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iCAROS phase 1 : Design Fine-Tuning workshop

Date: 03/06/2021

Agenda

- Introduction
- Link between Delivery Point and Technical Unit
- Delivery and amendment of availability plan
- Scheduling and redispatching – Data provision monitoring
- Coordinability levels
- Usage of RD energy bids for other purposes than national congestion management

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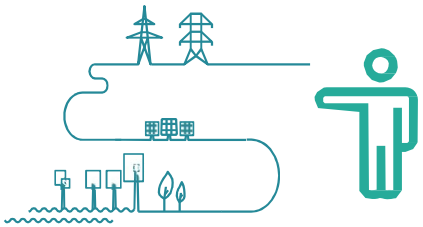
Introduction

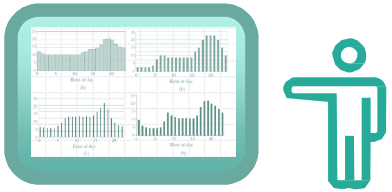
iCAROS = Integrated Coordination of Assets for Redispatching and Operational Security

Business Scope

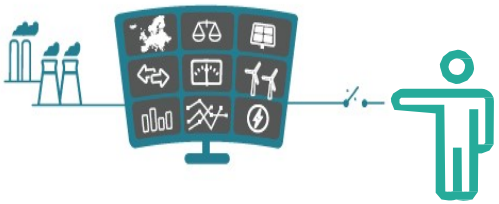
Exchange of operational data [from LT to realtime]



1
Outage Planning



2
DA & ID scheduling



3
Congestion management

FOCUS Phase 1

- **for SPGM, PPM per pes & ESD ≥ 25 MW**
- **BRP assumes the role of OPA & SA**

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Design Fine-Tuning Phase 1

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Link between Delivery Point and Technical Unit

- The Outage Planning, Scheduling and Bidding **obligations are** defined **on the level of Technical Facilities**.

  But beware that the definition of Technical Facility slightly defers from the definition of 'Asset' mentioned in the design note, since it refers to the notion of PPM per primary energy source and no longer to the general notion of PPM as defined in the RfG.

  E.g. A solar PPM with an installed capacity of more than 25MW should communicate DA and ID MW schedules to Elia

- The Outage Plans, Schedules and Redispatching Energy bids are exchanged at the following levels:

	Outage plan	Schedule	Redispatching Energy Bid
Delivery Point	Default	Default	
Operating Mode			Default

New

- By default, the Delivery Points are defined at the level of the Technical Units
- For a Technical Facility composed of several Technical Units, the Delivery Point can exceptionally be defined at the level of the TF if the conditions listed below are simultaneously fulfilled:
  - All Technical Units of the TF can only be operated simultaneously;
  - All Technical Units of the TF are linked to the same Access Point

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Delivery and amendment of availability plan

New

Delivery of availability plans D-1 & D

A quarter-hourly plan will be automatically generated from the information provided through the Ready-To-Run procedure by the OPA. The status coming from Ready-To-Run procedure will be automatically translated in a DA status for all quarter-hours (see conversion table below). The OPA can update the quarter-hourly plan and apply per quarter hour one of the four statuses mentioned in the next slide.

Status in Ready-To-Run procedure	DA status
NRR - Not Ready to Run	Unavailable
RR - Ready to Run	Available
RRR - Ready to Run Reserved	Available
MNRR - May Not Ready to Run	Unavailable

Delivery of amendments of availability plans from D-7

New

What ?

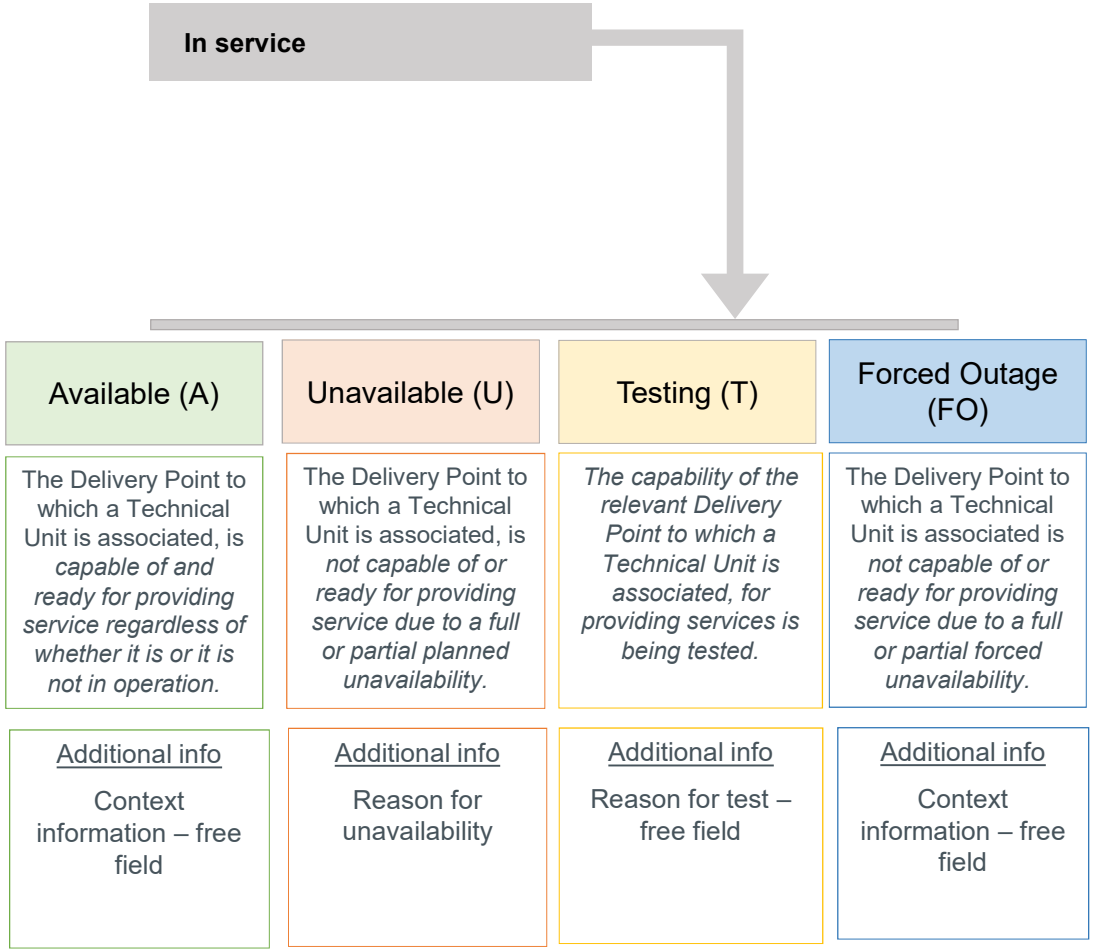
- Availability status (A, U, T or FO)
- Remaining active power capability
- Additional information (depending on the status)

Granularity ?

- Exact timing by OPA that is translated in Quarter-hourly by Elia

No need to send in availability plans from D-7 only if updates (incl FO) are required

From D-7 on, an update of the status (U,T or FO) shall be announced by an event by the OPA that specifies an exact timing. The OPA shall indicate a partial unavailability through an event indicating an unavailability with a Available Pmax (Remaining Active Power Capability) between Technical Pmax and zero. Elia shall translate this towards a status available with an Available Pmax which is not equal to the Technical Pmax but the one reported by the OPA.



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Scheduling and redispatching – Data provision monitoring

New

Scheduling and redispatching – Data provision monitoring

- Elia will implement some specific processes to monitor the provision and the update of some essential data to ensure the grid security

Provision of schedules at D-1 3PM

- Daily monitoring of the schedules per SA to check if some schedules were not delivered for DP indicated as available and allocated to this SA
- In case of abusive behaviors, the SA contract will foresee the possibility for Elia to apply a penalty*

Provision of RD bids at D-1 3PM

- Daily monitoring to check if the provision of (at least one) RD bids by the SA is coherent with outage planning status at redispatching providing group
- In case of abusive behaviors, the SA contract will foresee the possibility for Elia to apply a penalty*

Update of RD bids when updating the schedule

- Monitoring of the obligation for the SA to update its RD bids when providing an update of the schedule via the implementation of a specific data crosscheck
- A specific process/penalty to handle inconsistencies is still under development

*A learning period will be foreseen at the go-live of iCAROS

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Coordinability levels

New

Coordinability levels

- The Coordinability level of a Technical Facility (TF) defines its technical capability to modify its power injection upwards and/or downwards on the Elia Grid upon request by ELIA
- In iCAROS design, Coordinability Levels will be used to identify the Technical Units that are
  - Eligible for return to schedule command
  - Obliged to offer RD/mFRR bids
- **Two coordinability levels** (“Coordinable (C)” and “Not coordinable (NC)”) will be defined
  - The existing level “limited coordinable” will no longer be used
  - The coordinability levels will be defined per direction (upwards and downwards)
  - The coordinability levels will be defined on the TF level (with all Operating Modes of a TF inheriting of the coordinability level of the TF)
- The exact definitions of both coordinability levels will be detailed in the SA contract

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Use of RD Energy bids for other purposes than internal congestion management

Agenda

1. Which other purposes?
2. Activation process
3. Cancellation of activation
4. Remuneration
5. Control & settlement

Which other purposes?

What can RD Energy bids be used for?

CONG

National congestion management 

Main use of RD Energy bids and focus of iCAROS design notes

Other purposes:

CONG

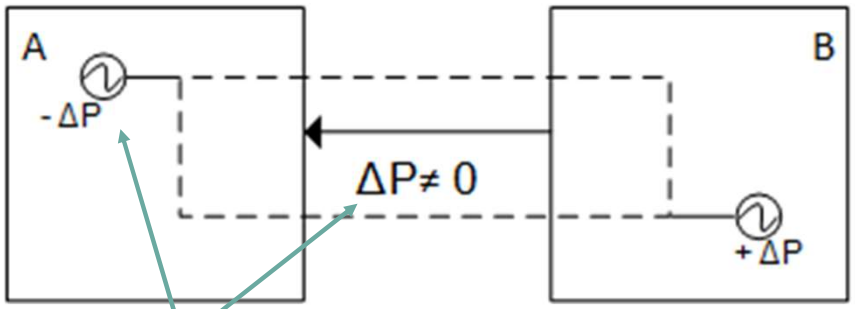
- Redispatching actions in the context of XB congestion management 

BAL

- Redispatching actions in the context of Exhausted reserves/escalation procedure
- Balancing actions (use case : FRCE exceptional measures)

Redispatching actions in the context of XB congestion management

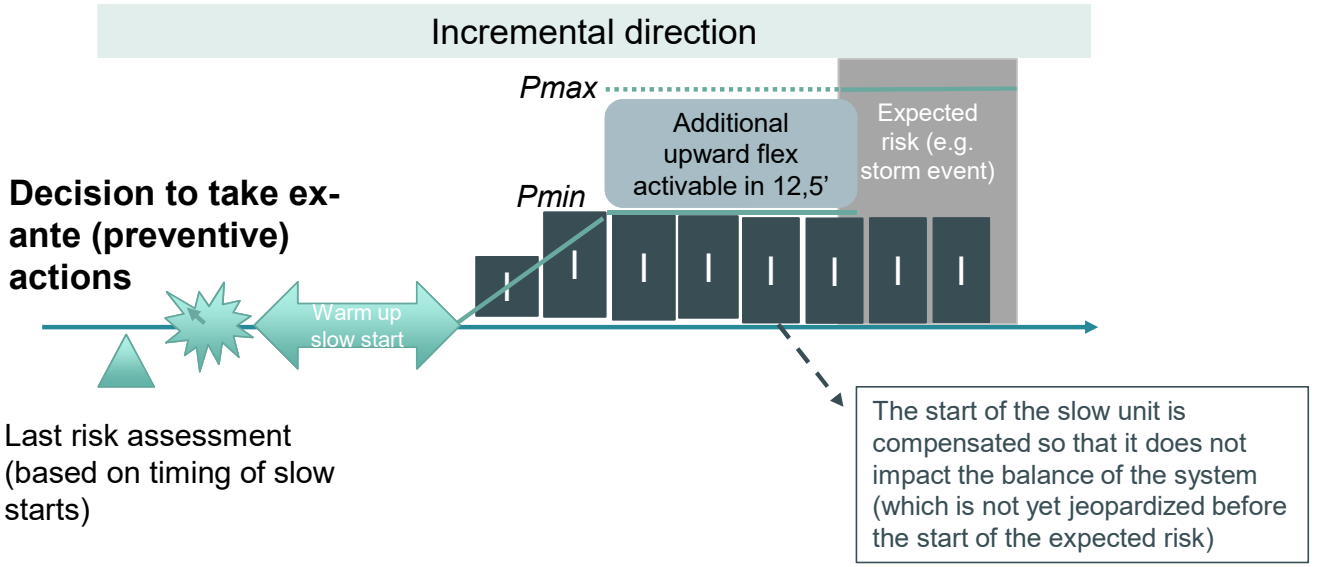
*Activation of a RD Energy bid in the Belgian control zone in order to **compensate a modification of the cross-border exchange program** between Belgium and one neighboring country.*



The activation of the RD Energy bid compensates the effect of the modification of the XB exchange program on the balance of the zone ➔ there is no need for local compensation of the RD Energy bid!

Redispatching actions in the context of Exhausted reserves/escalation procedure (LFCBOA procedure)

Activation of a start-up RD Energy bid on a slow unit in order to bring this unit into the running mode (at its Pmin) and hence ***create additional flexibility available for FRR activations****.*

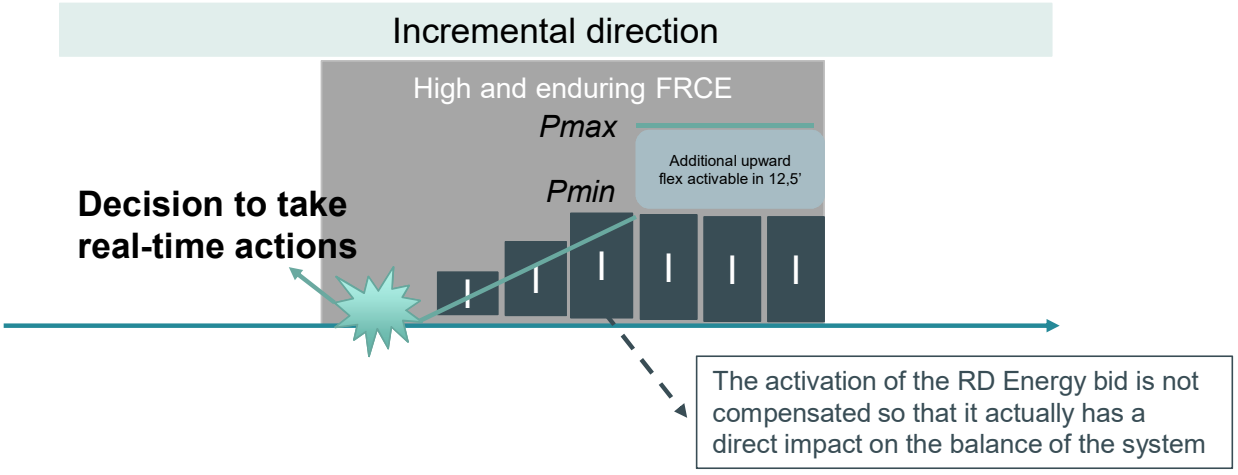


Balancing actions

*Activation of a RD Energy bid to **help balance the system***, while all FRR means have been used.

Use case : FRCE exceptional measures in RT (LFCBOA procedure)

Direct activation of a RD Energy bid to bring large and enduring FRCE (which is not expected to be controlled by the frequency restoration process) back to an acceptable level

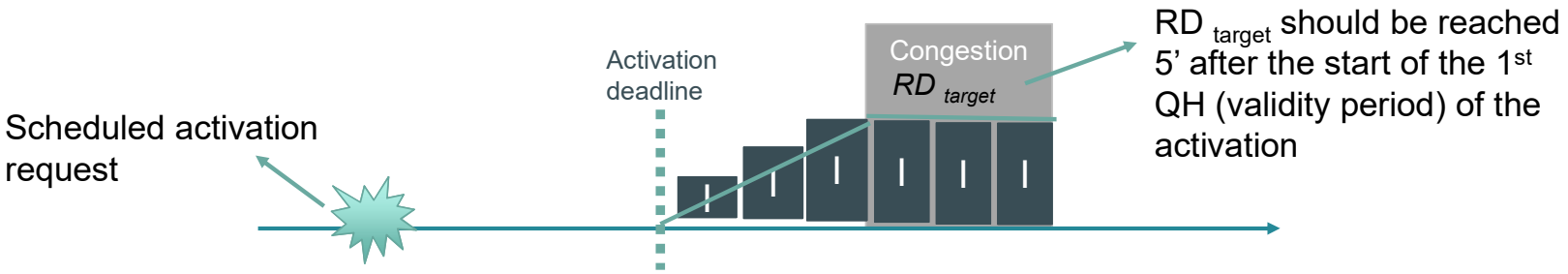


Activation process

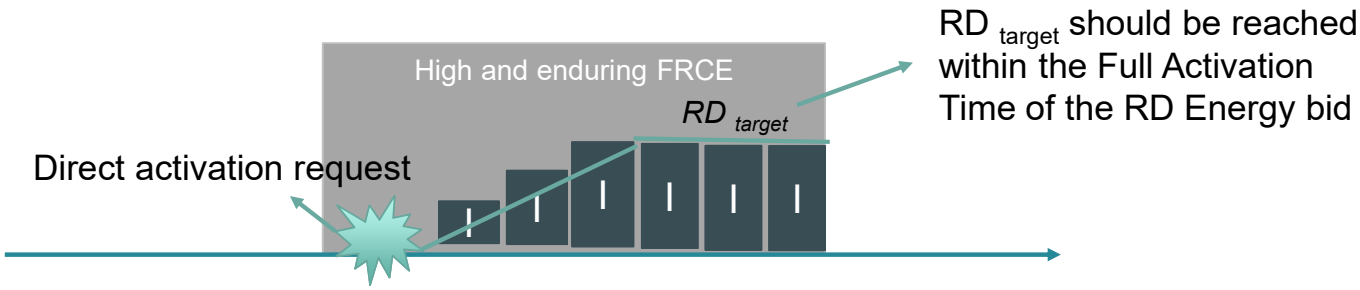
The timing of activation is the same as for national congestion mngt

Just as for the activation of a RD Energy for national congestion management, Elia can request the activation of the RD Energy bid for other purposes **at any time** and **can require a Scheduled or a Direct Activation**.

Use case for Scheduled Activation: XB congestion management



Use case for Direct Activation: FRCE exceptional measures in RT



Activation purpose is clearly mentioned in the activation request

The purpose of the **activation will be communicated to the Scheduling Agent** in the activation request message:

- National congestion management
- XB congestion management
- Exhausted reserves/ escalation procedure
- Balancing

Cancellation of activation

Cancellation of Scheduled Activation is possible until the activation deadline

Just as for the activation of a RD Energy for national congestion management, **Elia can revoke any Scheduled Activation of a RD Energy bid** that had been activated for other purposes.

The activation can be fully or partially canceled **until the Activation Deadline**, but the **remuneration will only be canceled** if Elia revokes the activation **in Day-ahead**.

Remuneration

The same cost-based remuneration as for national congestion management applies

In case of Scheduled Activation:

$$\text{Remuneration} = \text{Redispatching Energy}_{\text{requested}}\ (\text{MWh}) \times \text{Redispatch Energy bid price } (€/\text{MWh})$$

In case of Direct Activation:

$$\text{Remuneration} = \text{Redispatching}_{\text{requested}} * \frac{\Delta t}{15} * \frac{1}{4}\ [\text{MWh}] \times \text{Redispatch Energy bid price } (€/\text{MWh})$$

with Δt = 15' – delay between point of scheduled activation and the time of the direct activation request

Where Redispatch Energy bid price should reflect the costs for activating the flexibility (e.g. fuel costs, decreased revenues from Green Certificates, etc.)

Rationale for the cost-based remuneration

XB congestion management:

- Redispatching actions in the context of XB congestion management are rather rare (~1-2/month)
- Market-based remuneration would create the same issues as for national congestion management (e.g. inc-dec gaming)

LFCBOA procedures (escalation/exhausted reserves/FRCE exceptional measures in RT):

- Activation of LFCBOA procedures is very exceptional
- No missed market opportunity:
  - Flexibility that is activated via RD Energy bids during the execution of LFCBOA procedures is, by definition, not eligible in the balancing market
  - The units that are started ex-ante in the context of these procedures are not forbidden to sell their remaining upward flexibility on the ID market (however, in this case, the start-up costs are not paid by Elia)

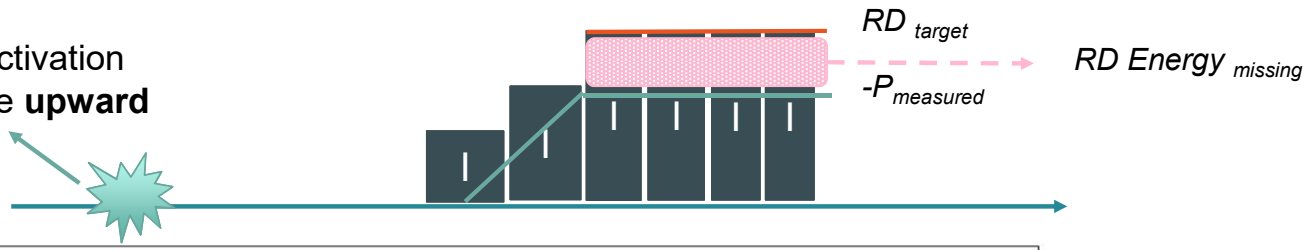
➔ No need to complicate the bidding process (e.g. asking the SA to submit two different prices per bid) for such exceptional events

Control & penalties

The same control & penalty principles as for national congestion management apply

➢ **Underdelivery is forbidden and penalized:**

Scheduled activation request in the **upward** direction



$$Penalty = \sum_{\substack{non\ compliant \\ time\ units}} MAX\ (0;\ Redispatching\ Energy_{missing}\ x\ Penalty\ price)$$

Where Penalty price = k (e.g. 1,3) x price of the RD energy bid which is not correctly activated

➢ **Overdelivery is not penalized*:**

Scheduled activation request in the **upward** direction

No penalty applies

* However, in case of overdelivery after the start-up of a unit till its Pmin by Elia, the start-up costs are not paid by Elia

Thank you.