monitoring

Redesign Proposal: use the Availability Plan for the Available Capacity

- On top of the Daily Schedule, these CMUs also need to provide their **Availability Plan**
- The Outage Planning includes the $P_{max,available}$
 - “The maximum instantaneous value of the power, expressed in MW, that the Technical Unit can inject into the Elia Grid for a certain quarter hour, taking into account all technical, operational, meteorological or other restrictions known at the time of notification to Elia of the Pmax Available value, without taking into account any participation of the Technical Unit in the provision of balancing services”
- The $P_{max,available}$ can serve to represent the Available Capacity, and in combination with the Daily Schedule a distinction can be made between **Proven and Unproven Availability**
- Identical to Non-daily Schedule CMUs, high amounts of Unproven Availability then lead to an **Availability Test**



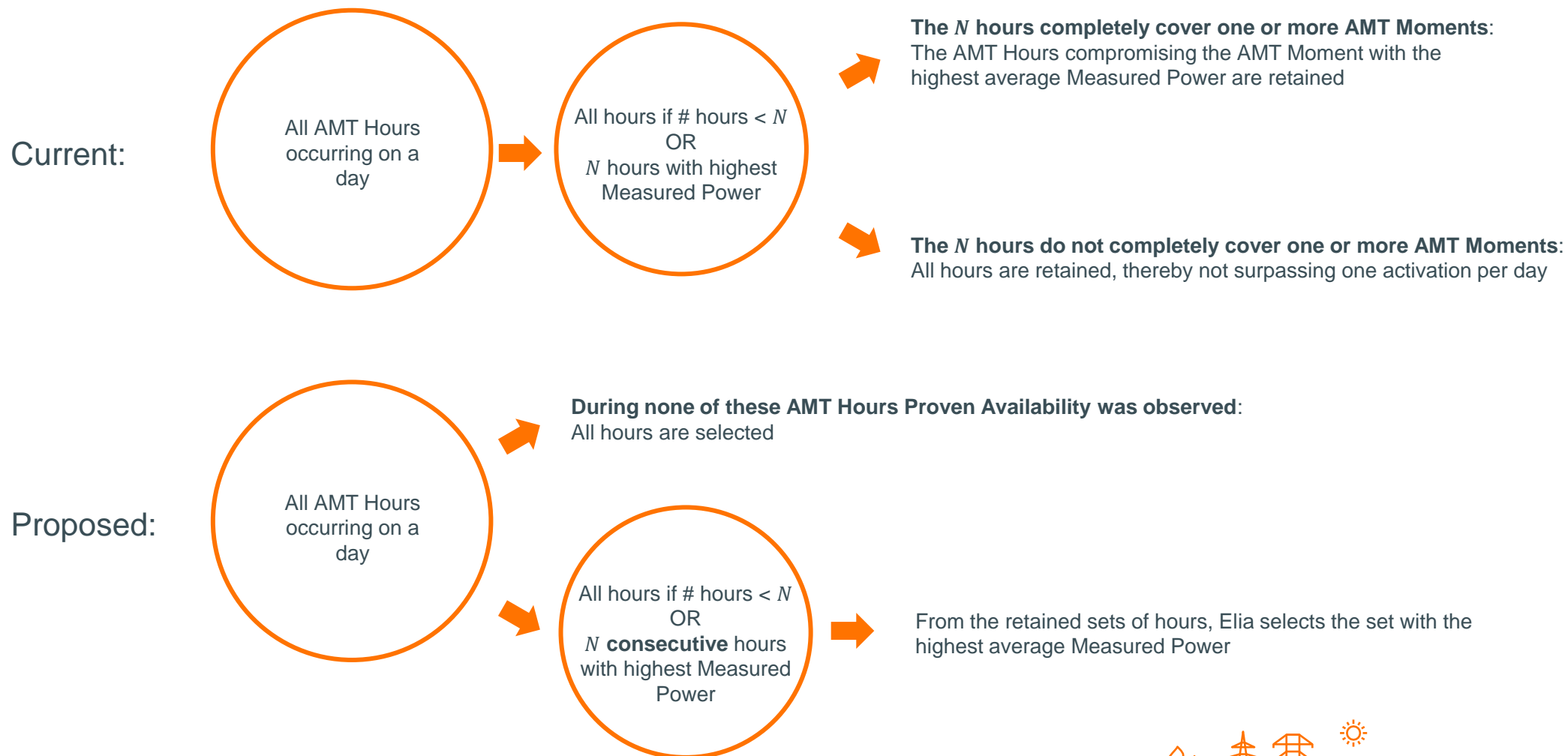
Availability Monitoring

Modification of the determination of the SLA Hours – redesign proposal

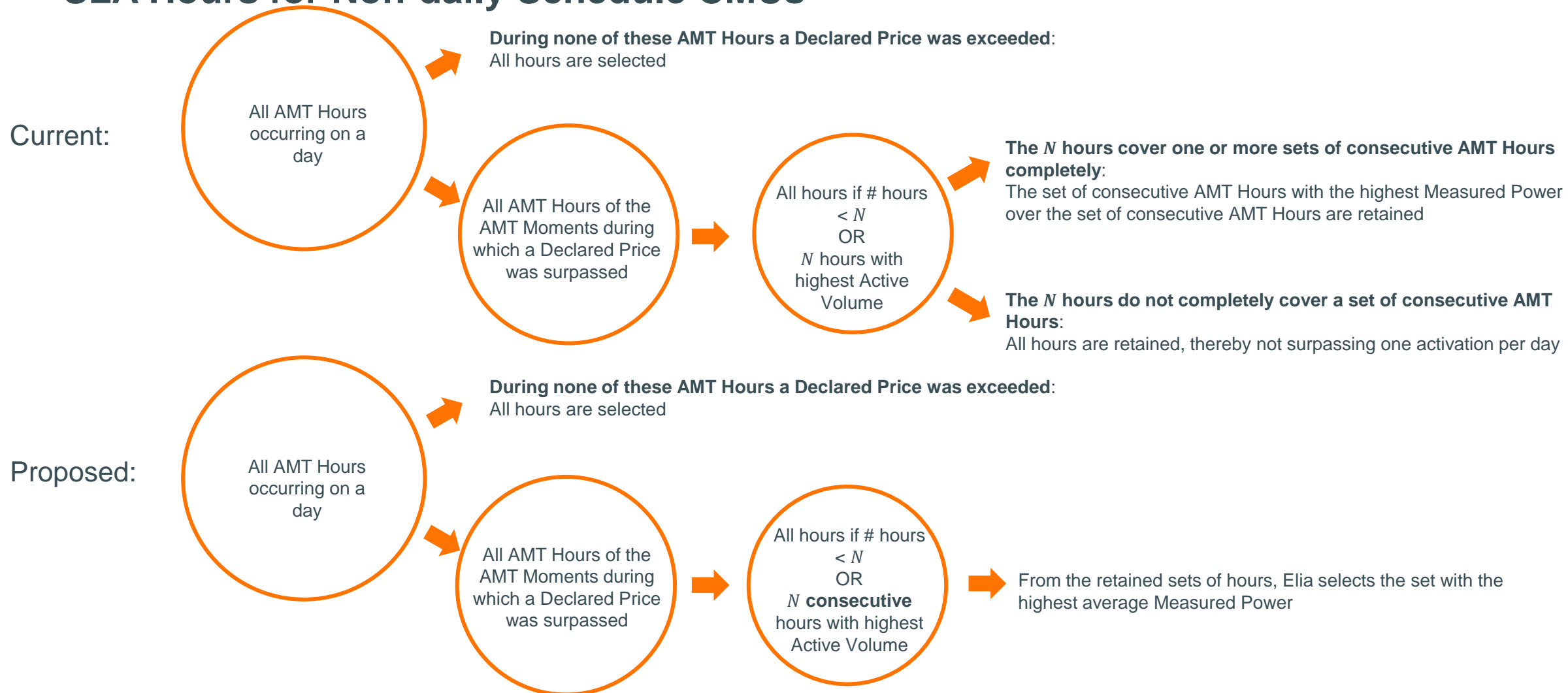
- The existing methodology is viable for improvements
 - Tie breaks
 - In specific cases, illogical selection of SLA Hours
- The underlying philosophy remains identical
 - One activation per day with a max duration not exceeding the SLA
 - SLA Hour determination based on Measured Power and/or Active Volume
 - Not disturbing normal market behavior
- As has always been the case, the methodology differs slightly depending on whether or not the CMU has a Daily Schedule or not



SLA Hours for Daily Schedule CMUs

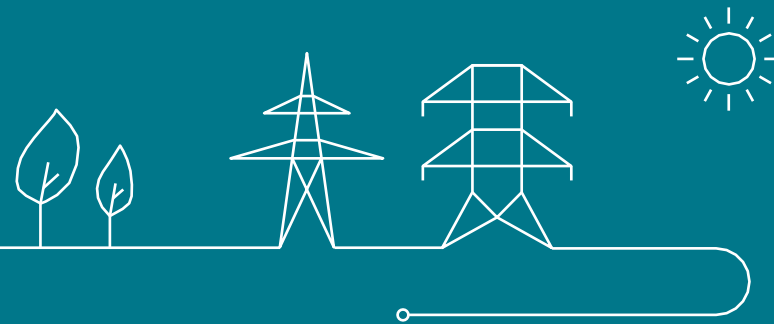


SLA Hours for Non-daily Schedule CMUs



iCAROS integration in the CRM

First proposal



Remaining maximum capacity notification: iCaros integration

Proposal on how to incorporate iCaros processes into CRM availability monitoring:

- Both Daily Schedule and non-Daily Schedule units are **subject to the existing timings and constraints**
- Only the source of information changes: define how to map data from iCAROS to CRM processes

Daily schedule units:

- All Remaining Maximum Capacity (RMC) notifications are based on the Availability Plan
 - A priori no reason on why unavailabilities in CRM should differ from Availability Plan
- Choose which Remaining Maximum Capacity (RMC) notifications are to be considered as “Announced”
 - Additional deadlines to be defined to handle this

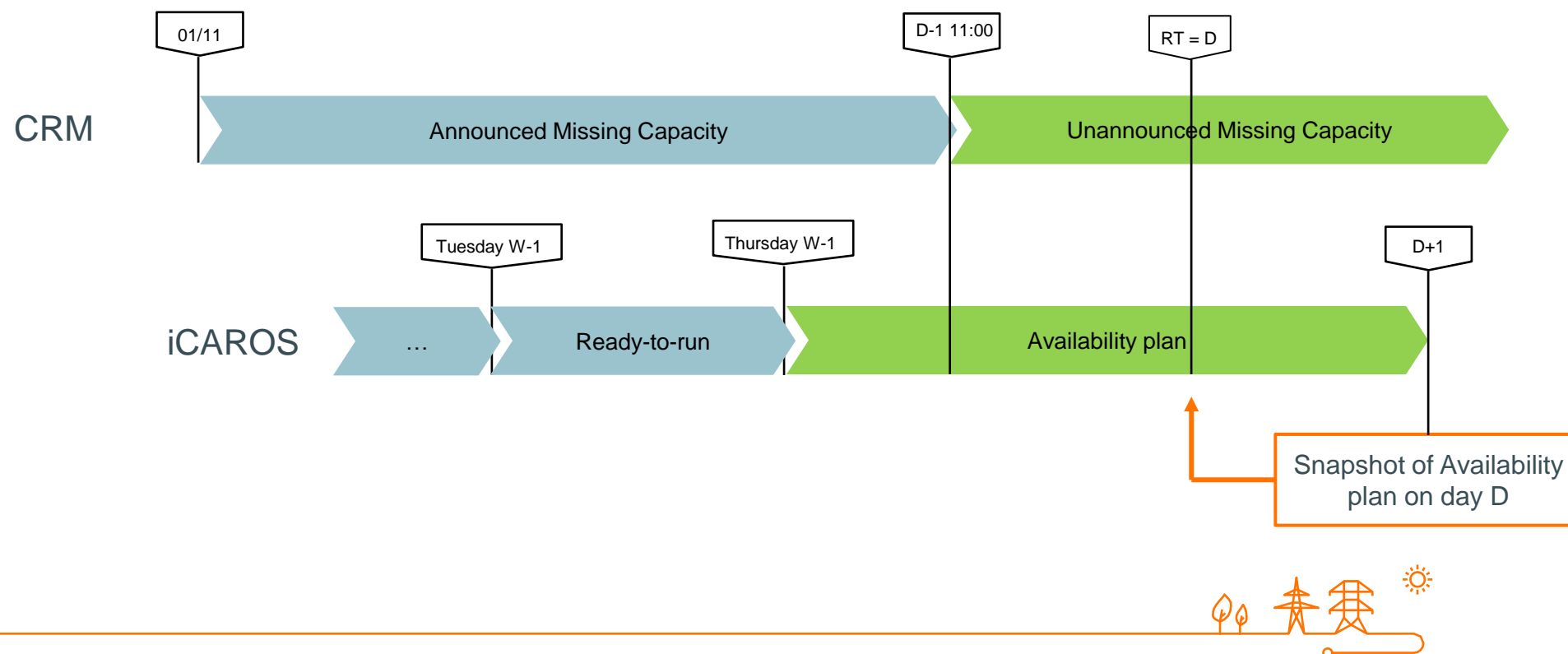
Non-daily schedule units:

- All Remaining Maximum Capacities notifications in CRM tool
- Subject to identical timings and constraints as the Daily Schedule units



iCAROS integration in CRM: mapping of information

Every day the information from the Outage and Availability Plans are used to update the RMC notifications in the CRM tool:



iCAROS integration in CRM: mapping of information

At regular timings, the information from the Outage and Availability Plans are used to update the RMC notifications in the CRM tool:

Snapshot taken on D+1:

- Information in Availability Plan is mapped to RMC notifications
- All UC submitted before D-1 11:00 in Availability Plan is by default “Announced”
 - After 75 WD has been reached, all Unavailable Capacity is considered as “Unannounced”
- Capacity provider has option to change status from “Announced” to “Unannounced”
 - Enable freedom to choose the 75 days as capacity provider sees fit
 - Deadline: **10WD** after outage occurrence



Announced scheduled maintenance

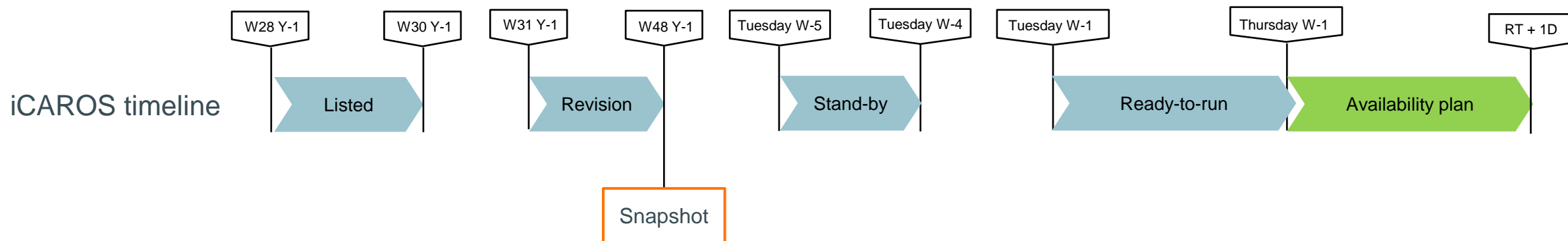
We add the possibility for market parties to indicate scheduled maintenance in the Remaining Maximum Capacity notification

Scheduled maintenance is subject to the following constraints:

- Days with scheduled maintenance are submitted before end of Y-1
- Maximum cumulative duration with reason Scheduled Maintenance: **20 days**
 - Of which cumulatively a **maximum of 0 days during winter**
 - **in winter regular announced unavailabilities need to be used (and lead to penalties)**
 - 20 days is part of existing limitation of 75 days



iCAROS integration in CRM: scheduled maintenance for DS CMUs



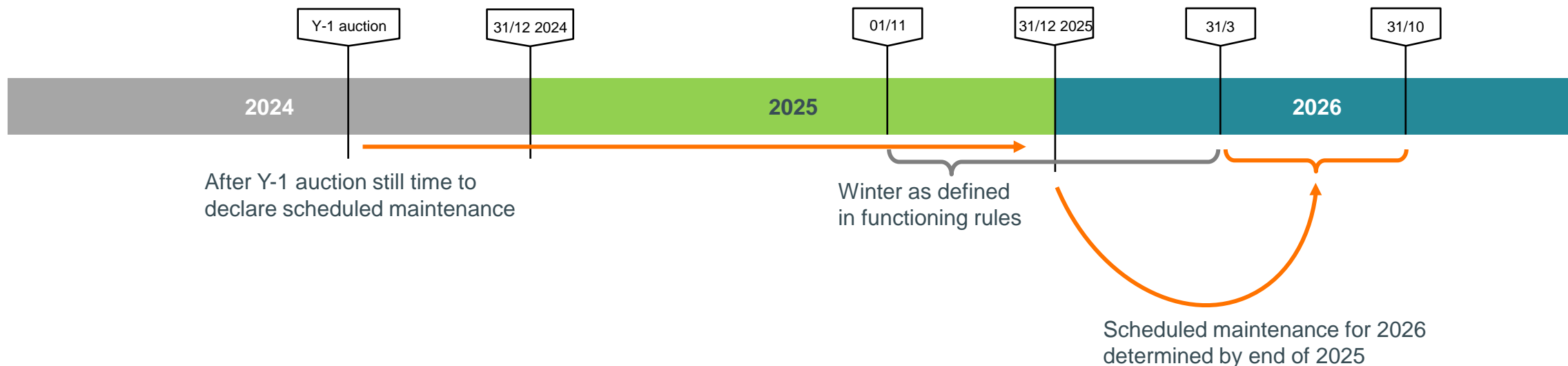
The list of planned outages that are eligible is determined based on the final “Revision” Plan:

- Information used to apply scheduled maintenance
- Possibility to select days for which scheduled maintenance does not apply
 - Enable freedom to choose the 20 days as capacity provider sees fit
 - Deadline for Scheduled Maintenance in year Y: **31/12 Y-1**
- No reason for capacity providers to deviate from this plan in their choice of days for Scheduled Maintenance



iCAROS integration in CRM: scheduled maintenance for DS CMUs

Timeline for daily-schedule units:



Because the start of the Winter period as defined in the functioning rules, equals the start of the delivery period, only days in the second half of the delivery period are eligible for scheduled maintenance



iCAROS integration in CRM: scheduled maintenance for DS CMUs

Mapping the information from the Revision Plan of year Y to “Scheduled Maintenance” in the CRM:

1. Create list of days during which scheduled maintenance can be applied based on Revision Plan:
 - Only days with status “NRV” that are not in winter are eligible to be included in the list
 - By default: first 20 eligible days are included
2. Capacity provider indicates the days he wants to keep
 - Deadline: 31/12 Y-1
3. Scheduled maintenance is applied automatically to RMC notifications that, independently of their level or duration, occur on days present in the list



iCAROS integration in CRM: scheduled maintenance for non-DS CMUs

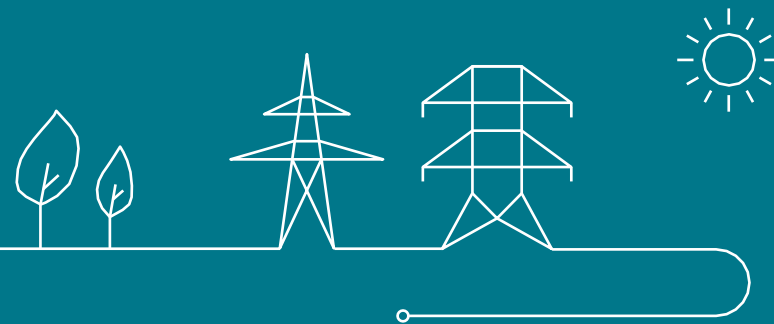
Non-Daily schedule CMUs also have the option to select and announce scheduled maintenance in the CRM tool

They follow a similar process:

1. Create list of days during which scheduled maintenance can be applied:
 - Only non-winter days are eligible
 - Deadline for days in year Y: 31/12 Y-1
 - To align with daily schedule units: declarations are based on calendar years: they have to submit their list of days twice to cover one delivery period (see previous slide)
2. Scheduled maintenance is applied automatically to RMC notifications that, independently of their level or duration, occur on days present in the list



Secondary market



Secondary market

Validation of ex-post transactions – redesign proposal

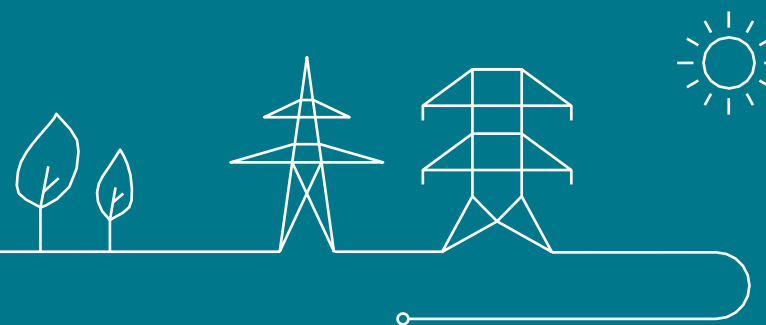
The current design foresees a validation based on proven availability. This results in the following issues:

- To determine proven availability, **validated metering data** is required. In the case of DSO-connected delivery points, such validated metering data is only available at the end of month M+1 → delayed settlement
- **Risk is on the seller** of the obligation, whereas it is actually the buyer that can best assess its availability:
 - If in the end the transaction is rejected, the obligation remains with the seller;
 - Seller has only one shot to do an ex-post transaction: 12 Working Days to notify ex-post transaction ↔ proven availability check after end of M+1

Therefore, Elia's redesign proposal it to:

1. **[Secondary Market] Validate ex-post secondary market transactions in line with ex-ante validation principles**
 - i.e. using Remaining Maximum Capacity instead of Proven Availability & Total Contracted Capacity instead of Obligated Capacity
 - This means that the obligation is transferred to the buyer more swiftly, without a formal check of the Proven Availability for the SMREV
2. **[Availability Monitoring] Integrate a check in the Availability Monitoring process to verify whether the Buyer of an ex-post Secondary Market Transaction has sufficient Proven Availability**
 - As such, we still keep the requirement that ex-post taken over obligations have to be covered for with Proven Availability
 - More logical sequence of processes: first secondary market validations, afterwards availability monitoring check

Introduction of DSM linked CMUs



Context

- Following the repeated discussions taking place in Working Group Adequacy last year, Elia introduced several design modifications to the Payback Obligation in the CRM Functioning Rules submitted to CREG :
 - An adaptation of the indexation mechanism of the strike price;
 - An exemption of the Payback Obligation for the technology DSM:

12.3.2 Payback Obligation formula

847. The Payback Obligation formula is used to determine the amount due to ELIA by the Capacity Provider for a CMU's Transaction for an hour t of the Transaction Period.

848. The Delivery Points of 'Active Participation of Demand' (DSM) are exempted of the Payback Obligation.

849. For the CMUs including Delivery Points of Active Participation of Demand, the calculation of the Payback Obligation is realized per Delivery Point.

- In its approval decision of the CRM Functioning Rules V3, CREG asked to Elia to communicate practical modalities linked to the calculation of the Payback Obligation on a Delivery Point level :

Il est par ailleurs demandé à Elia de communiquer dès que possible aux acteurs du marché les modalités pratiques du calcul de l'Obligation de Remboursement par Point de Livraison.

- To cope with this request, Elia has developed several proposals (see next slides). 

Example illustration

Situation for an aggregated CMU without a Daily Schedule with exemption for DSM

Reminder



- When the calculation of a Payback Obligation occurs, the Contracted Capacity always has to be considered.

$$\begin{aligned} \text{Payback Obligation } (CMU_{id}, Transaction_{id}, t) &= (\text{Reference Price } (CMU_{id}, t) - \text{Calibrated Strike Price } (CMU_{id}, Transaction_{id}, t)) \\ &\quad * \text{Contracted Capacity } (CMU_{id}, Transaction_{id}, t) * \text{Availability Ratio } (CMU_{id}, t) \end{aligned}$$

- Issue linked to Payback exemption for DSM**
: Contracted Capacity is always defined on CMU level and is thus undetermined on Delivery Point level.
- How to identify DSM capacity delivered that should be exempted of the Payback Obligation ?
 - Currently Elia cannot determine the Payback Obligation on Delivery Point level since the Contracted Capacity is not available on DP level.
- This issue highlights the need for a design evolution : in order to deal with this issue, different options can be considered (see next slides)

CMU A



Total MW activated	DMP
5	400 €/MWh
10	450 €/MWh
20	500 €/MWh

Contracted capacity : 20 MW



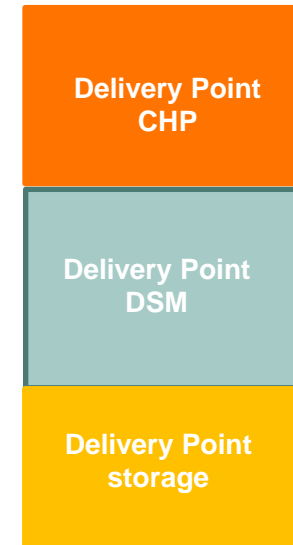
Payback Obligation calculation

option 1: adapt the 'Contracted Capacity' from a CMU to a Delivery Point level.

Reminder



- In this fictive example, in case of DA prices at 550 €/MWh, a Payback Obligation would only apply to the storage & the CHP Delivery Points (10 MW).
- The 10 MW of DSM would be exempted of the Payback Obligation.
- However, This option **does not seem feasible** as it would imply reduced freedom for aggregated capacities.
 - A capacity defined in a fixed manner removes the possibility for the aggregator to manage his portfolio of Delivery Points in function of market circumstances.
 - Such situation might thus lead to a distortion of normal market behavior.



CMU A



Total MW activated	DMP
5	400 €/MWh
10	450 €/MWh
20	500 €/MWh

Contracted capacity : 20 MW

Technology	Contracted Capacity	Payback Obligation
CHP	5 MW	$5 \cdot (550 - 400) = 750 \text{ €}$
Storage	5 MW	$5 \cdot (550 - 450) = 500 \text{ €}$
DSM	10 MW	Exempted



Payback Obligation calculation

DSM pro-rata - option 2

Reminder

CMU A



Contracted capacity : 20 MW

Assuming again a DA price of 550 €/MWh and applying the DSM ratio, the following Payback Obligation applies :

Total MW activated	DMP	Payback Obligation
5	400 €/MWh	$5 \cdot (550 - 400) \cdot 0,5 = 375 \text{ €}$
10	450 €/MWh	$10 \cdot (550 - 450) \cdot 0,5 = 500 \text{ €}$
20	500 €/MWh	$20 \cdot (550 - 500) \cdot 0,5 = 1000 \text{ €}$

- **Option 2** : correct the calculation of the Payback Obligation by adding a factor pro-rata based on the ratio of DSM capacity contracted in the aggregated CMU (example for a non-energy constrained CMU).

$$\text{Payback Obligation}(CMU_{id}, Transaction_{id}, t) = (\text{Reference Price}(CMU_{id}, t) - \text{Strike Price}(CMU_{id}, Transaction_{id}, t)) * \text{DSM ratio}(CMU_{id}, Transaction_{id}, t) * \text{Contracted Capacity}(CMU_{id}, Transaction_{id}, t) * (\text{Availability Ratio}(CMU_{id}, t))$$

- This DSM ratio would be calculated based on the NRP of the DSM Delivery Point compared to the NRP of the entire CMU leading potentially to a non-representative situation in scarcity moments*.
 - In our fictive example, we assume the following split : DP DSM : 10 MW => DSM ratio : 50%
- **Issue** : this additional component leads to an undermined Payback Obligation for the CMU.
 - Additionnally, one might argue that the risk identified might be even bigger in case of Announced Unavailability leading to a correction via the Availability ratio.



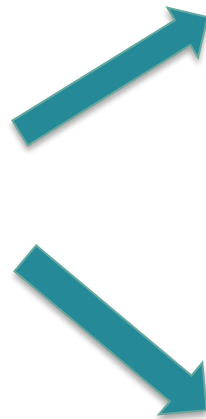
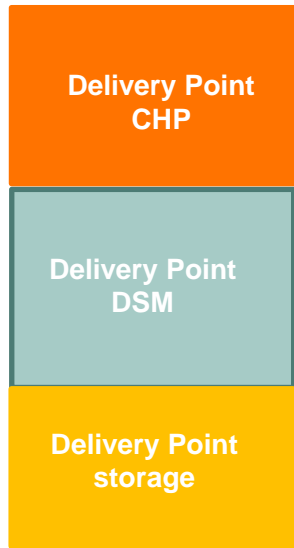
Payback Obligation calculation

DSM-linked CMUs : option 3

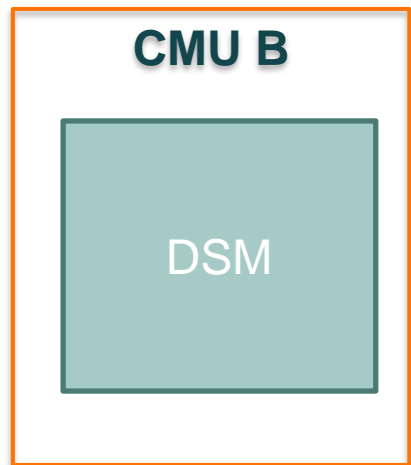
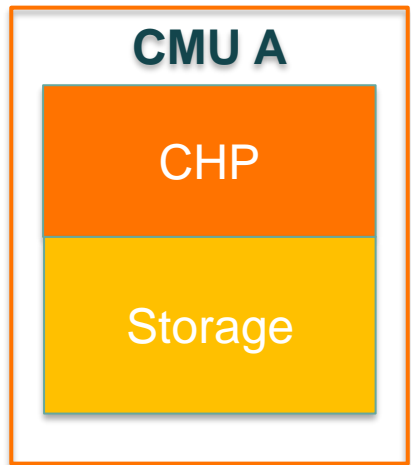
Reminder



From CMU A



To CMUs A & B



- **Option 3** : if a CRM Candidate wants to offer a CMU with DSM and non-DSM Delivery Points, it is required for him to split it into 2 CMUs :
 - A DSM CMU containing only DSM DPs
 - Another CMU linked to the DSM CMU containing all non-DSM DPs.
- No additional action is required in other cases.

Total MW activated	DMP	Payback Obligation
5	400 €/MWh	$5 \cdot (550 - 400) = 750 \text{ €}$
10	450 €/MWh	$10 \cdot (550 - 450) = 1000 \text{ €}$

Assuming again a DA price of 550 €/MWh

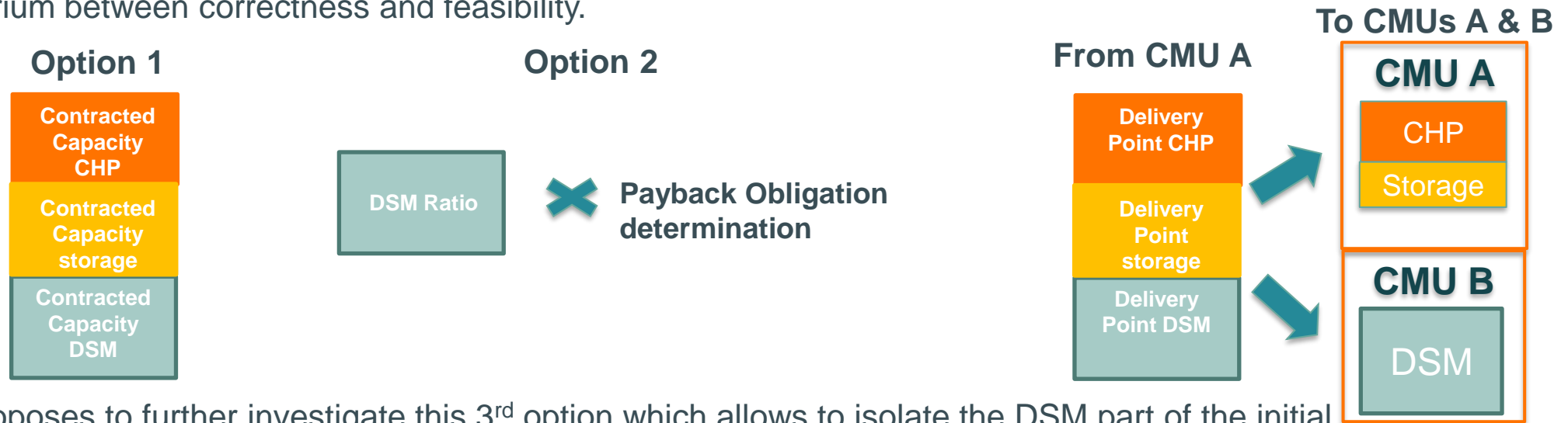
Total MW activated	DMP	Payback Obligation
10	500 €/MWh	Exempted

Availability Monitoring is partly done considering both CMUs **together via excess Available Capacity**

Payback Obligation is done **separately** for each twin



- From all 3 options considered so far, the option 'DSM-linked CMUs' would turn out to strike the right equilibrium between correctness and feasibility.



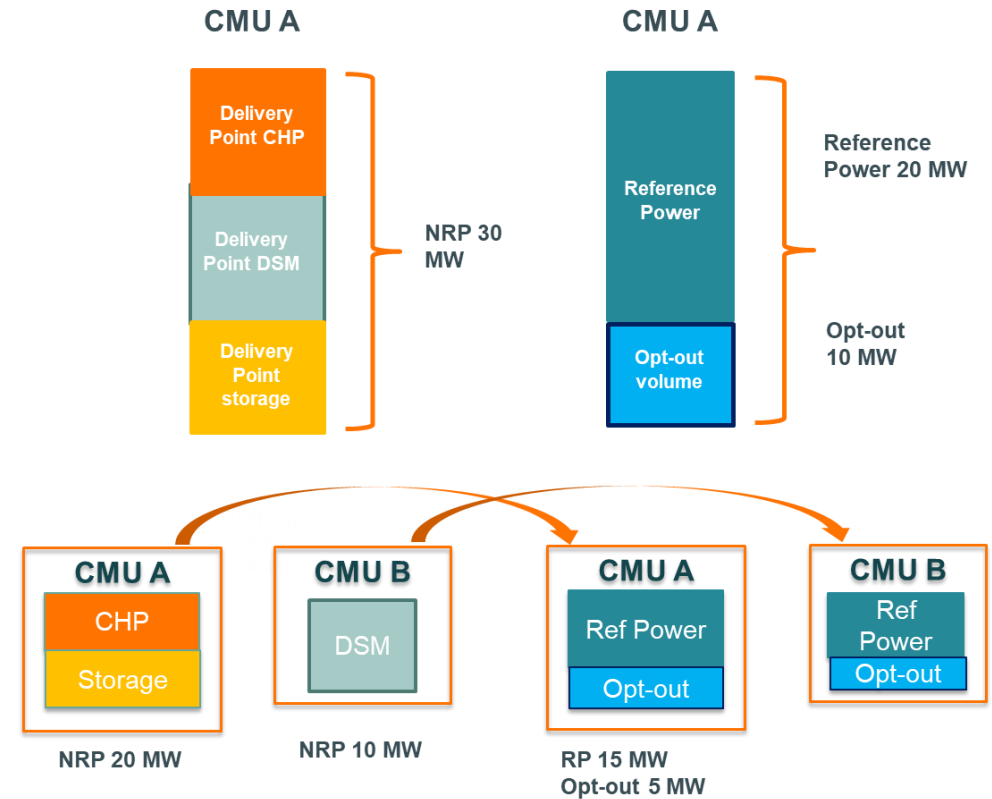
- Elia proposes to further investigate this 3rd option which allows to isolate the DSM part of the initial CMU.
- While further investigating this option, Elia wants to insist on the fact that the goal is to keep considering DSM-linked CMUs as a common entity through several CRM processes (non-exhaustive) :
 - Financial Security : one to be provided for both
 - Auction : one bid in the auction
 - Availability Monitoring : potential Missing Capacity from one CMU could be solved thanks to 'excess' Available Capacity from the linked CMU.



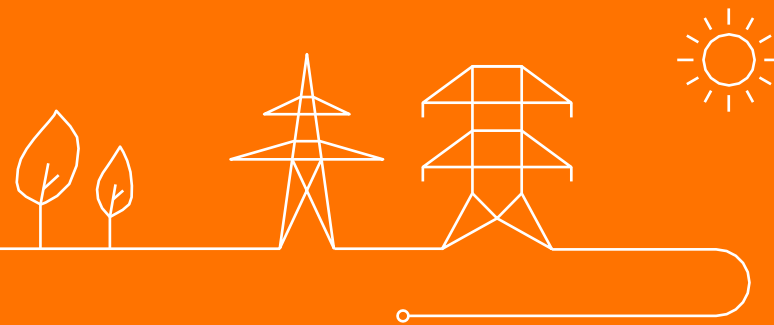
DSM linked CMUs : proposal

Why it would help us even without Payback DSM exemption – example

- Despite the expected negative feedback of EC on the Payback exemption for DSM, this proposal of DSM linked CMUs still makes sense :
 - Opt-out is also defined **on a CMU level** whereas technology is provided **on a Delivery Point level**
 - Since Opt-out from DSM should now be treated as 'OUT', there is currently **no way to distinguish** within a CMU which part of the Opt-out Volume should be treated as 'OUT' vs 'IN' :
- Example : CMU A gathers different technologies and has a NRP of 30 MW.
 - He decides to opt-out for 10 MW
 - Question: How to treat the Opt-out volume of the CMU ? Which part should be considered as 'IN' and which part 'OUT' ?
- Thanks to the splitting of CMU A in DSM linked CMUs A & B
 - The opt-out volume of each CMU can be treated correctly volume wise :
 - Opt-out volume from CMU A is likely to be 'IN'
 - Opt-out volume from CMU B (**DSM CMU**) will be 'OUT'



Introduction of Y-2 and 200h rule



Context: current auction regime

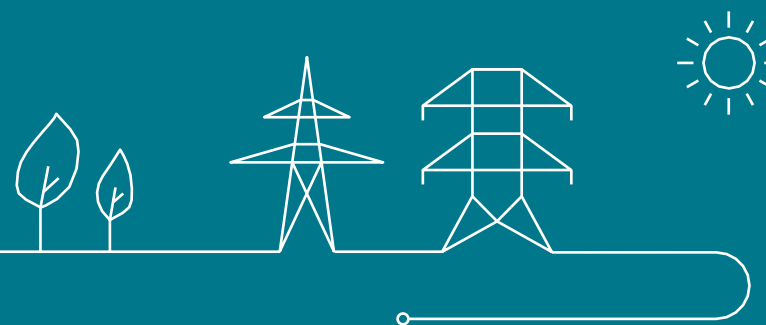
It appears that the current auction design leads to potential issues for certain technologies to participate to the Belgian CRM and creates potential SoS issues in Y-1.

At the impulse of the cabinet and together with CdS members, Elia is currently looking at two design changes that could answer the concerns:

1. **Dynamic 200h**: Making the Y-1 reservation volume dynamic to apply a downward correction for DSM and batteries that are expected to participate only in Y-1 (one of the reasons to have a Y-1 reservation volume) but that are observed to participate already in Y-4
 2. **Y-2 auction**: to account for lead time of developing battery projects
- Both changes are independent of each other, but need to be assessed together



Dynamic 200h



Dynamic reservation volume

There are different ways that CRM designs can facilitate the participation of DSM. One typical way of doing this is by using a reservation volume.

In the Belgian CRM a volume is reserved based on the 200h-rule, it serves two purposes:

- 1) A volume released in Y-1 to the market with the underlying assumption that DSM and batteries are only able to participate that close to delivery.
- 2) It limits the risk of over-procurement in Y-4
 - Unforeseen changes could impact the volume need in both directions.



DSM participation to Y-4 auction

DSM participation to auctions before Y-1 was not anticipated and creates potential risks:

- Any DSM / Battery selected in the auction takes away volume from other projects that rely on the Y-4 auction to be realized
 - In turn, this negatively impact the possibility of the CRM to cope with increasing target volumes over time since the need for new capacities is always pushed to the Y-1 auction
- Volume for DSM / batteries is already reserved: if large volume already participates this creates the risk that not enough capacity can be found in Y-1 to fill the reserved volume

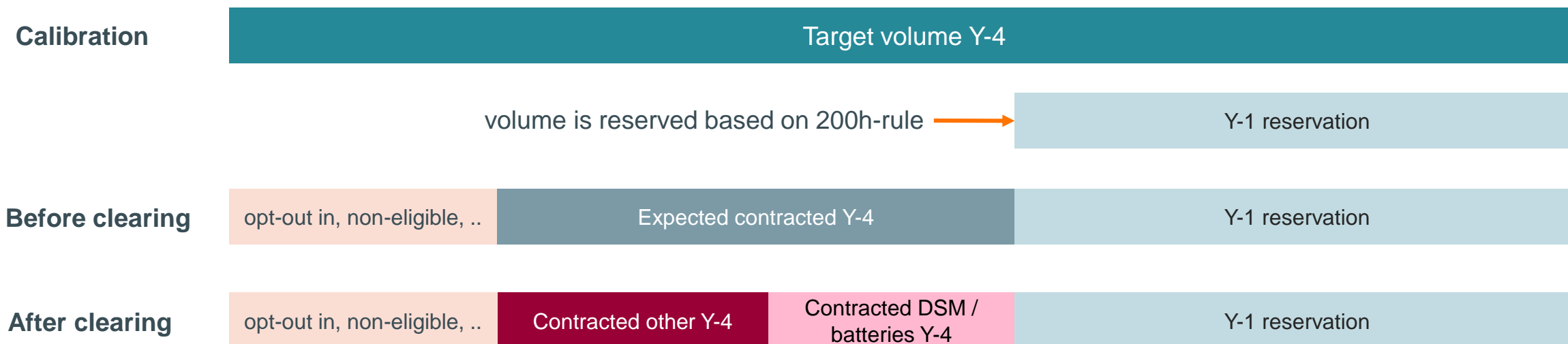
Making the 200h-volume dynamic addresses the participation of DSM / batteries in auctions preceding Y-1

- DSM & battery volumes that are already considered to contribute to adequacy are subtracted from the reservation volume



DSM participation to Y-4 auction

DSM participation to auctions before Y-1 was not anticipated and creates potential risks



Any DSM / Battery selected in the auction takes away volume from other projects that rely on the Y-4 auction to be realized

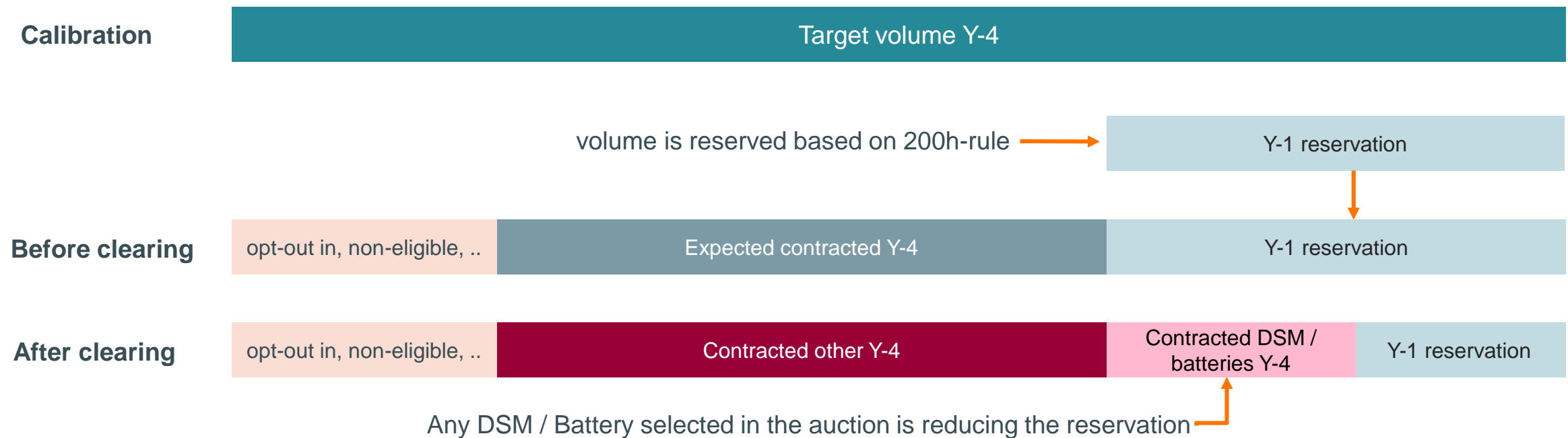
Entire reservation volume still to be found in Y-1 while large amount of DSM already participated in Y-4



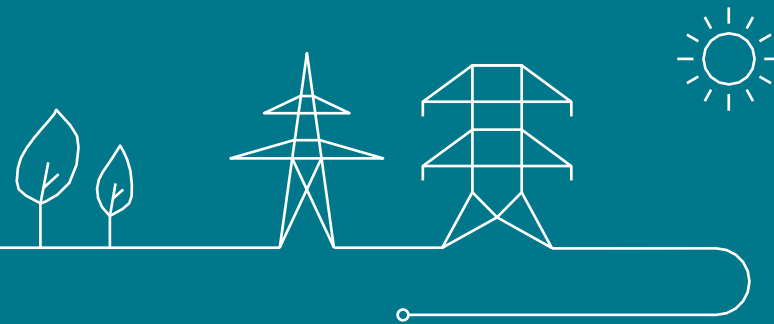
Dynamic 200h-volume in Y-4/Y-1 regime

Dynamic 200h-volume principle:

- DSM & battery volumes that are already considered to contribute to adequacy are subtracted from the reservation volume
- This includes Opt-out IN volumes from batteries + already contracted DSM & battery volumes (not illustrated in example below)
- A cap on the amount of volume that is dynamically subtracted is needed



Y-2 auction



Introducing the Y-2 auction

Concept

- The Y-2 auction was proposed with the idea to give batteries the opportunity to participate within a timeframe better suited to their needs.
- Other technologies could also benefit from such a Y-2 auction, such as a repowering of an existing asset.

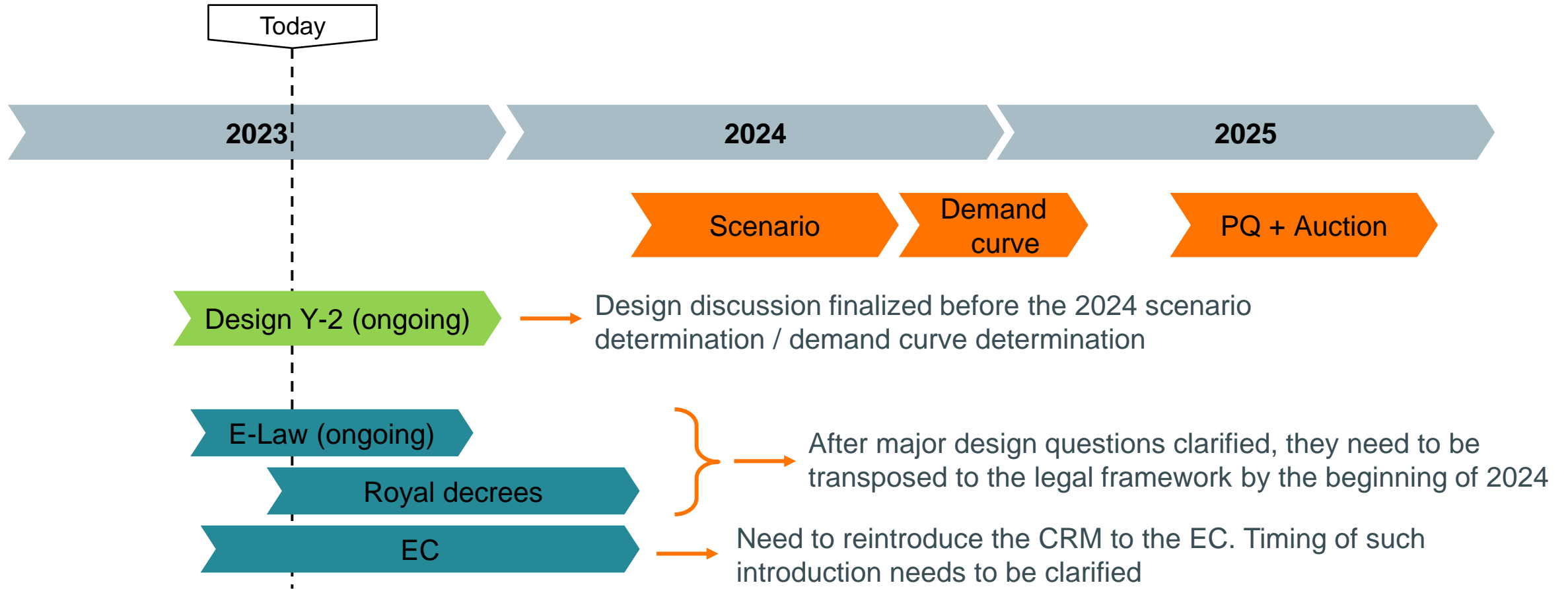
Currently the following assumptions are taken:

- Recurring auction defined in E-law with usual yearly calibration cycle
 - Market wide auction: all capacities allowed to participate
- These assumptions lead to a potential design in line with Y-4 auction principles (welfare maximization, reservation for Y-1,...)
- However, some open design points still remain (see next slides)



Y-2 auction: simplified timeline

Starting today, a Y-2 auction could be organized at the earliest in 2025 (for delivery period 2027-2028)



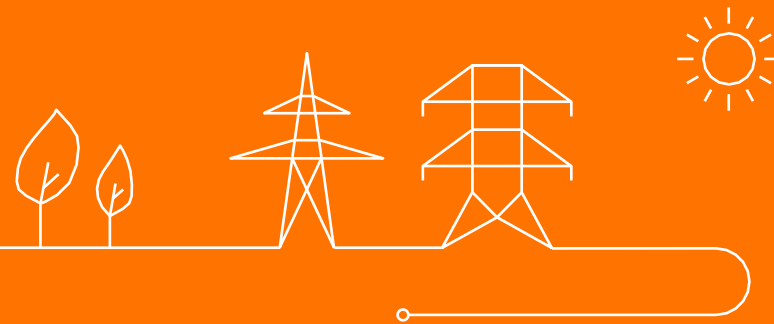
Volume split Y-2 auction

In case of a Y-2 auction, the way **volume is reserved for subsequent auctions can be reconsidered**

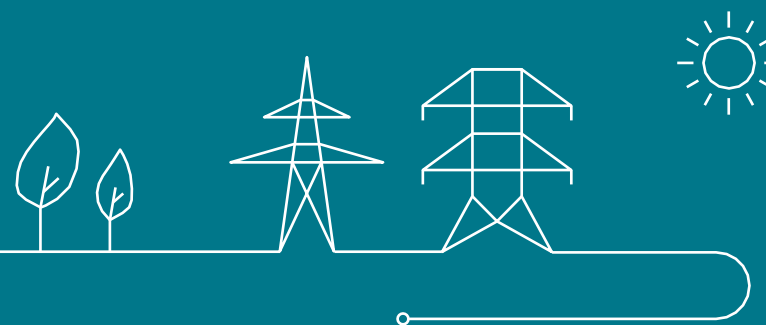
- A sequential approach is proposed:
 - In Y-4 volume is reserved for Y-2
 - In Y-2 volume is reserved for Y-1
 - However, several options exist on how the volume can be split between the Y-4 / Y-2 / Y-1 auction.
- Elia, in collaboration with the other members of the CdS, is currently further investigating these options



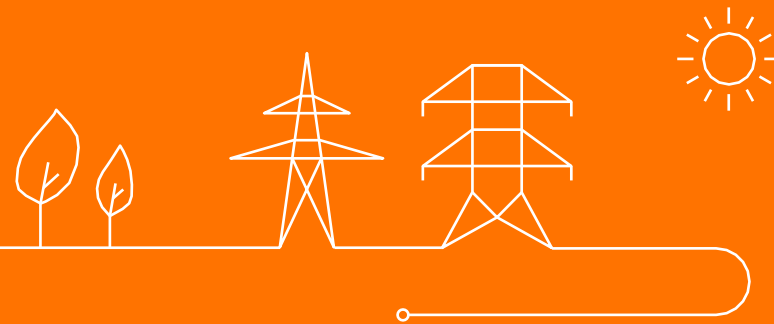
Update from Cabinet



AOB



Next meetings



Foreseen timeslots for next meetings

- Friday 13th of October 2023 – PM
- Wednesday 8th of November 2023 – AM
- Friday 1st of December 2023 – AM
- Wednesday 31st of January 2024 – AM

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



Thank you.

