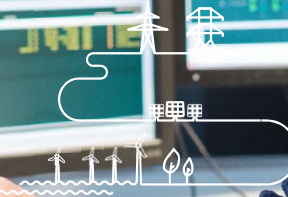


iCAROS – Road map towards 2023 and beyond

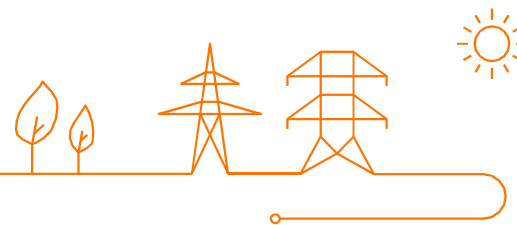
iCAROS = Integrated Coordination of Assets for Redispatching and Operational Security

26 February 2021



AGENDA

1. High level planning iCAROS implementation phase 1
 - Test planning [joint planning with explicit mFRR]
 - Agenda for dedicated workshop on IT implementation of data exchange for iCAROS and mFRR (MARI)
2. Design fine tuning : focus on phase 1 of the implementation trajectory :
On the following webpages under the subsection relevant documents the last version [date of the document is mentioned] of the document can be found
 - <https://www.elia.be/en/electricity-market-and-system/system-services/being-available-for-the-system>
 - <https://www.elia.be/en/electricity-market-and-system/system-services/alleviating-congestion-risk>
3. Explicit bidding manual : structure and introduction

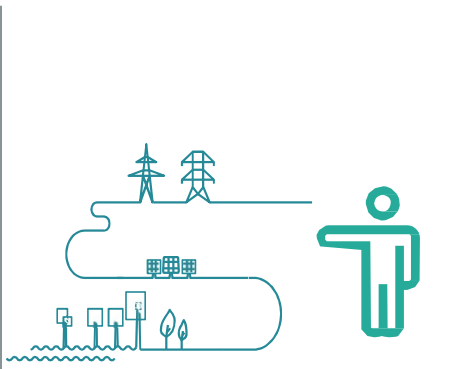


iCAROS = Integrated Coordination of Assets for Redispatching and Operational Security



Business Scope

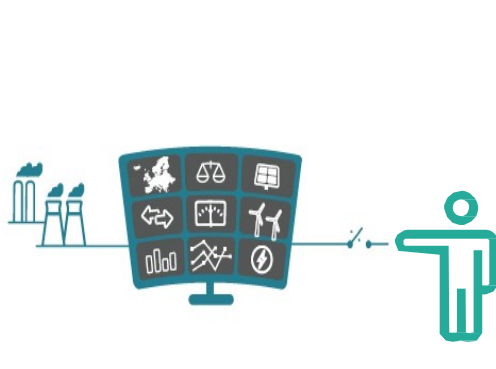
Exchange of operational data
[from LT to realtime]



1
Outage
Planning



2
DA & ID
scheduling



3
Congestion
management



iCAROS phased implementation

→ Phasing reflects operational prioritization and is cocreated with SGUs & DSOs
 → no big bang but safeguarding operational robustness



FOCUS Phase 1 for SPGM, PPM per pes & ESD \geq 25 MW and no splitting of roles (OPA & SA = BRP)

FOCUS Phase 2 for SPGM, PPM per pes & ESD \geq 1 MW & demand facilities (only TSO-connected) and splitting of roles (OPA & SA \neq BRP)

Phase 1

- DA & ID Outage planning(TSO)
- Scheduling (TSO)
- Congestion management (TSO)
- Introduction of new congestion risk indicator) (TSO)

**TSO/SGUs*
COCREATION**

Phase 2

- Outage planning (TSO/DSOs)
- Scheduling (TSO)
- Congestion management (TSO)

**TSO/SGUs*/DSOs
COCREATION**

Phase 3

- Scheduling (TSO/DSOs)
- Congestion management (TSO/DSOs)

**TSO/SGUs*/DSOs
COCREATION**



* CDSOs are included in cocreation for SGUs connected to their grid

iCAROS : Phase 1 of the implementation

Relevant Assets



From ...

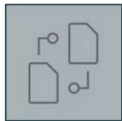
Only mandatory for large classic power generators [$\geq 25\text{MW}$]



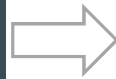
Phase 1 – Q2 2022

Only mandatory for large SYNCHRONOUS POWER GENERATING MODULE (SPGM); POWER PARK MODULES per primary energy source (PPM) or ENERGY STORAGE DEVICE (ESD) [$\geq 25\text{MW}$]

Data Exchange



Non-standardized and obsolete data exchange



- NEW Outage Planning DA & ID
- NEW : Scheduling
- NEW : Redispatch (RD) energy bidding – explicit & aligned with bid properties MARI

Tools & Technologies



Partially supported by obsolete tools & technologies [~ 15 years]



- New tool for DA & ID Outage Planning
- New scheduling tool
- New RD bidding module – explicit

Roles & Contracts



ROLES :

- BRP = OPA = SA

CONTRACT :

- regulated T&C OPA & T&C SA & Coordination Rules



ROLES :

BRP = OPA = SA

CONTRACT :

- regulated T&C OPA & T&C SA & Coordination Rules



OUTAGE PLANNING AGENT: pragmatic approach for transition period Phase 1

SYNCHRONOUS POWER GENERATING MODULE (SPGM); POWER PARK MODULES per primary energy source (PPM) or ENERGY STORAGE DEVICE (ESD)

DEMAND FACILITIES

25 MW or more

1 – 25 MW

Mandatory signature of OPA contract

- **Connected to Elia Grid directly or through CDS : default rules* or Voluntary**
- **Connected to DSO Grid : Voluntary****

Simplified information exchanges based on current practices – no operational change

- ❖ **Availability status**
- ❖ **Temporary restrictions**

* Default rules = per default available & Pmax of connection contract as input

** SOGL Article 49

SCHEDULING AGENT: pragmatic approach for transition period Phase 1

SYNCHRONOUS POWER GENERATING MODULE (SPGM); POWER PARK MODULES per primary energy source (PPM) or ENERGY STORAGE DEVICE (ESD)

DEMAND FACILITIES

25 MW or more

1 – 25 MW

Mandatory signature of SA contract

- Connected to Elia Grid directly or through CDS : default rules* or Voluntary
- Connected to DSO Grid : Voluntary**

Exempted***

- ❖ Active power schedules in day-ahead (DA) and intraday (ID)
- ❖ Explicit cost based Redispatch Energy bids in DA & ID market

* Default rules = usage of Elia forecasts /profiles; no redispatch energy bids

** SOGL Article 49

*** SOGL Article 52

Test planning : overview

1.

Launch of demo platform : Interoperability testing between Elia applications and External applications of Outage Planning Agent, Scheduling Agent and BSP. Done in test environment with test data.

2.

Testing of individual functionalities

3.

Functional integrating testing

4.

Operational run of data exchange

Testplanning : Testing of individual Functionalities



- Outage Planning Agent - Nomination of DA/ID Availability Plan
- Outage Planning Agent - Nomination of Availability Plan via simple user interface
- Scheduling Agent - Nomination of DA/ID Schedule
- Scheduling Agent - Nomination of Schedule via simple user interface
- Scheduling Agent - Return to schedule request
- Scheduling Agent – Redispatching energy bidding
- Scheduling Agent - Activation request of Redispatching to Scheduling Agent

iCAROS project
scope

- BSP - Prequalification of mFRR energy bid
- BSP – mFRR energy bidding
- BSP - CRI update & request for energy bid update
- BSP - Activation request of mFRR to BSP

Explicit mFRR (MARI project)
scope

Testplanning : Functional integrating testing



Functional integrating testing: :

- Testing phase during which multiple individual functionalities are combined in 1 test case
- Test cases will be developed at request of market party by Elia together with that market party on an ad hoc basis

Testplanning : Operational run of data exchange



Operational run of data exchange:

- Testing phase during which data is being exchanged for a specific period and similar as it will be done in operation
- Start of this operational run is foreseen beginning of February 2021, market parties can participate as soon as they are ready
- Focus of the operational run

- Sending of updates of statuses
- Sending of schedules and updates
- Sending of RD energy bids and updates

iCAROS project
scope

- Sending of mFRR bids and updates

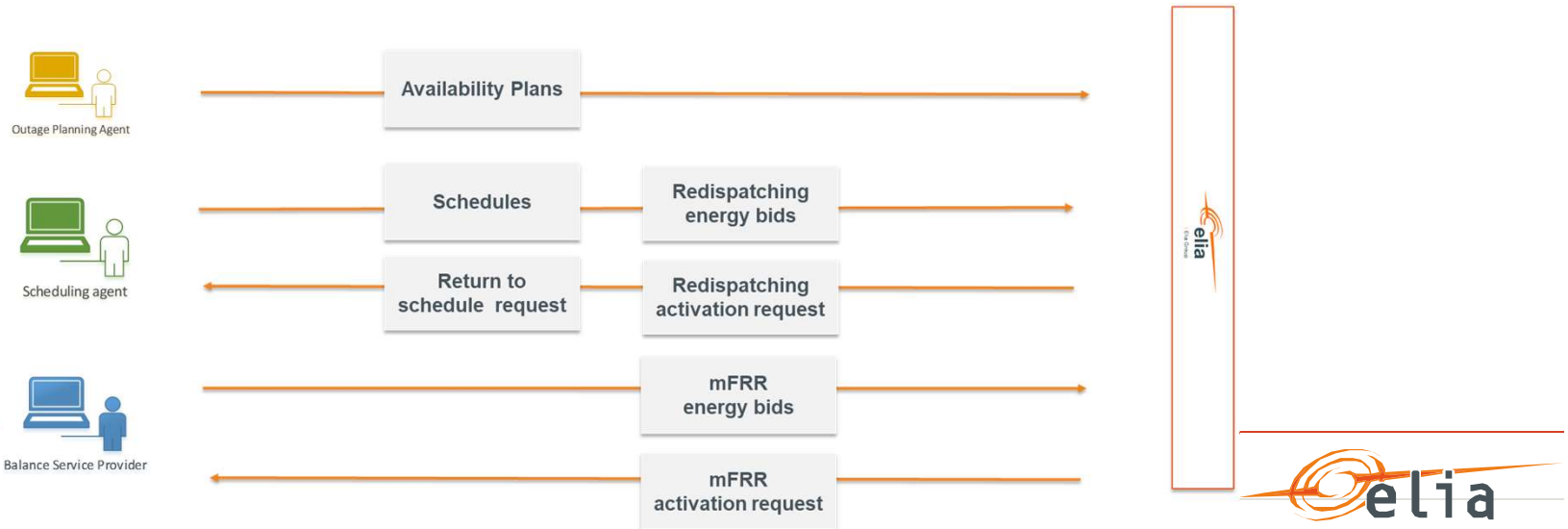
Explicit mFRR (MARI project)
scope

High level milestone overview iCAROS Phase 1 implementation

FEB 2021	MAR 2021	MAY 2021	JUN 2021	AUG/SEP/OCT 2021	OCT 2021	DEC 2021/JAN 2022	FEB/MAR 2022	MAR 2022	APR 2022
<ul style="list-style-type: none"> • iCACOR Taskforce workshop : Planning (focus on test planning), design phase 1 and intro manual for RD Energy Bids (26/2) 	<ul style="list-style-type: none"> • Technical workshop focus on data exchanges (11/3) • Manual for RD Energy bids • iCAROS Taskforce workshop : design phase 1 and manual for RD Energy Bids (25/3) 	<ul style="list-style-type: none"> • Technical guides for external stakeholders 	<ul style="list-style-type: none"> • Technical workshop focus on technical guides (3/6) 	<ul style="list-style-type: none"> • Public consultation of T&C OPA, T&C SA and coordination rules version 2.0 	<ul style="list-style-type: none"> • Launch of demo platform for market parties to test their developments in the framework of phase 1 • External testing with OPA/SA of individual functionalities 	<ul style="list-style-type: none"> • External testing with OPA/SA of functional integrating testing 	<ul style="list-style-type: none"> • External testing with OPA/SA of operational run of iCAROS data exchange 	<ul style="list-style-type: none"> • Regulatory approval of T&C OPA, T&C SA and coordination rules version 2.0 • Completion of End-to-End testing with external stakeholders 	<ul style="list-style-type: none"> • Contract management T&C OPA and T&C SA version 2.0 • Go-Live iCAROS phase 1

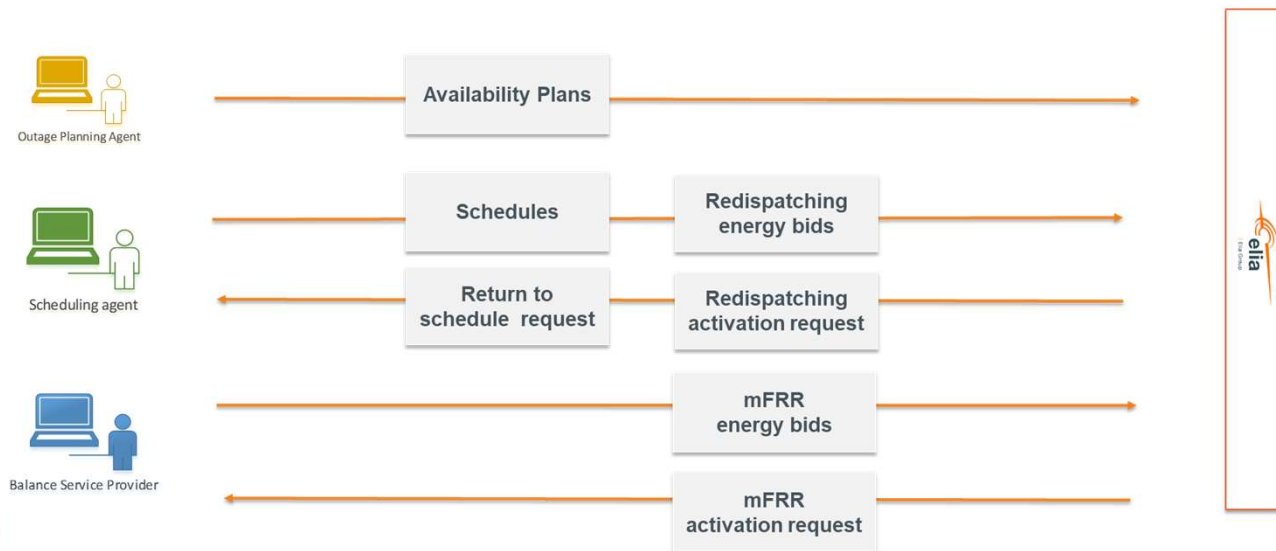
Agenda for dedicated workshop on IT implementation of data exchange for iCAROS and mFRR (MARI) - 11/03/2021

- General principles on information exchanges
 - Central point of access via asynchronous communication layer
 - Granularity of messages
- Content and format of different messages to be exchanges



Agenda for dedicated workshop on IT implementation of data exchange for iCAROS and mFRR (MARI) - 11/03/2021

- A new asynchronous communication layer will be applied for all exchanges in the framework of iCAROS and explicit mFRR – MARI project [the road map for other exchanges between Elia and external parties not in the framework of these projects are still under discussion]



A new asynchronous communication layer

Details will be provided during the technical workshop of 11/03/2021



- ❑ A central entry point
- ❑ A security standardization
- ❑ A new asynchronous pipeline based on open and standard protocol (AMQP)
- ❑ A synchronous pipeline will extend the communication layer when new scenarios justify it
- ❑ A communication base on the Entso-e Standard energy formats
- ❑ A central documentation repository
- ❑ Queue Manager is located at Elia Side, External Stakeholders do not need to host anything anymore
- ❑ Dedicated queues per External Stakeholder & per message types will be created

