EXPLANATORY NOTE RELATED TO THE PUBLIC CONSULTATION ON THE TERMS AND CONDITIONS FOR THE SCHEDULING AGENT FOLLOW THE RETURN OF EXPERIENCE OF PHASE 1 OF THE ICAROS PROJECT

06/03/2025

TABLE OF CONTENTS

1. Practical information

This note aims to contextualize the three modifications in the Terms and Conditions for the Scheduling Agent (T&C SA) that are submitted for public consultation by Elia.

At the end of the public consultation, all non-confidential comments will be made public on Elia's website, with an explanation of how Elia responded to these remarks or the reasons why they were not considered. Elia will respect the request for confidentiality and/or anonymity of respondents.

Comments concerning items outside the scope of the public consultation will not be considered by Elia.

The non-confidential documents submitted for consultation can be consulted on the Elia website.

The official public consultation lasts one month. Reactions must be sent using the online form available on the Elia website and no later than the deadline mentioned on the website.

Questions relative to the consultation can be sent to the following email address: consultations@elia.be.

2. Introduction

Following the Return on Experience (REX) of iCAROS[1] Phase 1 and the informal consultation that took place from 23rd of January 2025 to 12th February 2025, limited to impacts for the Scheduling Agent, Elia proposes to include three modifications in the Terms and Conditions for the Scheduling Agent (T&C SA). Those modifications are described in the following three sections of the present document:

1. Section 3 describes the modification related to the return to Daily Schedule, where the DP_Pmin$_{inj/off}$ is also considered within the return to Daily Schedule control.

2. Section 4 focuses on the modification related to the consideration of the FCR activation in the return to Daily Schedule control.

3. Section 5 explains the new modalities for conditional links for Redispatching (RD) Energy Bids introduced specifically for the start-up/shut-down RD Energy Bids.

The modifications described in the following sections are restricted to the Annexes of the T&C SA and are easily identifiable in the track changes version shared by Elia together with this explanatory note.

[1] iCAROS = integrated Coordination of Assets for Redispatching and Operational Security

3. Consideration of the DP_Pmin$_{inj/off}$ within the Return to Schedule control

Some wind parks indicated during the REX of iCAROS phase 1 that steering above their -DP_Pmin$_{inj}$[2] would jeopardize their technical lifetime. Given this impact is valid for all technologies, Elia proposed to modify the return to Daily Schedule control by considering the DP_Pmin$_{inj/off}$ of the Delivery Points. The DP_Pmin$_{inj/off}$, however, is a technical parameter for which the SA shall provide a technical justification before it can be accepted. Practically, if the last valid Daily Schedule provided to Elia has a value above (below) -DP_Pmin$_{inj}$ (DP_Pmin$_{off}$) and a downward (upward) return to Daily Schedule is requested, the control on whether the Delivery Point respects the return to Daily Schedule signal shall be considered as compliant if this Delivery Point returns to its -DP_Pmin$_{inj}$ (DP_Pmin$_{off}$) for the relevant quarter-hours instead of to the latest exchanged Daily Schedule. This rule will be generalized to all types of technologies.

The above-mentioned changes require the modifications of the following annexes of the T&C SA: 9.B, 9.C & 11.B.

The modifications introduced in the threshold for the return to Daily Schedule in **Annex 9.B**, are applied both for Delivery Points in injection and in offtake. The following two scenarios are impacted by the modifications:

a. Downward return to Daily Schedule is requested to a Delivery Point injecting active power.

b. Upward return to Daily Schedule is requested to a Delivery Point offtaking active power.

For the other combinations of return to Daily Schedule and injection/offtake of active power at the Delivery Point level, the introduction of the DP_Pmin$_{inj/off}$ in the threshold has no impact. So, for these combinations, the previously defined formulas are still applicable.

Below, the tolerated reactions prior and post modifications of the return to Daily Schedule control are illustrated using practical examples.

Figure 1 depicts the tolerated reaction of a Delivery Point to a downward return to Daily Schedule requested in an Electrical Zone with Congestion Risk Indicator (CRI) medium or high in the upward direction **prior** to the applied modifications:

- DP_Pmin$_{inj/off}$ is not considered in the return to Daily Schedule control and the latest Daily Schedule available to Elia is above -DP_Pmin$_{inj}$

[2] For reminder, DP_Pmin$_{inj}$ and DP_Pmin$_{off}$ are both defined as positive values while for Daily Schedule and Power Measured, the injection (offtake) is represented by a negative (positive) value.

- It is then expected that the Delivery Point realigns its active power injection with its latest provided Daily Schedule, consequently going above its -DP_Pmin$_{inj}$

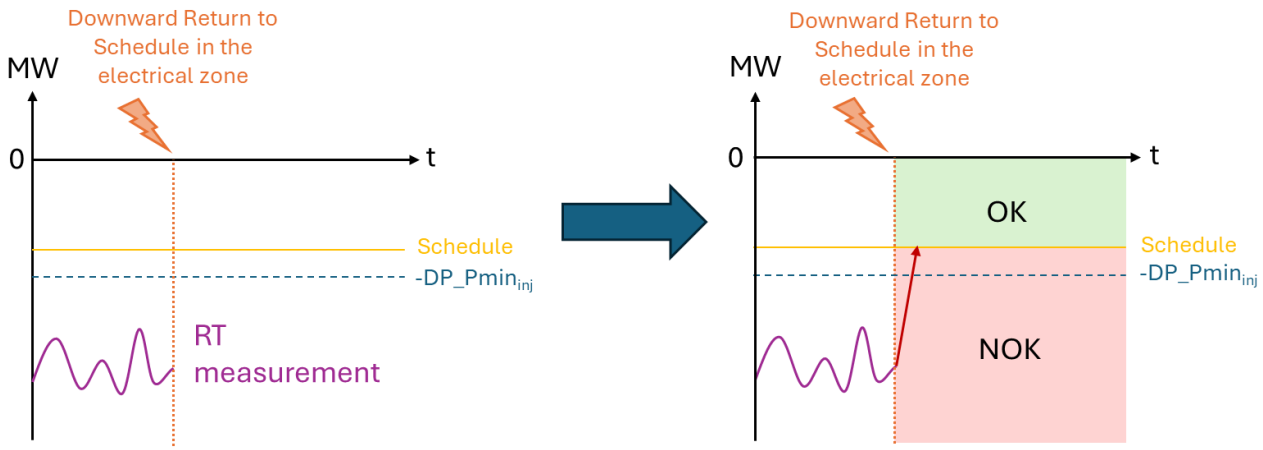


Figure 1 - Expected reaction without considering DP_Pmin$_{inj}$ (as-is situation)

On the other hand, Figure 2 depicts the newly tolerated reaction from the Delivery Point to a downward return to Daily Schedule requested in an Electrical Zone with CRI medium or high in the upward direction:

- If a technical justified DP_Pmin$_{inj/off}$ is applicable, -DP_Pmin$_{inj}$ (DP_Pmin$_{off}$) shall be considered in the return to Daily Schedule control if the latest Schedule available to Elia is above (below) the -DP_Pmin$_{inj}$ (DP_Pmin$_{off}$).

- In the example below it is expected that the Delivery Point realigns its active power injection to the agreed -DP_Pmin$_{inj}$.

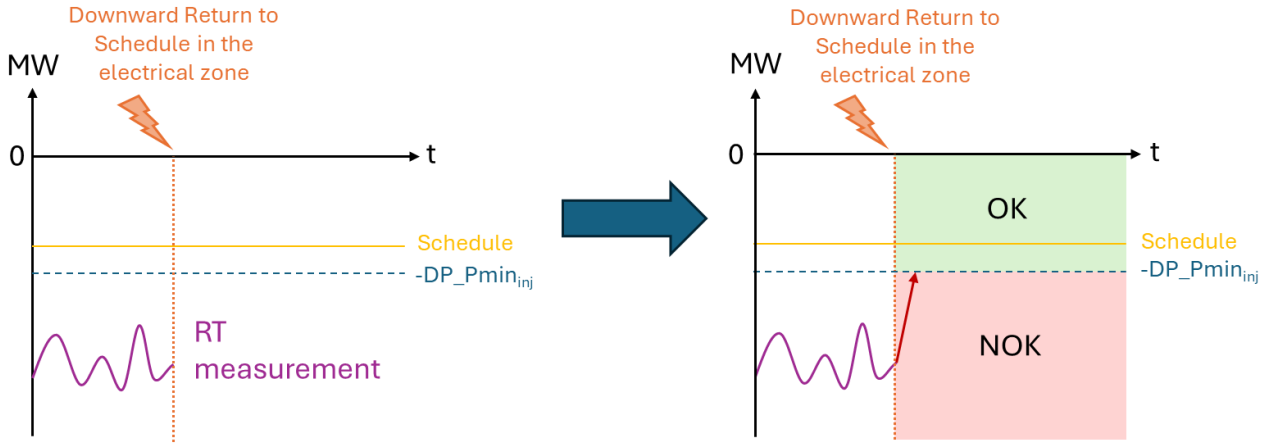


Figure 2 - Expected reaction by considering DP_Pmin$_{inj}$ (possible to-be situation)

The modifications in **Annex 9.C** introduce the consideration of DP_Pmin$_{inj/off}$ in the threshold computation. As a result, the accepted tolerance in the first quarter-hour QH_1 after a return

to Daily Schedule request is adjusted. This adaptation accounts for the deviation between the Power Measured at the Delivery Point and the expected setpoint (Daily Schedule or $DP\_Pmin_{inj/off}$). Similarly than for the modification of the threshold, only for the following two scenarios the deviation will be computed between the Power Measured and the $DP\_Pmin_{inj/off}$:

a) Downward return to Daily Schedule requested to a Delivery Point injecting active power.

b) Upward return to Daily Schedule requested to a Delivery Point offtaking active power.

For the other combinations of return to Daily Schedule and injection/offtake of active power at the Delivery Point, the introduction of the $DP\_Pmin_{inj/off}$ threshold has no impact on the tolerance calculation. So, for these combinations, the previously defined formulas are still applicable.

Figure 3 depicts how the $deviation_{QH0}$, considered to determine the tolerance for QH_1, is computed currently, while Figure 4 depicts an applicable scenario where $-DP\_Pmin_{inj}$ is newly used for the computation of $deviation_{QH0}$.[3]

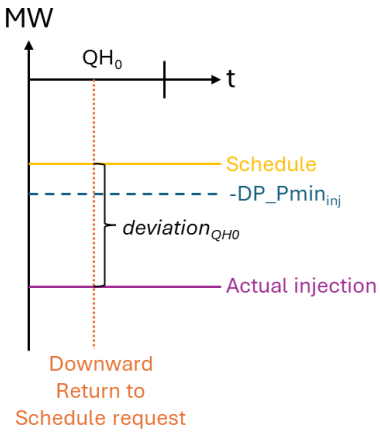


Figure 3 – as-is computation of $deviation_{QH0}$.

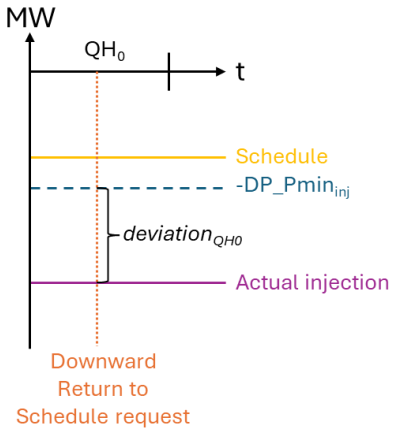


Figure 4 – possible to-be computation of $deviation_{QH0}$.

An example is presented below to illustrate the impact of the consideration of $DP\_P_{min\_inj/off}$ in the return to Daily Schedule control. It is assumed in the following example that 0.5 x $deviation_{QH0}$ is the maximal value between all the terms evaluated in the $tolerance_{QH1}$ formula. As a reminder:

$$\text{tolerance}_{\text{QH1}} = \max\left(0.5 \times deviation_{QH0}; 2\,MW; 2\% \times DP\_Pmax_{inj}\,;\; 2\% \times DP\_Pmax_{off}\right)$$

[3] Symmetrically the same concept is applicable for Delivery Points with active power offtake. DP_Pmin_{off} is considered for the $deviation_{QH0}$ computation if its Daily Schedule is below it.

Example: downward return to Daily Schedule request with Daily Schedule above -DP_Pmin$_{inj}$ [4]

The following practical example illustrates the impact of considering DP_Pmin$_{inj}$ within the downward return to Daily Schedule control, for the following two scenarios:

- **As-is scenario**: no consideration of DP_Pmin$_{inj}$ during return to Daily Schedule control:
  - deviation$_{QH0}$ = DP$_{measured,QH0}$ – Daily Schedule$_{QH0}$
  - tolerance$_{QH1}$ = 0.5 x deviation$_{QH0}$
  - threshold$_{QH1}$ = Daily Schedule$_{QH1}$ – tolerance$_{QH1}$
- **To-be scenario**: consideration of DP_Pmin$_{inj}$ during return to Daily Schedule control:
  - deviation$_{QH0}$ = DP$_{measured,QH0}$ – min(Daily Schedule$_{QH0}$; -DP_Pmin$_{inj}$)
  - tolerance$_{QH1}$ = 0.5 x deviation$_{QH0}$
  - threshold$_{QH1}$ = min(Daily Schedule$_{QH1}$; -DP_Pmin$_{inj}$) – tolerance$_{QH1}$

For this example, the following values are assumed for the quarter-hour of the downward return to Daily Schedule request (QH_0):

- Daily Schedule$_{QH0}$ = - 20 MW
- DP_Pmin$_{inj}$ = 25 MW
- DP$_{measured}$ = - 40 MW

The following Schedule is considered for the QH_1:

- Daily Schedule$_{QH1}$ = - 20 MW

	As-is	**Proposal**
deviation$_{QH0}$ (MW)	-20	-15
tolerance$_{QH1}$ (MW)	-10	-7.5
threshold$_{QH1}$ (MW)	-30	-32.5

Table 1 - Impact of changes in the threshold computation for first quarter-hour QH_1 following return to Daily Schedule request

[4] Symmetrically, the same example could be presented with adapted signs in case of upward return to Daily Schedule request with Daily Schedule below DP_Pmin$_{off}$.

Figure 5 shows the difference between the as-is and the possible to-be via the highlighted difference in QH_1.

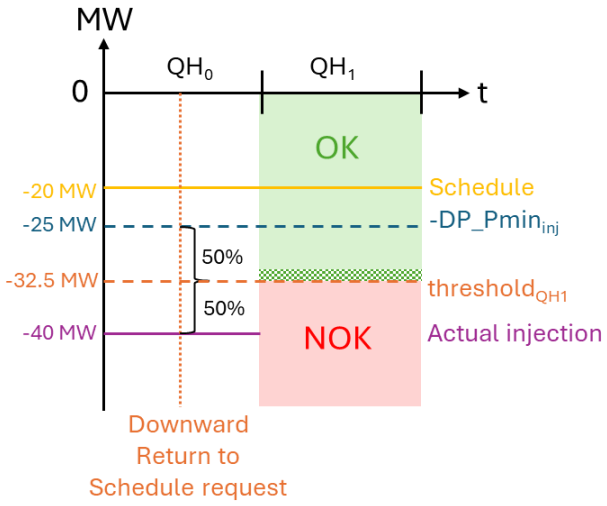


Figure 5 - Illustration of possible to-be with consideration of DP_Pmin_{inj} in return to Daily Schedule control

In the next part, the focus is on the three quarter-hours QH_1, QH_2 and QH_3 after the return to Daily Schedule request. In Figure 3 and Figure 4, the same Daily Schedule and Power Measured are displayed over four consecutive quarter-hours. In Figure 6, the as-is scenario is presented and in Figure 7 the possible to-be scenario is displayed, presenting concretely the changes in the return to Daily Schedule control introduced by the consideration of the $DP\_Pmin_{inj/off}$.

In Figure 3 below (as-is situation), following a downward return to Daily Schedule request in QH_0, the threshold in QH_1 is computed based on the deviation in QH_0 between the Schedule and the actual injection of the Delivery Point, leading to a bigger reaction expected from the Delivery Point to comply with the return to Daily Schedule request. In QH_2, the control is applied around the actual Schedule (with tolerance), but as the injection of the Delivery Point cannot go past $-DP\_Pmin_{inj}$ without endangering its lifetime, the Power Measured is not within the compliant threshold. In QH_3, the return to Daily Schedule control is still performed around the Schedule and the Power Measured is within the compliant area.

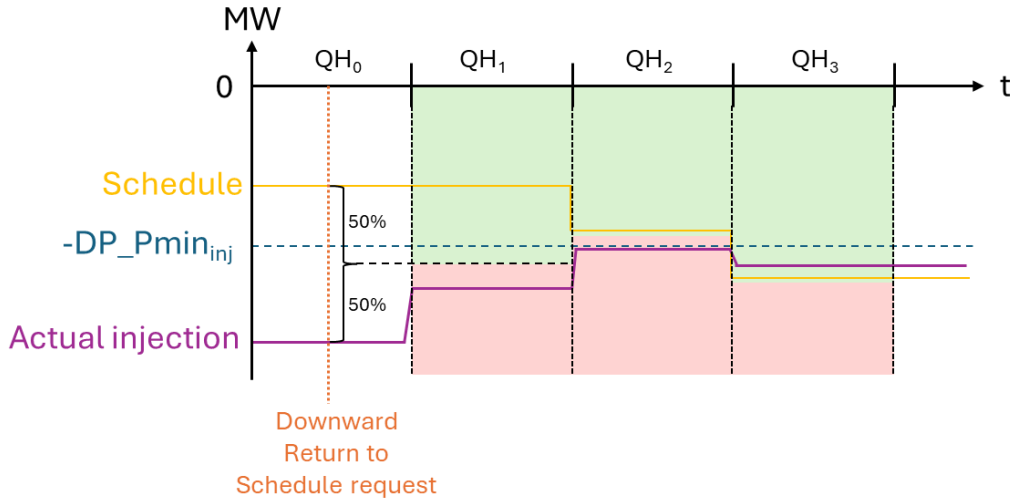


Figure 3 - Return to Daily Schedule control without considering of DP_Pmin_{inj} (as-is)

In Figure 4 below (possible to-be situation), following the downward return to Daily Schedule request in QH_0, the threshold in QH_1 is computed considering the $-DP\_Pmin_{inj}$ of the Delivery Point. The deviation in QH_0 is therefore smaller than as computed in Figure 3; leading to a smaller reaction expected from the Delivery Point to comply to the return to Daily Schedule request. In QH_2, the control is applied around $-DP\_Pmin_{inj}$ (with tolerance) as the Schedule is still below it. In QH_3, the return to Daily Schedule control is performed now around the Schedule as the Schedule is below than the $-DP\_Pmin_{inj}$, allowing the Delivery Point to follow its Schedule.

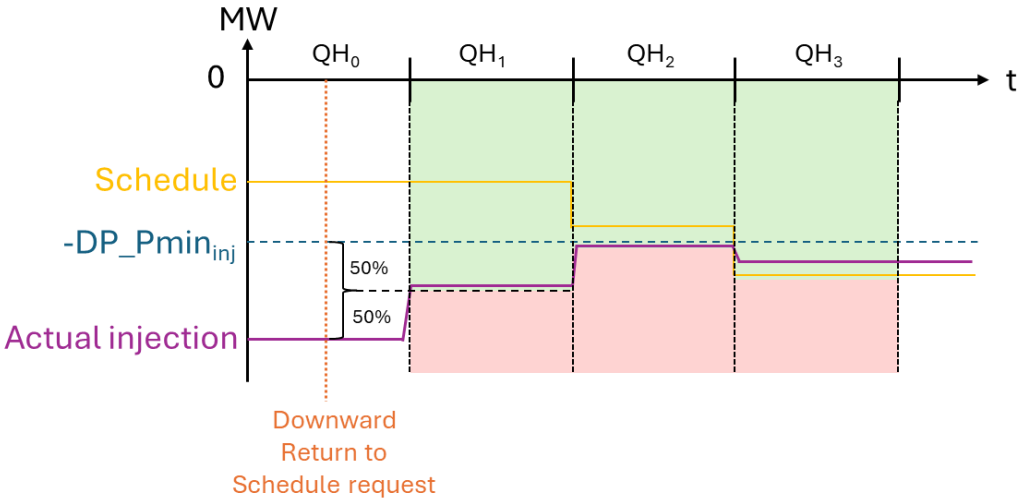


Figure 4 - Return to Daily Schedule control considering DP_Pmin_{inj} (possible to-be)

Finally, the changes performed in **Annex 11.B** are introduced to maintain the same logic than so far applied for the settlement in case of non-compliancy to a return to Daily Schedule. The $deviation_{up(down),QH}$ parameter used in return to Daily Schedule control and the one in the

settlement for return to Daily Schedule control are now differentiated, so that the changes introduced in **Annex 9.C** do not impact the as-is logic defined in **Annex 11.B**. Therefore, the parameter *settlement deviation*$_{QH}$ is introduced in the settlement for return to Daily Schedule control, and in case of non-compliancy to a return to Daily Schedule, the deviation will always be computed with regards to the Daily Schedule regardless of DP_Pmin$_{inj/off}$. The logic follows the same than in the as-is T&C SA, where in case of non-compliancy to the return to Daily Schedule control, the settlement for return to Daily Schedule control is computed over the three-quarter hours following the return to Daily Schedule request and not only for the non-compliant quarter-hours.

4. Inclusion of the FCR Requested in the return to Daily Schedule control

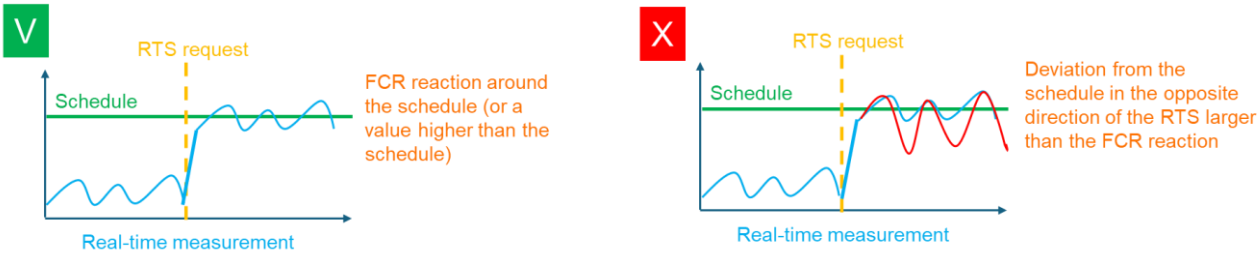
Technical Facilities, with a maximum power above or equal to 25 MW and defined by one or several Delivery Points providing the FCR Service, are also subject to return to Daily Schedule requests. In case of medium/high CRI in an Electrical Zone, a combination of a return to Daily Schedule request and an FCR activation in opposite directions is possible.

Similarly to aFRR, FCR providing units have a fast reaction time and can easily stop the provision of the FCR Service. Consequently, a similar solution to the one implemented for aFRR is introduced.

The expected reaction of a Delivery Point facing both signals (i.e., frequency deviation signal & Return to Daily Schedule request) is as follows:

- The BSP must still activate the FCR Requested when a return to Daily Schedule is requested by Elia in the opposite direction (usual FCR process).
- The return to Daily Schedule must be performed while considering the FCR Requested. The expected “setpoint to reach” corresponds therefore to:
    - Daily Schedule + FCR Requested in the downward direction, in case of upward return to Daily Schedule;
    - Daily Schedule + FCR Requested in the upward direction in case of downward return to Daily Schedule.

The Figure below shows which behaviour is correct and which one is incorrect.



The modifications proposed in the T&C SA clarify the impact of this approach on the return to Daily Schedule control. They are limited to the adaptations of the following sections:

- **Art II.1** (i.e., adding the definitions of BSP Contract FCR and FCR Energy Bid);
- **Annex 9.A**.

The modifications allow the provision of the FCR reaction (up / down), while still respecting an eventual request of return to Daily Schedule in the opposite direction (down / up). A correction is then necessary in the return to Daily Schedule control to avoid penalizing the SA for the FCR activation provided by the BSP.

The clarifications in the T&C SA for the return to Daily Schedule control are the following:

- The return to Daily Schedule control (applied at Delivery Point level) will consider the new “setpoint to reach” (i.e. considering the last Daily Schedule, the possible mFRR Supplied by the Delivery Point, the possible aFRR Supplied by the Delivery Point but also the possible FCR Requested).
- Note that, for the moment and as an approximation, the FCR Requested is computed based on the FCR volume indicated in the FCR Energy Bid including the concerned Delivery Point (i.e., the offered volume).

5. Inclusion of new modalities for conditional links enabling specificities for start-up and shut-down RD Energy Bids

The current available modalities for conditional links allowing the association of two RD Energy Bids, is insufficient in the case of the Minimum Activation Time (MIT). Indeed, the current modalities do not technically guarantee that the activated Operating Mode of a Technical Facility is started-up (resp. shut-down) for at least the duration of the MIT.

To solve this issue, modifications were made in the **Annex 5.C** of the T&C SA.

These amendments will allow linking a RD Energy Bid of quarter-hour QH_0 not only with those of QH_{-1} and QH_{-2} but also with QH_1 and QH_2, as start-up and shut-down bids depend on the activation of RD Energy Bids in the next quarter-hours. The existing rules are thus extended to include the quarter-hours QH_1 and QH_2.

The figure below illustrates these new modalities.