Readiness of the Business testing protocol with Service Providers

The following document gives an overview of the different steps of testing that Elia would like to set up with the Service Providers in order to assess:

1) the **ability** of market parties **to understand and acknowledge** any Elia requests.

2) the **Business** readiness of the global system (Service Providers and Elia) to go-live, and

3) the alignment of the data exchange with **the reality** (performance, correct view on the market bid proposal, …)
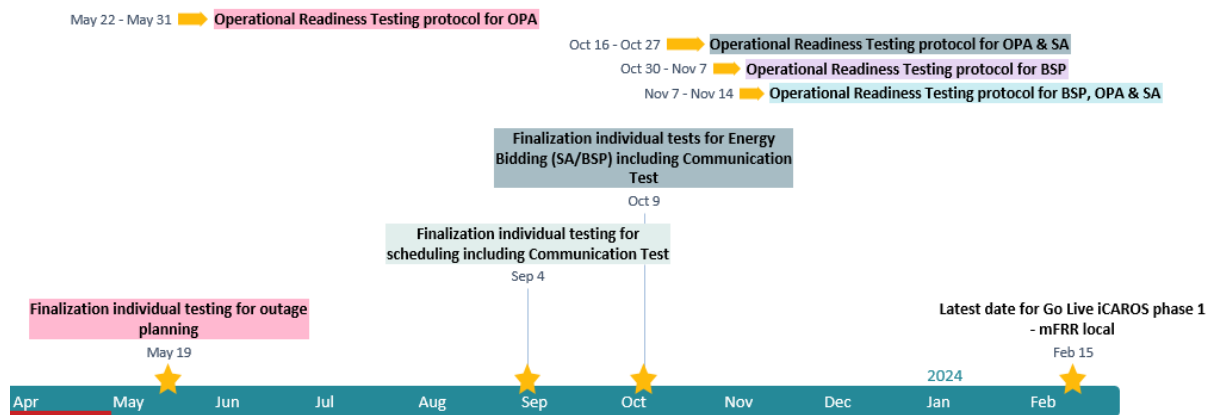
The following sections give the steps to organize together with Service Providers with an increasing complexity.

The objective would also to set up a forum at regular intervals were the test results could be discussed with market parties as well as KPI to inform on the readiness for the go-live.
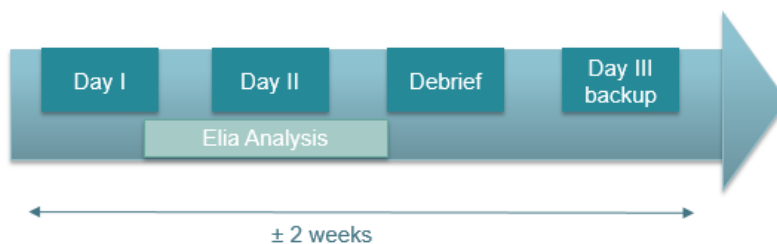
Overview of the tests

	Tests	Type	What	Who
iCAROS	iCAROS_1	Reproduction of **real situation**	**Update** of an Availability Plan	OPA
	iCAROS_2		**Initialization** of Schedules & RD Energy Bids	SA OPA
	iCAROS_3		**Updates** of Schedules & RD Energy Bids	SA OPA
	iCAROS_4	**Simulation** of scenario's	**Activations of RD, Return to Schedules Requests**	SA
MARI	MARI_1	Reproduction of **real situation**	**Initialization** & **updates** of mFRR Energy Bids	BSP
	MARI_2	**Simulation** of scenario's	**Activations of mFRR**	BSP
iCAROS/MARI	iCAROS/MARI_1	Reproduction of **real situation**	**Initialization** of Schedules & RD/mFRR Energy Bids	BSP SA OPA
	iCAROS/MARI_2		**Updates** of Schedules & RD/mFRR Energy Bids	BSP SA OPA
	iCAROS/MARI_3	**Simulation** of scenario's	Combination of **activations** of **mFRR, RD** & **Return-to-Schedules Requests**	BSP SA

General organization

May 22 - May 31 → **Operational Readiness Testing protocol for OPA**

Oct 16 - Oct 27 → **Operational Readiness Testing protocol for OPA & SA**

Oct 30 - Nov 7 → **Operational Readiness Testing protocol for BSP**

Nov 7 - Nov 14 → **Operational Readiness Testing protocol for BSP, OPA & SA**

Finalization individual tests for Energy Bidding (SA/BSP) including Communication Test
Oct 9

Finalization individual testing for scheduling including Communication Test
Sep 4

Finalization individual testing for outage planning
May 19

Latest date for Go Live iCAROS phase 1 - mFRR local
Feb 15

2024

| Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |

Reproduction of real situation

- 2 common sessions on different days (Day I) and Day II)) are planned: OPA/SA/BSP indicate upfront in which of the two sessions they participate
- After the session, Elia analyzes the data received during the test.
- Communication of the results during a bilateral debriefing (e-mail or call)
- If needed, a backup day (Day III) is foreseen to redo (part of) the test.

| Day I | Day II | Debrief | Day III backup |

Elia Analysis

± 2 weeks

Simulation of scenario's – activations

- Bilateral sessions between SA/BSP & Elia via Teams are planned in 3 different days (Days I, II & III). SA/BSP participates in one session.
- Results of the test will be communicated during the call
- If needed, a backup day (Day backup) is foreseen.

| Day I | Day II | Day III | Day backup |

± 2 weeks

Readiness of the Business testing protocol with OPA

Prerequisites for OPA

- Finalization individual IT tests for Availability Plans with External Communication Layer:
    - Unavailability event sent to the DEMO environment

Detailed Planning

OPA participates in one session and may choose between Day 1 or Day 2:

Day 1: Tuesday 23rd of May (= day D-1) (for Business Day of Wednesday 24th of May (= day D))

Day 2: Thursday 25th of May (= day D-1) (for Business Day of Friday 26th of May(= day D))

Back-up day: Tuesday 26th of September (= day D-1) (for Business Day of Wednesday 27nd of September (= day D))

Testing program

iCAROS_1 - Update of Availability Plans - *Reproduction of real situation*

Goal	How	Reference values	Acceptance criteria's:
Verify the consistency of availability plan	OPA sends update of Availability Plan for day D in DEMO	Availability plans for day D in PROD (Topaz)	< 10% error of #'s status

Detailed program

- In W-1 on Thursday, Elia will automatic translate of the availability status from Ready-to-Run process in Topaz PROD to the availability plan in Optiflex DEMO.
- Before 15:00 day D-1: OPA send the nomination files including the availability status of the all the DPs in their portfolio to Topaz for business day D
- Before 23:59 test day D-1: OPA send the Availability plan in Optiflex DEMO.

Examples

- Situation 1: DPs have a same status for the whole day

Topaz status (PROD)		
CCGT B GT1	Status	AV
Wind Park A	Status	PU
Batteries C	Status	FO

Availability plan in Optiflex (DEMO)		00:00	00:15	...	23:45
CCGT B GT1	Status	A	A	…	A
	$P_{max,\ avail}$	85	85		85
Wind Park A	Status	U	U	…	U
	$P_{max,\ avail}$	0	0		0
Batteries C	Status	FO	FO	..	FO
	$P_{max,\ avail}$	0	0		0

- Situation 2: DPs have a different status for the whole day. As the granularity is different in Topaz (daily) and Optiflex (QH), the DP status should follow the rule:
  - AV status in Topaz may correspond to the status A only
  - PU status in Topaz may correspond to the status A & U
  - FO status in Topaz may correspond to the status A & U & FO

Topaz status (PROD)		
CCGT B GT1	Status	PU
Wind Park A	Status	PU
Batteries C	Status	FO

Availability plan in Optiflex (DEMO)		00:00	00:15	...	23:45
CCGT B GT1	Status	A	A	…	U
	$P_{max,\ avail}$	85	85		0
Wind Park A	Status	U	U	..	A
	$P_{max,\ avail}$	0	0		85
Batteries C	Status	FO	U	..	A
	$P_{max,\ avail}$	0	0		85

Acceptance criteria's

OPA should reach less than 10% of errors for the whole portfolio to pass this test. One error is recorded when there is a mismatch in the status in one DP for one day.

Elia will communicate the results of the tests via e-mail including the need to replan the test during the back-up day.

Readiness of the Business testing protocol with OPA & SA

Testing program

iCAROS_2 - Initialization of Schedules & RD Energy Bids - *Reproduction of real situation*

Prerequisites for OPA

- Completeness of testing iCAROS_1 - Update of Availability Plans

Prerequisites for SA

- Finalization individual IT tests for Schedules with External Communication Layer:
    - Schedule of a DP sent successfully to the DEMO environment.
    - RD Energy bids sent successfully to the DEMO environment
- Fill in the template "TestingProtocol_Annexe_iCAROS_2" with the DPs of the OPA/SA portfolio.

Planning

OPA participates in one session and may choose between Day 1 or Day 2:

- **Day 1:** Tuesday 10th of October (= day D-1) (for Business Day of Wednesday 11th of October = day D)
- **Day 2:** Wednesday 11th of October (= day D-1) (for Business Day of Thursday 12th of October = day D)
- **Communication of the results of the tests:** via e-mail by Friday 13th October 12:00pm using the template "TestingProtocol_Annexe_iCAROS_2"
- **Back-up day:** Monday 16th of October (= day D-1)   (for Business Day of Tuesday 17th of October = day D)

Objectives	How	Reference values	Acceptance criteria's:
1) Verify the consistency of <u>Schedules</u>	SA sends Schedules for day D for full portfolio	Schedules for day D in PROD (Topaz)	Error = difference of values within a margin of 10% of $P_{max,tech}$ < 10% error of #'s Schedules for the whole portfolio
2) Verify the consistency of RD <u>Energy bids</u>	SA sends RD Energy bids for day D for full portfolio	Implicit volume calculated by Elia	At least 80% of volume is submitted*
3) Verify the consistency of <u>Availability Plan</u>	OPA sends update of Availability Plan for day D	Availability plans for day D in PROD (Topaz)	< 10% error of #'s status Coherence with Schedules

Detailed program

- In W-1 on Thursday, Elia will automatic translate of the availability status from Ready-to-Run process in Topaz PROD to the availability plan in Optiflex DEMO.
- Before 15:00 day D-1:
    - OPA send the nomination files including the availability status of the all the DPs in their portfolio to Topaz for business day D
    - SA send the nomination files including the schedules of the all the DPs in their portfolio to Topaz for business day D
- Before 17:59 day D-1:
    - OPA send the update of their Availability plan for business day D in Optiflex DEMO in needed (if changes between Ready-to-Run and Nomination procedures)
    - SA send the schedules for business day D in Optiflex DEMO
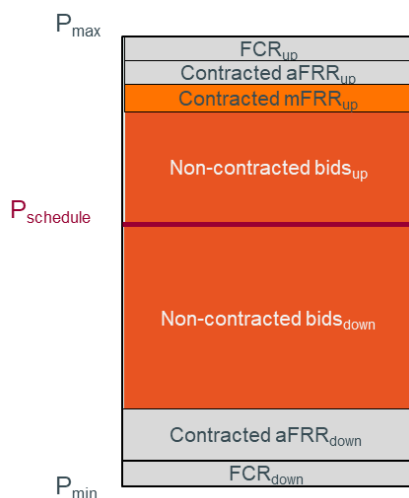   - SA send the RD Energy Bids for business day D in Biple DEMO

Examples

- **Objective 1)**: Verify the consistency of <u>Schedules</u>

    - <u>Acceptance criteria per DP & per qh</u>: Failed if difference of values with a margin > 10% of $P_{max,tech}$ between PROD & DEMO
    - <u>Acceptance criteria per SA</u>: if $\frac{\#'s\ qh\ with\ failure}{\#'s\ qh\ with\ failure\ +\ \#'s\ qh\ with\ success} > 10\%$, the objective is failed

Delivery Point	DP EAN	Techanical Facility	Pmax,tech		00:00	00:15	00:30	00:45	01:00
DP_A		TF_1	100	Schedule PROD	80	100	80	80	1
				Schedule DEMO	80	80	100	85	6
				Result per qh	Success	Failed	Failed	Success	Success

Objective 1) Acceptance criteria for SA_1	$\frac{2}{96}$ = 2%< 10%

- **Objective 2)** : Verify the consistency of RD Energy bids

Implicit volume calculated by Elia by Technical Facility: The volume of Non-Contracted bid is the reference value by Technical Facility

Acceptance criteria:

- by Technical Facility and per qh, the largest available volume, taking into account Exclusive Groups, Conditional Links, Parent/Child relation…, should be at least 80% of the reference value (volume of Non-Contracted bid).
- By SA: 90% of the Technical Facilities in the whole portfolio should respect this acceptance criteria.

Techanical Facility	Delivery Point	DP EAN	Bid Group name		00:00	00:15	00:30	00:45	01:00
TF_1	DP_A			Volume UP PROD	80	100	75	100	85
	DP_B			Volume UP DEMO	80	80	100	75	80
				Result UP per qh	Success	Success	Failed	Failed	Success
				Volume DOWN PROD	1	50	50	50	50
				Volume DOWN DEMO	50	1	50	50	50
				Result DOWN per qh	Failed	Failed	Success	Success	Success

Objective 2) Acceptance criteria for SA_1	$\frac{2+2+0}{2*96}$ = 2% < 10%

- **Goal**: Verify the consistency of Availability Plan:
  - same as iCAROS_1

Delivery Point	DP EAN	Techanical Facility	Pmax,tech		00:00	00:15	00:30	00:45	01:00
DP_A		TF_1	100	Availability plan status in PROD	Available				
				Availability plan status in DEMO	Available	Unavailable	FO	Testing	…
				Result per qh	Success	Failed	Failed	Failed	…
DP_B		TF_1	50	Availability plan status in PROD	Unavailable				
				Availability plan status in DEMO	Available	Unavailable	…		
				Result per qh	Success	Success	…		

iCAROS_3 – Updates of Schedules & RD Energy Bids- *Reproduction of real situation*

Prerequisites for OPA

- Completeness of testing iCAROS_1 - Update of Availability Plans

Prerequisites for SA

- Completeness of testing iCAROS_2 - Initialization of Schedules & RD Energy Bids

Planning

OPA & SA participate in one session and may choose between Day 1 or Day 2:

- **Day 1:** Tuesday 17th of October (= day D) (for Business Day of Tuesday 17th of October = day D)
- **Day 2:** Wednesday 18th of October (= day D) (for Business Day of Wednesday 18th of October = day D)
- **Communication of the results of the tests:** via e-mail by Friday 20th October 12:00pm using the template "TestingProtocol_Annexe_iCAROS_3"
- **Back-up day:** Monday 23th of October (= day D)   (for Business Day of Monday 23th of October = day D)

Goal	How	Reference values	Acceptance criteria's:
Verify the consistency of Schedules	For each update in PROD, SA sends corresponding update in DEMO (Prodbid)	Schedules for day D in PROD (Prod)	Error = difference of values within a margin of 10% of $P_{max,tech}$ < 10% error of #'s Schedules for the whole portfolio

Verify the consistency of RD Energy bids	SA sends RD Energy bids for day D for full portfolio	Implicit volume calculated by Elia	At least 80% of volume is submitted*
Verify the consistency of Availability Plan	OPA sends update of Availability Plan for day D	Availability plans for day D in PROD (Topaz)	< 10% error of #'s status Coherence with Schedules

Detailed program

- In W-1 on Thursday, Elia will automatic translate of the availability status from Ready-to-Run process in Topaz PROD to the availability plan in Optiflex DEMO.
- Before 15:00 day D-1:
  - OPA send the nomination files including the availability status of the all the DPs in their portfolio to Topaz for business day D
  - SA send the nomination files including the schedules of the all the DPs in their portfolio to Topaz for business day D
- Before 17:59 day D-1:
  - OPA send the update of their Availability plan for business day D in Optiflex DEMO in needed (if changes between Ready-to-Run and Nomination procedures)
  - SA send the schedules and RD Energy bids for business day D in Optiflex DEMO & Biple DEMO
- On day D, for each update of schedules for day D in Probid PROD:
  - SA send the updated schedules in Optiflex DEMO
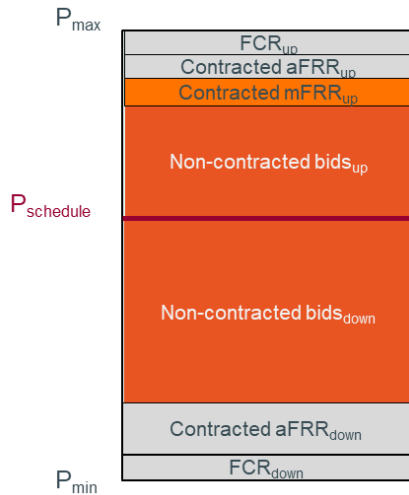 - SA send the updated RD Energy bids in Biple DEMO

Examples

- **Goal**: Verify the consistency of each Schedules

Delivery Point	DP EAN	Techanical Facility	Pmax,tech	Version		00:00	00:15	00:30	00:45
DP_A		TF_1	100	1	Schedule PROD	80	100	80	80
					Schedule DEMO	80	80	100	85
					Result per qh	Success	Failed	Failed	Success
DP_A		TF_1	100	2	Schedule PROD	1,2	100	100	100
					Schedule DEMO	48,3	100	100	100
					Result per qh	Failed	Success	Success	Success
DP_B		TF_1	50	1	Schedule PROD	52,1	54,1	56,1	58,1
					Schedule DEMO	48	50	52	54
					Result per qh	Success	Success	Success	Success

- **Goal**: Verify the consistency of each RD Energy bids

Implicit volume calculated by Elia by Technical Facility: The volume of Non-Contracted bid is the reference value by Technical Facility

Acceptance criteria:

- o by Technical Facility, the largest available volume, taking into account Exclusive Groups, Conditional Links, Parent/Child relation…, should be at least 80% of the reference value (volume of Non-Contracted bid).
- o 90% of the Technical Facilities in the whole portfolio should respect this acceptance criteria.

Techanical Facility	Delivery Point	DP EAN	Bid group ID	Version		00:00	00:15	00:30
	DP_A				Volume UP PROD	80	100	80
	DP_B				Volume UP DEMO	80	80	100
TF_1				1	Result UP per qh	Success	Success	Success
					Volume DOWN PROD	1	50	50
					Volume DOWN DEMO	50	1	50
					Result DOWN per qh	Failed	Failed	Success
	DP_A				Volume UP PROD	80	100	80
	DP_B				Volume UP DEMO	80	80	100
TF_1				2	Result UP per qh	Success	Success	Success
					Volume DOWN PROD	1	50	50
					Volume DOWN DEMO	50	1	50
					Result DOWN per qh	Failed	Failed	Success

- **Goal**: Verify the consistency of Availability Plan: same as iCAROS_1

iCAROS_4 – Activations of RD, Return to Schedules Requests - *Simulation of scenarios.*

Prerequisites for SA

- Completeness of testing iCAROS_2 - Initialization of Schedules & RD Energy Bids
- Fill in the template "TestingProtocol_Annexe_iCAROS_4" with information on the scenario's and on the initial schedules and RD energy bids to use during the test.

Planning

SA participates in one session Day 1, Day 2, Day 3:

- **Day 1:** Tuesday 24th of October (= day D)
- **Day 2:** Wednesday 25th of October (= day D)
- **Day 3**: Thursday 26th of October (= day D)
- **Back-up day:** Monday 6th of November (= day D)

SA should register to one session. As Elia cannot organize all these bilateral tests on the same day, please register to one session asap.

Communication of the results during the test via a bilateral call.

Objectives

Objectives	How	Reference values	Acceptance criteria's:
Test multiple (virtual) activations	Initialization: SA sends Schedules & RD Energy bids Test: Bilateral call during which Elia sends activations	Scheduled activation Direct activation Scheduled activation of RD Energy bid with extension of volume and duration A return to schedule request	- Technical and business acknowledgement - Confirmation during the call of the behavior requested

Detailed program

The list of RD energy bids activations will be further developed in bilateral with SA but should at least include:

- One Scheduled activation
- One Direct activation
- One Scheduled activation of RD Energy bid with extension of volume and duration
- A return to schedule request

SA and Elia will agree upfront on the properties of the RD energy bids and scenarios that will be activated during the test (see TestingProtocol_Annexe_iCAROS_4).

In D-1, SA should submit the schedules and RD Energy bids as communicated in the TestingProtocol_Annexe_iCAROS_4.

In D, during a bilateral call, Elia will send the upfront agreed activations. SA are expected to reply to those activations with the process described in the Technical Guide. Furthermore, SA should confirm during the test the behavior of the activated DP: setpoint, direction…

Readiness of the Business testing protocol with BSP

Testing program

MARI_1 – Initialization & updates of mFRR Energy Bids - *Reproduction of real situation*

Prerequisites for BSP

- Finalization individual IT tests for mFRR Energy bids with External Communication Layer:
    - mFRR Energy bids sent successfully to the DEMO environment for a DPsu and a DPpg (if relevant)
- Fill in the template "TestingProtocol_Annexe_MARI_1" with the DPs of the BSP portfolio at least 3 business days before the test day.

Planning

BSP participates in one session and may choose between Day 1 or Day 2:

- **Day 1:** Tuesday 7th of November (= Business Day = day D)
- **Day 2:** Wednesday 8th of November (= Business Day = day D)
- **Communication of the results of the tests:** via e-mail by Friday 10th of October 12:00pm
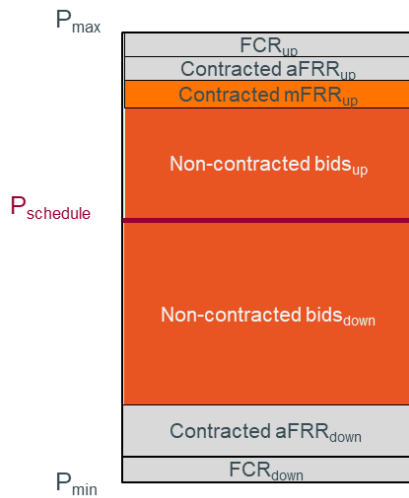- **Back-up day:** Monday 13th of November (= Business Day = day D)

Objectives

Objectives	How	Reference values	Acceptance criteria's:
Verify the consistency of <u>mFRR Energy bids</u>	BSP sends mFRR Energy bids for day D for full portfolio*	Implicit volume calculated by Elia	- At least 80% of volume is submitted* - Contracted volume 100% in line with obligations
Verify the consistency of <u>mFRR Energy bids update</u>	BSP sends mFRR Energy bids for day D for full portfolio*	Implicit volume calculated by Elia	- At least 80% of volume is submitted* - Contracted volume 100% in line with obligations

Detailed program

- Before 15:00 day D-1:
    - BSP send their contracted energy bids in Biple DEMO
- At the latest before GCT of the related QH of day D:
    - BSP sends their non-contracted bids in Biple DEMO
- On day D, for each update of schedules for day D in Probid PROD:

o BSP sends the updated non-contracted mFRR Energy bids in Biple DEMO

Examples

Acceptance criteria:

- o <u>In DEMO, by Technical Facility/Providing Group and per qh</u>, the largest available volume, taking into account Exclusive Groups, Conditional Links, Parent/Child relation…, should be at least 80% of the volume of Non-Contracted bid submitted or implicitly calculated by our tools and at least equal to the Contracted volume submitted. The result of the concerned qh will be "Success" if:

  - ▪ <u>For explicit volumes in PROD</u>

    - • <u>Contracted:</u> $Volume_{Contracted\ DEMO} \geq Volume_{Contracted\ PROD}$

    - • <u>Non-contracted:</u> $\frac{|Volume_{Non-Contracted\ PROD} - Volume_{Non-Contracted\ DEMO}|}{\max(Volume_{Non-Contracted\ PROD}; Volume_{Non-Contracted\ DEMO})} > 20\%$

  - ▪ <u>For implicit volume:</u> $\frac{|Volume_{Non-Contracted\ PROD} - Volume_{Non-Contracted\ DEMO}|}{\max(Volume_{Non-Contracted\ PROD}; Volume_{Non-Contracted\ DEMO})} > 20\%$

- o <u>by BSP</u>: the results of the objective will be "Success" if $\frac{\#'s\ qh\ with\ failure}{\#'s\ qh\ with\ failure + \#'s\ qh\ with\ success} < 10\%$,

Techanical Facility/Providing Group	Delivery Point	DP EAN	Bid group ID	Version		00:00	00:15	00:30	00:45	01:00
	DP_A				Contracted Volume UP PROD	80	100	80	80	80
	DP_B				Contracted Volume UP DEMO	80	80	100	85	85
					Result Contracted UP per qh	Success	Failed	Success	Success	Success
					Non-Contracted Volume UP PROD	80	100	80	80	85
TF_1				1	Non-Contracted Volume UP DEMO	80	80	100	85	80
					Result Non-Contracted UP per qh	Success	Success	Success	Success	Success
					Non-Contracted Volume DOWN PROD	1	50	50	50	50
					Non-Contracted Volume DOWN DEMO	50	1	50	50	50
					Result Non-Contracted DOWN per qh	Failed	Failed	Success	Success	Success

Objective: Acceptance criteria for BSP	$\frac{\#'s\ qh\ with\ failure}{\#'s\ qh\ with\ failure + \#'s\ qh\ with\ success} = \frac{3}{3*96} \approx 1\%$ < 10%

MARI_2 - Activations of mFRR Energy Bids - *Simulation of scenario's*

Prerequisites for BSP

- Completeness of testing MARI_1 - Initialization & updates of mFRR Energy Bids
- Fill in the template "TestingProtocol_Annexe_MARI_2" with information on the scenario's and on the initial mFRR energy bids to use during the test at least one week before the test.
- Successful reception of a mFRR energy bid activation in DEMO environment

Planning

BSP participates in one session Day 1, Day 2, Day 3:

- **Day 1:** Tuesday 14th of November (= day D)
- **Day 2:** Wednesday 15th of November (= day D)
- **Day 3**: Thursday 16th of November (= day D)
- **Back-up day:** Monday 20th of November (= day D)

BSP should register to one session. As Elia cannot organize all these bilateral tests on the same day, please register to one session asap.

Communication of the results during the test via a bilateral call.

Goal	How	Activations	Acceptance criteria's:
Verify the correct reaction of a BSP to an mFRR energy activation	Initialization: BSP sends mFRR Energy bids Test: Bilateral call during which Elia sends activations	Scheduled activation Direct activation Scheduled activation on several quarter hours (context congestion) Scheduled and direct activation on the same technical facilities and quarter-hour 2 scheduled activations in a row + Update of bid in intraday simulating a Forced Outage	- Technical and business acknowledgement received within correct timings with correct content - Confirmation during the call of the behavior requested to the activated DP: start and end time of activation, direction

The list of mFRR energy bids activations will be further developed in bilateral with BSP but should at least include:

- Scheduled activation
- Direct activation
- Scheduled activation on several quarter hours (context congestion)
- Scheduled and direct activation on the same technical facilities and quarter-hour
- 2 scheduled activations in a row
- Update of bid in intraday simulating a Forced Outage

BSP and Elia will agree upfront on the properties of the mFRR energy bids and scenarios that will be activated during the test (see TestingProtocol_Annexe_MARI_2). The submitted bids should at least contain sufficient bids to realize the scenarios and a bid dedicated to the update to simulate a Forced Outage.

In D-1, BSP should submit the mFRR Energy bids as communicated in the TestingProtocol_Annexe_MARI_2.

In D, during a bilateral call, Elia will send the upfront agreed activations. BSP are expected to reply to those activations according to the process described in the Technical Guide. Furthermore, BSP should confirm during the test the behavior of the activated DP: setpoint, direction…

Readiness of the Business testing protocol with OPA & SA & BSP

Testing program

iCAROS_MARI_1 - Initialization of Schedules & mFRR and RD Energy Bids -

Reproduction of real situation

Prerequisites for OPA / SA / BSP

- Finalization individual IT tests for Schedules, Availability Plans, mFRR & RD Energy bidding
    - Schedule of a DP sent successfully to the DEMO environment.
    - RD Energy bids sent successfully to the DEMO environment
- Fill in the template "TestingProtocol_Annexe_ iCAROS_MARI_1" with the DPs of the BSP/OPA/SA portfolio.

Planning

OPA / SA / BSP participates in one session and may choose between Day 1 or Day 2:

- **Day 1:** Tuesday 28th of November (= day D-1) (for Business Day of Wednesday 29th of November = day D)
- **Day 2:** Wednesday 29th of November (= day D-1) (for Business Day of = day D)
- **Communication of the results of the tests:** via e-mail by Friday 1th of December 12:00pm
- **Back-up day:** Monday 4th of December (= day D-1)   (for Business Day of 5th of December= day D)

Objectives

Objectives	How	Reference values	Acceptance criteria's:
1) Verify the consistency of <u>Schedules</u>	SA sends Schedules for day D for full portfolio	Schedules for day D in PROD (Topaz)	Error = difference of values within a margin of 10% of $P_{max,tech}$ < 10% error of #'s Schedules for the whole portfolio
2) Verify the consistency of RD <u>Energy bids</u>	SA sends RD Energy bids for day D for full portfolio	Implicit volume calculated by Elia	At least 80% of volume is submitted*
3) Verify the consistency of contracted <u>mFRR Energy bids</u>	BSP sends contracted mFRR Energy bids for day D for full portfolio*	Contracted mFRR Energy bids in Prod (BMAP)	- Contracted volume 100% in line with obligations

4) Verify the consistency of <u>Availability Plan</u>	OPA sends update of Availability Plan for day D	Availability plans for day D in PROD (Topaz)	< 10% error of #'s status Coherence with Schedules

Detailed program

- In W-1 on Thursday, Elia will automatic translate of the availability status from Ready-to-Run process in Topaz PROD to the availability plan in Optiflex DEMO.
- Before 15:00 day D-1:
  - o OPA send the nomination files including the availability status of the all the DPs in their portfolio to Topaz for business day D
  - o SA send the nomination files including the schedules of the all the DPs in their portfolio to Topaz for business day D
  - o BSP send their contracted mFRR energy bids in Biple DEMO
- Before 17:59 day D-1:
  - o OPA send the update of their Availability plan for business day D in Optiflex DEMO in needed (if changes between Ready-to-Run and Nomination procedures)
  - o SA send the schedules for business day D in Optiflex DEMO
  - o SA send the RD Energy Bids for business day D in Biple DEMO
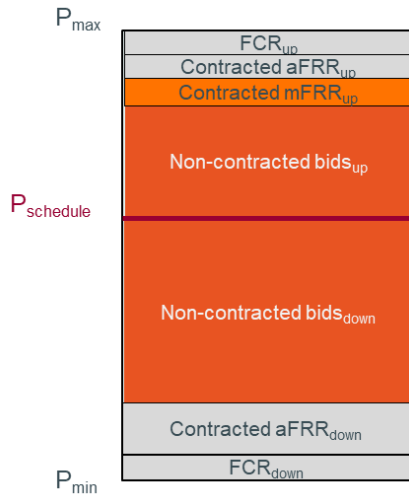
Examples

- **Objective 1)**: Verify the consistency of <u>Schedules</u>

  - o <u>Acceptance criteria per DP & per qh</u>: Failed if difference of values with a margin > 10% of $P_{max,tech}$ between PROD & DEMO

  - o <u>Acceptance criteria per SA</u>: if $\dfrac{\#'s\ qh\ with\ failure}{\#'s\ qh\ with\ failure + \#'s\ qh\ with\ success} > 10\%$, the objective is failed

Delivery Point	DP EAN	Techanical Facility	Pmax,tech		00:00	00:15	00:30	00:45	01:00
DP_A		TF_1	100	Schedule PROD	80	100	80	80	1
				Schedule DEMO	80	80	100	85	6
				Result per qh	Success	Failed	Failed	Success	Success

Objective 1) Acceptance criteria for SA_1	$\frac{2}{96} \approx$ 2%< 10%

- **Objective 2)** : Verify the consistency of RD Energy bids

Implicit volume calculated by Elia by Technical Facility: The volume of Non-Contracted bid is the reference value by Technical Facility
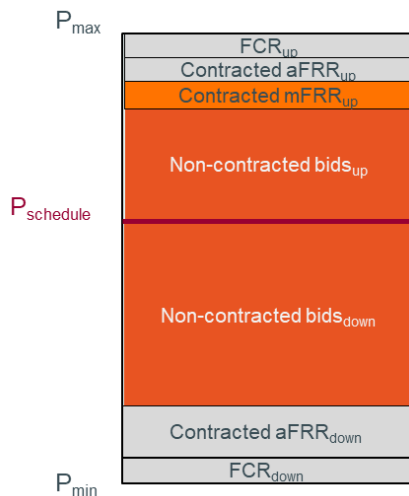
Acceptance criteria:

- by Technical Facility and per qh, the largest available volume, taking into account Exclusive Groups, Conditional Links, Parent/Child relation…, should be at least 80% of the reference value (volume of Non-Contracted bid).

$$\frac{|Volume_{Non-Contracted\ PROD} - Volume_{RD\ DEMO}|}{\max(Volume_{Non-Contracted\ PROD}; Volume_{RD\ DEMO})} > 20\%$$

- By SA: 90% of the Technical Facilities in the whole portfolio should respect this acceptance criteria.

Techanical Facility	Delivery Point	DP EAN	Bid Group name		00:00	00:15	00:30	00:45	01:00
	DP_A			Volume UP PROD	80	100	75	100	85
	DP_B			Volume UP DEMO	80	80	100	75	80
				Result UP per qh	Success	Success	Failed	Failed	Success
TF_1				Volume DOWN PROD	1	50	50	50	50
				Volume DOWN DEMO	50	1	50	50	50
				Result DOWN per qh	Failed	Failed	Success	Success	Success

Objective 2) Acceptance criteria for SA_2	$\frac{2+2+0}{2*96} \approx$ 2% < 10%

Acceptance criteria:

- o In DEMO, by Technical Facility/Providing Group and per qh, the largest available volume, taking into account Exclusive Groups, Conditional Links, Parent/Child relation…, should be at least equal to the Contracted volume submitted. The result of the concerned qh will be "Success" if:
  - For explicit volumes in PROD
    - Contracted: $Volume_{Contracted\ DEMO} \geq Volume_{Contracted\ PROD}$
- o by BSP: the results of the objective will be "Success" if $\frac{\#'s\ qh\ with\ failure}{\#'s\ qh\ with\ failure + \#'s\ qh\ with\ success} < 10\%$,

Techanical Facility/Providing Group	Delivery Point	DP EAN	Bid group ID	Version		00:00	00:15	00:30	00:45	01:00
	DP_A				Contracted Volume UP PROD	80	100	80	80	80
	DP_B				Contracted Volume UP DEMO	80	80	100	85	85
					Result Contracted UP per qh	Success	Failed	Success	Success	Success
					Non-Contracted Volume UP PROD	80	100	80	80	85
TF_1				1	Non-Contracted Volume UP DEMO	80	80	100	85	80
					Result Non-Contracted UP per qh	Success	Success	Success	Success	Success
					Non-Contracted Volume DOWN PROD	1	50	50	50	50
					Non-Contracted Volume DOWN DEMO	50	1	50	50	50
					Result Non-Contracted DOWN per qh	Failed	Failed	Success	Success	Success

Objective 3): Acceptance criteria for BSP	$\frac{\#'s\ qh\ with\ failure}{\#'s\ qh\ with\ failure + \#'s\ qh\ with\ success} = \frac{3}{3*96} \approx 1\% < 10\%$

- **Objective 4)** : Verify the consistency of Availability Plan:
  - o same as iCAROS_1

Delivery Point	DP EAN	Techanical Facility	Pmax,tech		00:00	00:15	00:30	00:45	01:00
DP_A		TF_1	100	Availability plan status in PROD	Available				
				Availability plan status in DEMO	Available	Unavailable	FO	Testing	...
				Result per qh	Success	Failed	Failed	Failed	...
DP_B		TF_1	50	Availability plan status in PROD	Unavailable				
				Availability plan status in DEMO	Available	Unavailable	...		
				Result per qh	Success	Success	...		

iCAROS_MARI_2 – Updates of Schedules & mFRR and RD Energy Bids- *Reproduction of real situation*

Prerequisites for OPA / SA /BSP

- Completeness of testing iCAROS_MARI_1 - Initialization of Schedules & mFRR and RD Energy Bids

Planning

OPA, BSP & SA participate in one session and may choose between Day 1 or Day 2:
- **Day 1:** Tuesday 5th of December (= day D) (for Business Day of Tuesday 5th of December = day D)
- **Day 2:** Wednesday 6th of December (= day D) (for Business Day of Wednesday 6th of December = day D)
- **Communication of the results of the tests:** via e-mail by Friday 8th of December 12:00pm
- **Back-up day:** Monday 11th of December (= day D) (for Business Day of Monday 11th of December = day D)

Objectives

Goal	How	Reference values	Acceptance criteria's:

Verify the consistency of <u>Schedules</u>	For each update in PROD, SA sends corresponding update in DEMO (Prodbid)	Schedules for day D in PROD (Prod)	Error = difference of values within a margin of 10% of $P_{max,tech}$ < 10% error of #'s Schedules for the whole portfolio
Verify the consistency of RD <u>Energy bids</u>	SA sends RD Energy bids for day D for full portfolio	Implicit volume calculated by Elia	At least 80% of volume is submitted*
Verify the consistency of <u>mFRR Energy bids</u>	BSP sends mFRR Energy bids for day D for full portfolio*	Implicit volume calculated by Elia	- At least 80% of volume is submitted* - Contracted volume 100% in line with obligations
Verify the consistency of <u>mFRR Energy bids update</u>	BSP sends mFRR Energy bids for day D for full portfolio*	Implicit volume calculated by Elia	- At least 80% of volume is submitted* - Contracted volume 100% in line with obligations
Verify the consistency of <u>Availability Plan</u>	OPA sends update of Availability Plan for day D	Availability plans for day D in PROD (Topaz)	< 10% error of #'s status Coherence with Schedules

Detailed program

- In W-1 on Thursday, Elia will automatic translate of the availability status from Ready-to-Run process in Topaz PROD to the availability plan in Optiflex DEMO.
- Before 15:00 day D-1:
    - OPA send the nomination files including the availability status of the all the DPs in their portfolio to Topaz for business day D
    - SA send the nomination files including the schedules of the all the DPs in their portfolio to Topaz for business day D
    - BSP send their contracted mFRR energy bids in Biple DEMO
- Before 17:59 day D-1:
    - OPA send the update of their Availability plan for business day D in Optiflex DEMO in needed (if changes between Ready-to-Run and Nomination procedures)
    - SA send the schedules and RD Energy bids for business day D in Optiflex DEMO & Biple DEMO
- At the latest before GCT of the related QH of day D:
    - BSP sends their non-contracted bids in Biple DEMO
- On day D, for each update of schedules for day D in Probid PROD:
    - SA send the updated schedules in Optiflex DEMO
    - SA send the updated RD Energy bids in Biple DEMO
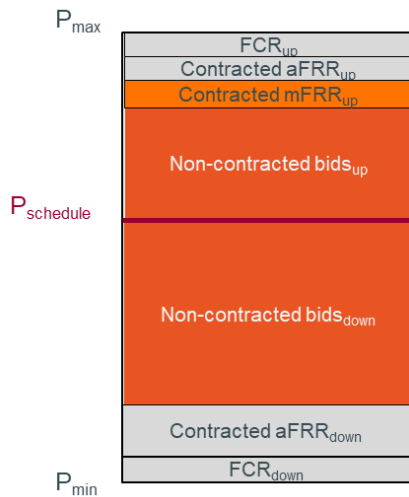   - BSP sends the updated non-contracted mFRR Energy bids in Biple DEMO

Examples

- **Goal**: Verify the consistency of each <u>Schedules</u>

Delivery Point	DP EAN	Technical Facility	Pmax,tech	Version		00:00	00:15	00:30	00:45
DP_A		TF_1	100	1	Schedule PROD	80	100	80	80
					Schedule DEMO	80	80	100	85
					Result per qh	Success	Failed	Failed	Success
DP_A		TF_1	100	2	Schedule PROD	1,2	100	100	100
					Schedule DEMO	48,3	100	100	100
					Result per qh	Failed	Success	Success	Success
DP_B		TF_1	50	1	Schedule PROD	52,1	54,1	56,1	58,1
					Schedule DEMO	48	50	52	54
					Result per qh	Success	Success	Success	Success

- **Goal**: Verify the consistency of each RD Energy bids

Implicit volume calculated by Elia by Technical Facility: The volume of Non-Contracted bid is the reference value by Technical Facility

Acceptance criteria:

- by Technical Facility, the largest available volume, taking into account Exclusive Groups, Conditional Links, Parent/Child relation…, should be at least 80% of the reference value (volume of Non-Contracted bid).
- 90% of the Technical Facilities in the whole portfolio should respect this acceptance criteria.

Technical Facility	Delivery Point	DP EAN	Bid group ID	Version		00:00	00:15	00:30
TF_1	DP_A			1	Volume UP PROD	80	100	80
	DP_B				Volume UP DEMO	80	80	100
					Result UP per qh	Success	Success	Success
					Volume DOWN PROD	1	50	50
					Volume DOWN DEMO	50	1	50
					Result DOWN per qh	Failed	Failed	Success
TF_1	DP_A			2	Volume UP PROD	80	100	80
	DP_B				Volume UP DEMO	80	80	100
					Result UP per qh	Success	Success	Success
					Volume DOWN PROD	1	50	50
					Volume DOWN DEMO	50	1	50
					Result DOWN per qh	Failed	Failed	Success

- **Goal**: Verify the consistency of Availability Plan: same as iCAROS

iCAROS_MARI_3 – Activations of mFRR, RD, Return to Schedules Requests - *Simulation of scenarios.*

Prerequisites for SA

- Completeness of testing iCAROS_2 - Initialization of Schedules & RD Energy Bids
- Fill in the template "TestingProtocol_Annexe_iCAROS_4" with information on the scenario's and on the initial schedules and RD energy bids to use during the test.
- Submission of all bids and schedules on the full portfolio based on the scenarios described below.

Planning

SA participates in one session Day 1, Day 2, Day 3:

- **Day 1:** Tuesday 12th of December (= day D)
- **Day 2:** Wednesday 13th of December (= day D)
- **Day 3**: Thursday 14th of December (= day D)
- **Back-up day:** Monday 18th of December (= day D)

BSP/SA should register to one session. As Elia cannot organize all these bilateral tests on the same day, please register to one session asap.

Communication of the results during the test via a bilateral call.

Objectives

Objectives	How	Reference values	Acceptance criteria's:
Test multiple (virtual) activations	Initialization: SA sends Schedules & RD Energy bids Test: Bilateral call during which Elia sends activations		- Technical and business acknowledgement - Confirmation during the call of the behavior requested

Detailed program

The list of RD & mFRR energy bids activations will be further developed in bilateral with SA/BSP but should at least include:

- One Scheduled activation of Redispatching followed by one Scheduled activation of mFRR on the same Technical Facility during the same activation time.
    - Required data:
        - Schedules on all DP of TF_A
        - 1 bid group of mFRR & RD energy bid on the TF_A
- One Scheduled activation of Redispatching followed by an update of Schedule (same direction) and an update of RD & mFRR bids.
    - Required data:
        - Schedules on all DP of TF_B
        - 1 bid group of mFRR & RD energy bid on the TF_B
- If relevant for the SA, one Scheduled Activation of Redispatching with MAT or/and MEL properties.
    - Required data:
        - Schedules on all DP of TF_C (reservoir type)

- - 1 bid group of RD energy bid on the TF_C with MEL/MAT

- If relevant for the BSP, one Scheduled Activation of mFRR with MAT or/and MEL properties.
  - Required data:
    - Schedules on all DP of TF_C (reservoir type)
    - 1 bid group of RD energy bid on the TF_C with MEL/MAT
- If relevant for the BSP, one update of Schedule in the context of mFRR baseline
  - Required data:
    - Schedules on DP_1
- Forced outage on a DP with update of Schedule, Availability plan and mFRR/RD Energy bids.
  - Required data:
    - Schedules and mFRR & RD energy bids on all DP_2
- One Direct activation of Redispatching followed by an update of mFRR bids volume on the same DP
  - Required data:
    - Schedules on all DP of TF_D
    - 1 bid group of mFRR & RD energy bid on the TF_D
- One Scheduled activation of RD Energy bid with extension of volume and duration followed by an update of mFRR bids.
  - Required data:
    - Schedules on all DP of TF_D
    - 1 bid group of mFRR & RD energy bid on the TF_D
- An activation of a running Technical Facility with RD bids, if relevant for SA for a Technical Facility with multiple DPs followed by update of mFRR bids.
  - Required data:
    - Schedules on all DP of TF_E
    - 1 bid group of mFRR & RD energy bid on the TF_E
- A start-up of a Technical Facility with RD bids, if relevant for SA for a Technical Facility with multiple DPs followed by update of mFRR bids
  - Required data:
    - Schedules on all DP of TF_F
    - 1 bid group of mFRR & RD energy bid on the TF_F

- A full shut-down of a running Technical Facility with RD bids, if relevant for SA for a Technical Facility with multiple DPs followed by update of mFRR bids.
  - Required data:
    - Schedules on all DP of TF_E
    - 1 bid group of mFRR & RD energy bid on the TF_E
- A CRI update to high followed by:
  - A return to schedule request sent by Elia
  - An update of impacted mFRR bids DPpg: removal of the impacted DP
  - An update of schedule by the BSP in the authorized direction of a DP impacted by the high CRI
    - Required data:
      - Schedules on DP_2 in electrical zone 1)

- DPpg bid with at least one DP in electrical zone 1)

Depending on the portfolio of the BSP/SA/OPA, some scenarios can be combined.

SA and Elia will agree upfront on the properties of the RD/mFRR energy bids and scenarios that will be activated during the test (see TestingProtocol_Annexe_iCAROS_MARI_3). The goal of these tests is to replicate the behaviour of the portfolio of the BSP/SA/OPA, if some scenarios are not relevant for the BSP/SA/OPA, they can be removed based on discussion with Elia KAM.

In D-1, SA&BSP should submit the schedules and RD / mFRR Energy bids as communicated in the TestingProtocol_Annexe_ iCAROS_MARI_3.

In D, during a bilateral call, Elia will send the upfront agreed activations. SA/BSP are expected to reply to those activations with the process described in the Technical Guide. Furthermore, SA/BSP should confirm during the test the behavior of the activated DP: setpoint, direction…