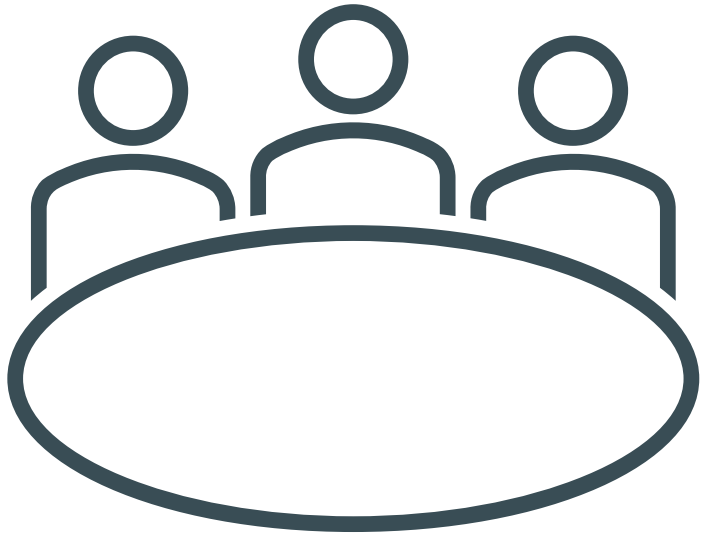
Workshop T&C for VSP

Q&A session

22/04/2025 | Alexandre Nève

Agenda

1. Introduction
2. Split of T&C and Tender Procedure Public Consultations
3. Proposal to extend 2025-2026 VSP contract period up to 31/01/2027
4. Activation Control from sampled to continuous control
5. Definitions of Starting Up and Shutting Down
6. Power Saving Mode
7. VSP TU start-up request
8. Maintain VSP TU available
9. Declaration of unavailabilities
10. Introduction of reactive power ramp
11. Not forgetting startup voltage
12. Minor changes



Introduction

Purpose of the service

- Elia is responsible to **stabilize the voltage** in the event of an incident and **maintain it within limits** ensuring grid security

- To maintain grid voltages at a suitable and stable level, Elia relies on **reactive power supplied by grid-connected units** via the service provided by the **Voltage Service Providers (VSP)**

Allowed steady state voltages [in kV and in % of the target normal operating voltages]								
Voltage level (reference voltage in EU NCs) Unc			400	220	150	110	70	36	30
Maximum normal Limits	All conditions (N, N-1)	107.5% of Uexpl[2] (105% for 400kV)	420	242	167	118	75.3	38.7	32.3
Target normal operating voltages (Uexpl)		100%	400	225	155	110	70	36	30
Minimum normal Limits	All conditions (N, N-1)	92.5%[3] of Uexpl	370	208	143	102	64.8	33.3	27.8

Voltage control technical means

Increasing voltage

1. **Capacitor (battery)**
2. **Generation MVAr production**
3. Limit active flows, to keep lines in capacitive range *(ie. Limit NTC and international exchanges)*
4. Outage planning (cancel planned outage of cables)
5. MVAr import from neighbouring grids

Decreasing voltage

1. **Reactor (self)**
2. **Generation MVAr absorption**
3. Increase active flows, to push lines further into inductive range *(ie. PST circulation flows)*
4. Taking cables and long lines out of service
5. MVAr export to neighbouring grids

Voltage and reactive power control services

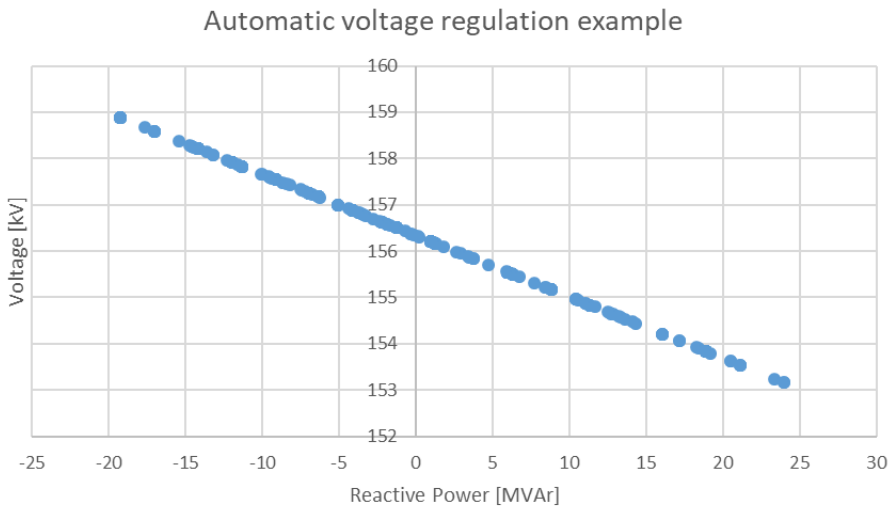
Controlling Unit

Non controlling Unit

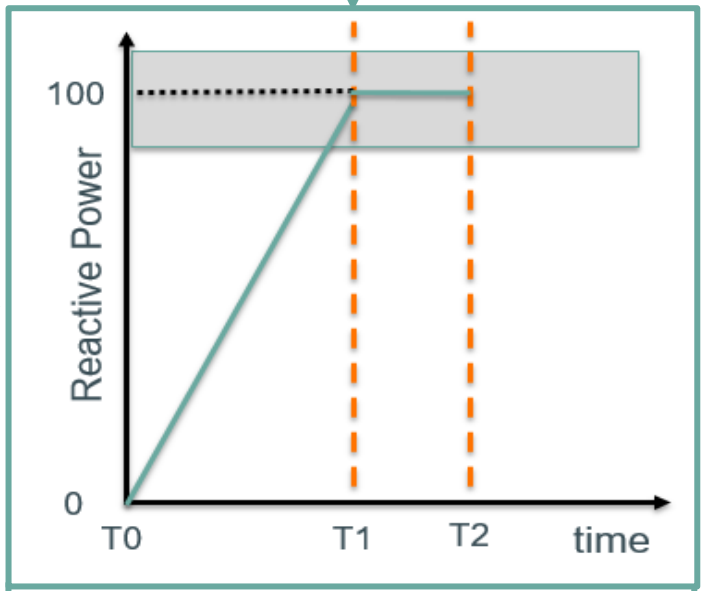
Automatic Control service Type

Manual Control service Type

Manual Control service Type



Automated and continuous modulation of the production/absorption of reactive power in function of the voltage



Stepwise modulation of the production/absorption of reactive power following an explicit signal (setpoint) by Elia

Participation to the service

Who is obliged to participate to the service?

- ✓ The Grid User of technical units connected to the Elia grid as defined in the table beside
- ✓ Following technical requirements defined in the applicable legislation
- ✓ If at least 1 MVAr can be provided

Who can become a Voltage Service Provider?

- ✓ The Grid User of a technical unit himself
- ✓ A third party* designated by the Grid User

How to participate?

- ✓ Participation to voltage services starts with submitting an offer in the **tender organized every 2 years** for the procurement of the service
- ✓ Relevant documents are published on the Elia website
- ✓ Submitted offers are subject to a **reasonability analysis of the price** by the regulator

	Grid User	Federal level (connection > 110 kV)	Regional level
Elia grid	New Type B,C,D SPGM	Mandatory	Mandatory
	New Type B,C,D PPM		
	New Type B, C, D SPM		Voluntary
	New HVDC interconnector		n.a.
	New generators connected on a HVDC link		
	New HVDC conversion stations at isolated extremity		
	New offshore PPM with onshore connection points		
	New offshore PPM with offshore connection points		
	Existing SPGM and PPM type C,D		Voluntary
	Existing SPGM and PPM type B		
	Existing HVDC interconnector	Voluntary	
	Demand facilities directly connected to Elia grid		
Non- Elia grid	DSO	Voluntary	
	CDSO	Voluntary	

* In case of participation of a unit connected to a public distribution grid or closed distribution grid, the DSO/CDSO is the VSP

Split of T&C and Tender Procedure Public Consultations

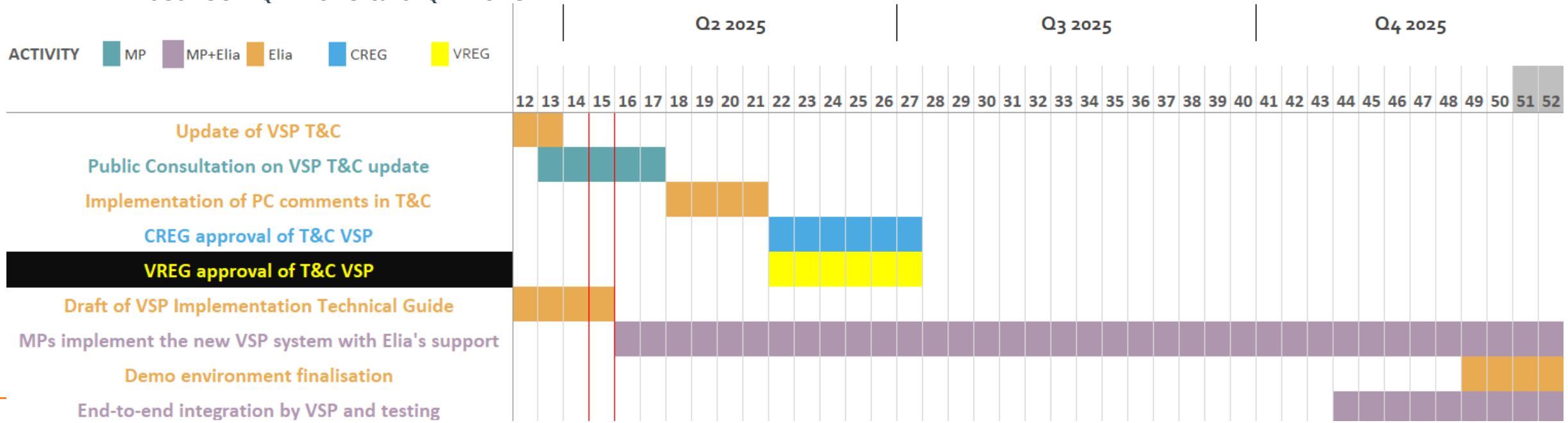
Split of T&C and Tender Procedure Public Consultations

- PC dedicated to the **updated VSP T&C** (started on March 27th 2025, ending Monday April 28th 2025)
- PC dedicated to the **VSP Tender procedure** (planned Q1 2026)
- **Reasons for this split:**
  - Technical communication changes required between Elia and the VSPs in the period 2027-2028: Extensive period of implementation pushes for earlier start and therefore earlier finalization of the VSP T&C than for Tender Procedure
  - Legal framework changes:
    - Elia must provide a study on the availability of the Voltage and Reactive Power Service to the CREG.
    - Tender procedure may be impacted by a CREG decision following review of this study: PC on Tender Procedure foreseen for Q1 2026 at the earliest.

Planning of revision of the T&C and Public Consultation

– Below you can find the current planning for the revision of the T&C and related Public Consultation:

1. Public Consultation started on Thursday March 27th (Week 13), ending April 28th included (Week 17)
2. 4 Weeks to integrate the feedback of the Market Parties
3. Submission to the regulators (CREG & Vlaamse Nutsregulator) end of May
4. Draft Implementation Guide end Q1 2025, final version end Q2 2025, enabling implementation by VSP between Q2 2025 and Q4 2025



Proposal to extend 2025-2026 VSP contract period up to 31/01/2027

Proposal to extend 2025-2026 VSP contracting period up to 31/01/2027

- Currently, Go-Live of the new VSP system foreseen for **01/01/2027 00:00**
  - IT support may be scarce on that day and hour (both at Elia as well as at the VSP)
- **Elia proposes to extend the current VSP contracting period by 1 month:**
  - 2025-2026 VSP contracting period extension until 31/01/2027 included with current conditions and current IT/communication system
  - 2027 VSP contract beginning from 01/02/2027 with new IT/communication system
  - Future VSP contracts would enter into force on Feb 1st to avoid the same issue in the future
- Elia would like to receive the positions of the VSPs on this proposition.
  - Key Account Managers will reach out to their VSPs, WG Grid of 16/06/2025 will be official occasion to collect all feedbacks
  - Elia will reach back to CREG and Vlaamse Nutsregulator to discuss if a new Decision is needed to extend the current contractual conditions.

Change of activation control from sampled to continuous control

Activation Control from sampled to continuous

Current market design

ART. II.7 ACTIVATION CONTROL

c) Elia uses quarter-hourly metering data to carry out this verification monthly for each Technical Unit for delivery in Month M-2, starting out with six samples. Each sample pertains to a 5-hour period. Elia applies the penalty described in Art.II.9.1 where necessary.

- The activation control is done on some selected time windows
  - Manual service control
    - 6 samples of activation demands (reaching the setpoint within 5mins)
  - Automatic service control
    - 6 samples of 5 hours per month (checking the discrepancy between the expected and measured activations)

Activation Control from samples to continuous

Proposed new market design

Continuous activation control for manual and automatic activation

Instead of only using a select number of samples, Elia proposes to check all samples.

- This would remove the issues regarding penalizing momentary failures that do not represent the overall delivery of the service.
- This needs to be accompanied by a **revision of the remuneration reduction** associated with not delivering the service

Activation Control from samples to continuous

Proposed new market design

Continuous activation control for manual and automatic activation

Instead of only using a select number of samples, Elia proposes to check all samples.

- **Immediately after every setpoint request**
  - The setpoint request will be handled as currently in the market design
    - 10 seconds to confirm
    - 5 mins to reach the setpoint
  - If not reached within 5mins, the quarter hour will be considered failed
- **Quarter hour after the setpoint request**
  - This quarter hour will not be considered for controlling units to be able to do a reset
- **First quarter hour of every day**
  - This quarter hour will not be considered for controlling units to be able to do a reset
- **All other timesteps**
  - For controlling units: current market design for all time steps
  - For non-controlling units: Check every quarter hour against the Qrequested

Continuous Activation Control : remuneration reduction

Proposed new market design:

Automatic

Remuneration reduction for underdelivery

$$Remuneration\ reduction = |Discrepancy * 1.5 * priceLastMVArSupplied|$$

$$Total\ remuneration\ reduction = \sum_{month} |Discrepancy * 1.5 * priceLastMVArSupplied|$$

Manual

Remuneration reduction for overdelivery

$$Remuneration\ reduction = |Discrepancy * 0.5 * priceLastMVArSupplied|$$

$$Total\ remuneration\ reduction = \sum_{month} |Discrepancy * 0.5 * priceLastMVArSupplied|$$

- This incentivizes the VSP to deliver the service to the best of its ability whilst still controlling incorrect activations

Simplification for the participation of smaller units

Simplification for the participation of smaller units

Prekwalificatietest

e) Vóór de aanvang van de Dienstverlening vraagt Elia een Prekwalificatietest om de kenmerken van de levering van de Dienst door elke Technische Eenheid te controleren.

f) Deze test moet minstens de activering inhouden van de Dienst waarin de VSP de Dienst moet verlenen volgens de in dit Contract voorziene voorwaarden. De precieze testmodaliteiten worden beschreven in Bijlage 13.

g) De Prekwalificatietest zal het beschikbaar gestelde Technische Regelbereik van het Reactief Vermogen bevestigen, evenals de meetmodaliteiten en de modaliteiten voor de berekening van Q_{req} (volgens Bijlage 2).

h) De Prekwalificatietest wordt niet beschouwd als een activering van de Dienst.

i) Elia behoudt zich het recht voor de Prekwalificatietest op elk ogenblik af te breken indien hij de veiligheid van het Elia-net in gevaar brengt.

Conformiteit

j) In het geval van niet-conformiteit met een of meer van de verplichtingen in Art. II.3.3, a) tot i), zal de VSP alle nodige maatregelen treffen om zijn conformiteit zo snel mogelijk te herstellen.

→ Allow for aggregations

Make all operational communication requirements and software/hardware modifications clear from the start:

- Currently multiple interactions are needed between Elia and market parties
- This increases the cost, since multiple interactions with 3 rd parties are required
- By creating a document with the main occurring issues, a large part of these questions can be mitigated

Simplification for the participation of smaller units

- Article II.3.3 g) now enables the prequalification test to be performed on the aggregation of all Technical Units located behind the same Service Measurement Point.

> **Prequalification procedure: prequalification test**
>
> g) Before the beginning of Service delivery, Elia shall request a Prequalification Test to verify the characteristics of the Service delivery by the aggregation of all Technical Units located behind the same Service Measurement Point.

- This is aligned with the Incentive Note §4.10.1.2 to facilitate the participation of non-mandatory units through aggregation of these units.

Definitions of Technical Unit Starting Up and Shutting Down

Zerotage

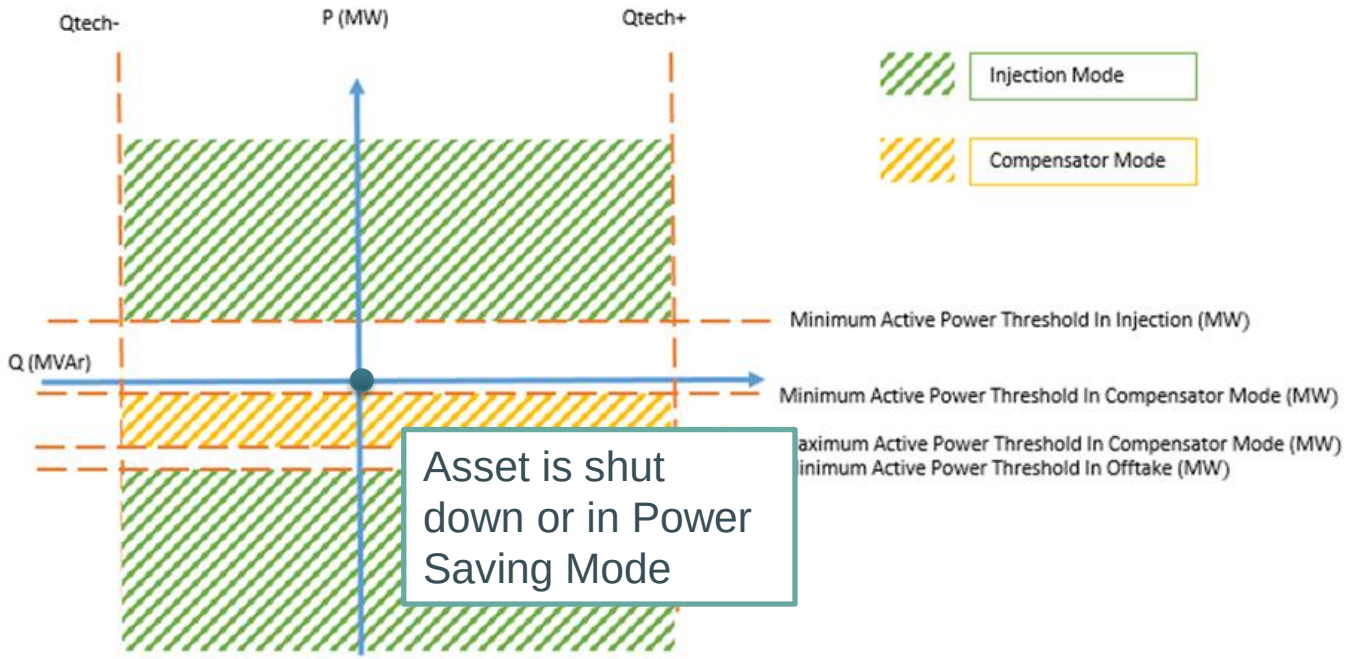
Addition of definitions of Technical Unit Starting up and Shutting Down

- Instructing a Technical Unit to set its reactive power to 0 MVAr was not possible with the current T&C version because those definitions were missing.
  - **Starting Up :** « Transient period of increasing active power injection or offtake starting from 5% of the Minimum Active Power Threshold in Injection Mode until the Minimum Active Power Threshold in Injection Mode, for assets without Compensator Mode. »
  - **Shutting Down :** « Transient period of decreasing active power injection or offtake starting from the Minimum Active Power Threshold in Injection Mode until the Technical Unit's active power drops below 5% of the Minimum Active Power Threshold in Injection Mode, for assets without Compensator Mode. »

Power Saving Mode

Power Saving Mode

- **Context**:
  - Assets in Power Saving Mode can switch back quickly to Compensator Mode
  - Assets in Power Saving Mode can therefore be used as Manual Control Type assets for reactive power while they are in Power Saving Mode.
  - Assets in Power Saving Mode can leave the Power Saving Mode within a quarter-hour to act as Automatic Control Type assets for reactive power in the next quarter-hour.



Power Saving Mode

- Addition of the **Power Saving Mode definition**:

  Low-power steady-state consumption mode of Technical Units asynchronously connected to the power grid via an electronic power converter. In this Mode, the Technical Unit is still connected to the power grid and the absolute value of its active power is less than the absolute value of its Minimum Active Power Threshold in Injection Mode and, if available, less than the absolute value of its Minimum Active Power Threshold in Compensator Mode. Automatic voltage regulation of Controlling Unit is not available in Power Saving Mode.

- Conventional generators do not have a Power Saving Mode per this definition
- Assets not connected to the grid are not in Power Saving Mode.
- Assets in Injection Mode or Compensator Mode are not in Power Saving Mode

Power Saving Mode

- Addition of the obligation for the VSP to **signal Elia when its Technical Unit enters or leaves Power Saving Mode** (Art. II.6.11)

> II.6.11 The VSP has the obligation to message Elia as described in Annex 14 when one of its Technical Units enters into Power Saving Mode or leaves Power Saving Mode.

  - Communication signals with Elia need to be adapted accordingly (see Implementation Guide published end Q1 – beginning Q2 2025)
- VSP Technical Units in Power Saving Mode can also be started like shut down units, as detailed in the next slides.

VSP TU start-up request

Flowchart

Introduced right before the Public Consultation: Next to the **existing** activation signal **without** end time, **another** activation signal **with** end time is introduced to request the Technical Unit to maintain its delivery of reactive power service.

1. A system engineer and or supporting tool does an optimization and sees that the utilization of a technical unit is the most techno-economic solution

2. A system engineer and or supporting tool sends a message via the communication tool that the technical unit needs to start up. A flag is included here as well to indicate that the TU needs to remain above its Pmin in compensator modus until a set end time.

3. The Technical Unit receives the message and starts up

x mins later

4. The Technical Unit is above their Pmin in compensator modus (or Injection modus if no compensator modus) and starts to deliver the automatic/manual voltage control service until the end time is reached, unless an extension request is sent by Elia (a new message is sent)

The VSP receives a remuneration for the start up and is afterwards remunerated at compensator modus price

The Technical Unit remains available until the end of the (updated) end time.

VSP TU start-up request

Introduced right before the Public Consultation: Next to the **existing** activation signal **without** end time, **another** activation signal **with** end time is introduced to request the Technical Unit to maintain its delivery of reactive power service.

Description

Technical Units that are *"available"* but **below their Pmin** for compensator (and injection) modus (and as such cannot deliver the reactive power control service), can be **sent a start-up message**. This message will request the Technical Unit to **go above their Pmin** for compensator modus (if available, otherwise to Injection modus in offtake). Once above their Pmin for compensator/injection modus, the Technical Unit will be **able to deliver the reactive power control service**. The start-up message will include **an end time** that indicates that the Technical Unit needs to **remain available for the reactive power control service** unless an extension request is sent by Elia. This has **no impact on the Technical Unit to act in the active power market**.

Advantages

+ More possibilities for the VSP to be remunerated for the reactive power control service
+ Active power losses can be avoided in case the Technical Unit is not needed for the reactive power control service
+ There is a higher general availability of Technical Units delivering the service. This will lead to an improved voltage control in the grid
+ Improved voltage stability

VSP TU start-up request

- Start-up of assets is possible for Technical Units either **shut down** or in **Power Saving Mode**
- Technical Units in Power Saving Mode to which a start-up request is sent are expected to reach a Manual Setpoint of Reactive Power within the Quarter-hour. Automatic Control service available during the next Quarter-hour.
- The VSP must add the **Start-up cost** of their TU to Compensator Mode (if available) otherwise to Injection mode (offtake) in Annex 1 of the T&C.
  - The VSP TU start-up will be remunerated with this start-up cost.
- The VSP must add the **Maximum start-up time** of their TU to Compensator Mode (if available) otherwise to Injection mode (offtake) in Annex 1 of the T&C.

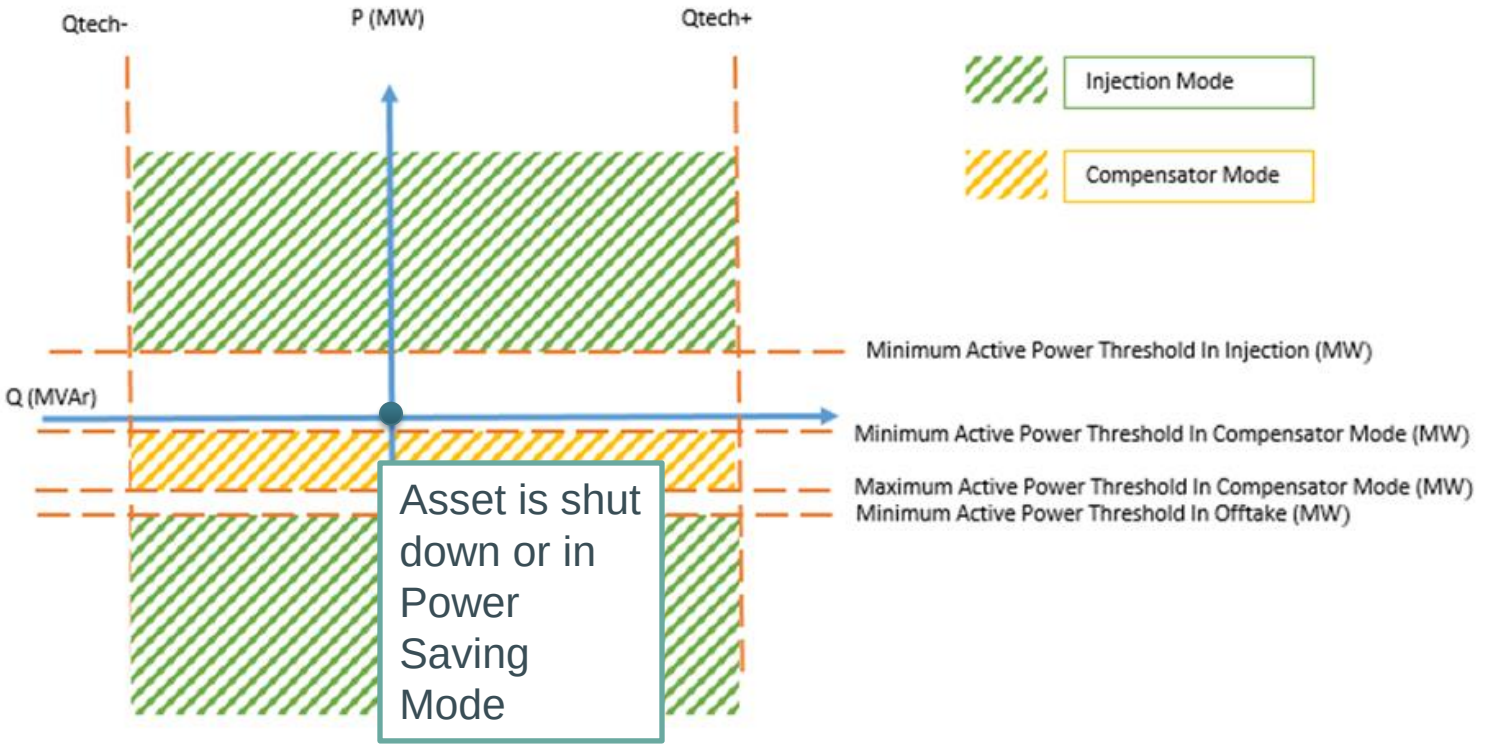
VSP TU start-up request

This description of the BRP Perimeter Correction may still be subject to changes between now and the Public Consultation

- The **BRP perimeter of the TU is corrected** while:
  1. Its active power remains at the Minimum Active Power Threshold of the Mode, and
  2. The MVAr activation request has not reached its end time
- **Implementation date :**
  - The BRP contract must be updated to introduce the possibility of BRP perimeter correction in the context of a Voltage and Reactive Power Control Service activation request
  - ⇨ This activation extension request can only be enforced once the updated BRP T&C is validated by the competent regulatory authorities.
- The MVAr activation is still remunerated as described in the previous VSP T&C.

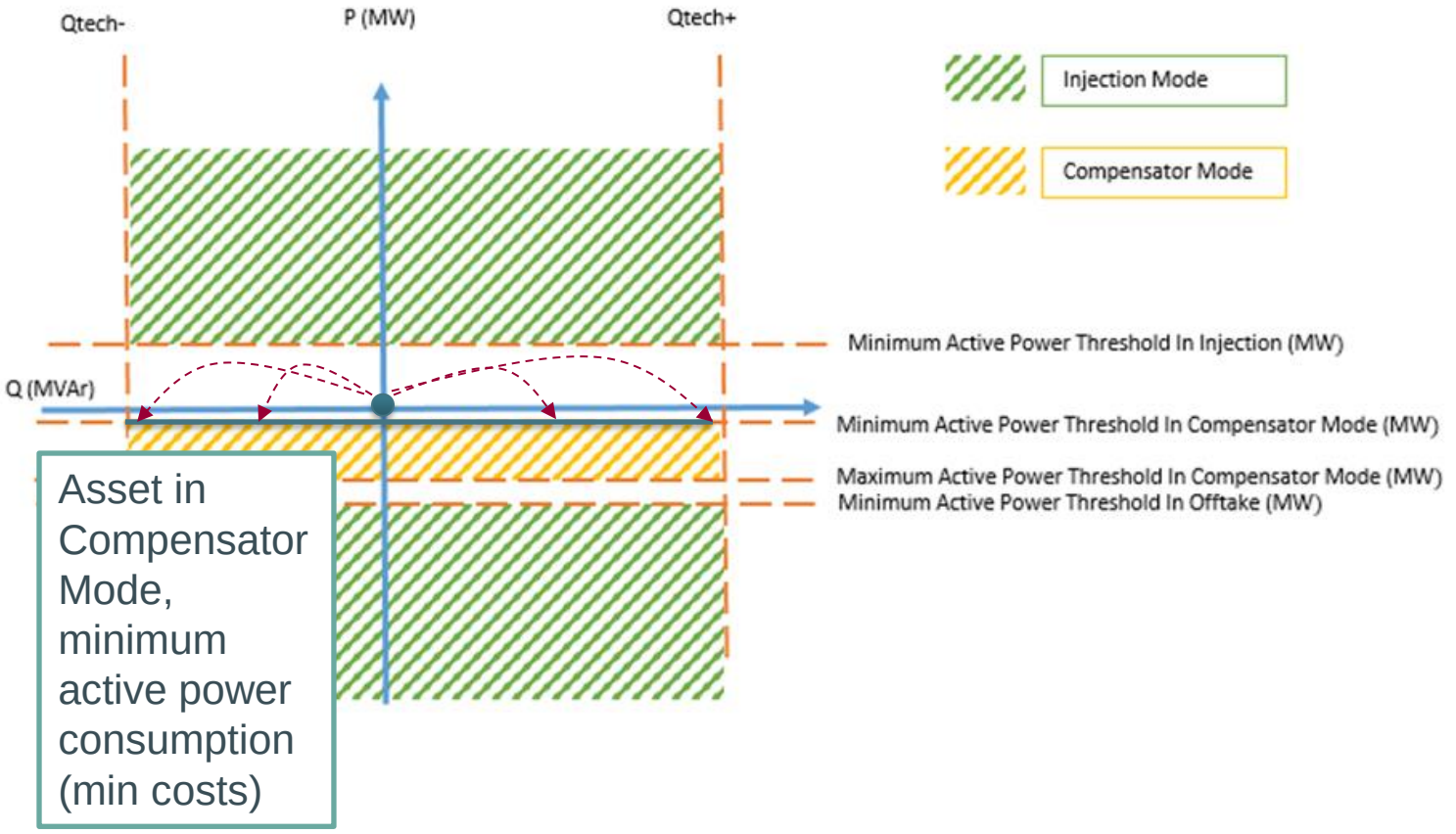
VSP TU start-up request

- Assets with Compensator Mode can be asked to start-up or leave Power Saving Mode and offtake at the Minimum Active Power in Compensator Mode to enable the Service delivery.
- BESS and Demand assets without Compensator Mode can be asked to start-up and offtake at the Minimum Active Power in Offtake to enable the Service delivery.
- Start-up cost added in the T&C Annex 1 specific to Service delivery



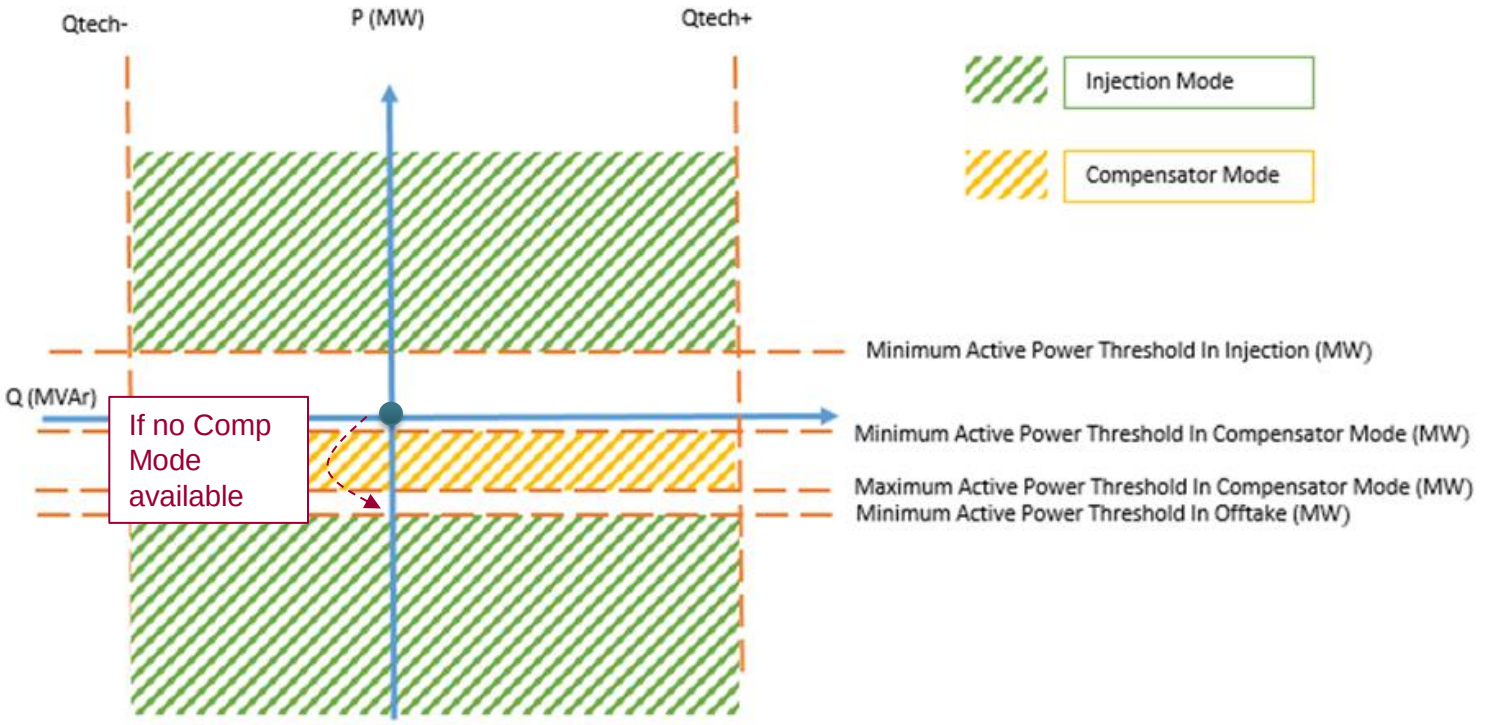
VSP TU start-up request

- Assets with Compensator Mode can be asked to start-up or leave Power Saving Mode and offtake at the Minimum Active Power in Compensator Mode to enable the Service delivery.
- BESS and Demand assets without Compensator Mode can be asked to start-up and offtake at the Minimum Active Power in Offtake to enable the Service delivery.
- Start-up cost added in the T&C Annex 1 specific to Service delivery



VSP TU start-up request

- BRP perimeter correction applied to VSP assets as long as their active power equals the requested Pmin
- For assets able to provide reactive power but without Compensator Mode (i.e. some BESS), start-up costs also specified in VSP T&C



Maintain VSP TU in service for reactive power control

Maintain VSP TU in service for reactive power control

- Elia can request an **extension of the MVAr activation end time** to maintain a unit in Compensator Mode (if available) or in Injection Mode (if Compensator Mode not available) to provide reactive power service.
- The **BRP perimeter of the TU is corrected** while:
  1. Its active power remains at the Minimum Active Power Threshold of the Mode, and
  2. The MVAr activation request has not reached its end time
- **Implementation date :**
  - The BRP contract must be updated to introduce the possibility of BRP perimeter correction in the context of a Voltage and Reactive Power Control Service activation request
  - ⇀ This activation extension request can only be enforced once the updated BRP T&C is validated by the competent regulatory authorities.
- The MVAr activation is still remunerated as described in the previous VSP T&C.

Declaration of unavailabilities

Declaration of unavailabilities

- Addition of the obligation for the VSP to declare reactive power assets unavailabilities (Art II.6.9 and II.6.10).
  - The availability status of Art II.6.9 and Art II.6.10 is strongly inspired by the OPA T&C.
  - The VSP must provide a reason for unavailability per Art II.6.15.
  - Available and Unavailable must be announced 1 hour ahead at the latest
  - Testing must be announced 1 month ahead at the latest
  - Forced Outage may not be announced more than 1 hour ahead

II.6.9 In the event of a partial or full unavailability of the Technical Control Band of a Technical Unit of a VSP, the VSP has the obligation to communicate Reactive Power unavailability events to Elia as soon as possible.

II.6.10 The communication, pursuant Art. II.6.9, must be done through Elia's External Communication Layer as mentioned in Annex 14. The following combinations of status and available Reactive Power are possible:

Availability Status	Meaning	Corresponding $Q_{min\ Available}$ and $Q_{max\ Available}$
A	Available	$\lvert Q_{min\ Available}\rvert \leq \lvert Q_{tech\_min}\rvert$ and $\lvert Q_{max\ Available}\rvert \leq \lvert Q_{tech\_max}\rvert$ and $Q_{min\ Available} \neq Q_{max\ Available}$
U	Unavailable	$Q_{min\ Available} = Q_{max\ Available}$
T	Testing	$\lvert Q_{min\ Available}\rvert \leq \lvert Q_{tech\_min}\rvert$ and $\lvert Q_{max\ Available}\rvert \leq \lvert Q_{tech\_max}\rvert$
FO	Forced Outage	$\lvert Q_{min\ Available}\rvert \leq \lvert Q_{tech\_min}\rvert$ and $\lvert Q_{max\ Available}\rvert \leq \lvert Q_{tech\_max}\rvert$

Where:

- $Q_{min\ Available}$ is the maximum absolute value of available reactive power that can be absorbed by the Technical Unit of the VSP
- Q_{tech_min} is defined in Annex 1
- $Q_{max\ Available}$ is the maximum absolute value of available reactive power that can be injected by the Technical Unit of the VSP
- Q_{tech_max} is defined in Annex 1

II.6.15 In the event of a partial or full unavailability of the Technical Control Band of a Technical Unit of a VSP, the VSP may inform Elia of a more detailled reason for the unavailabilty.

Declaration of unavailabilities

- Addition of the obligation for the VSP to declare Control unavailability (Art II.6.12).
  - “(Automatic &) Manual Control available” is the default status
  - “(Automatic &) Manual Control unavailable” corresponds to “Unavailable”
  - “Power Saving Mode” has been presented earlier in this presentation

II.6.12 In the event of unavailability or regained availability of the Automatic Control service type of Controlling Units of a VSP Technical unit, the VSP has the obligation to inform Elia as soon[2] as possible of the unavailability or regained availability of the Automatic Control service type, through Elia’s External Communication Layer as mentioned in Annex 14.

II.6.13 Pursuant Art. II.6.12, the following status and available Reactive Power are possible to submit:

Available Control service type	Description
Automatic & Manual Control available	Normal operation of Controlling Unit, assumed by default
Automatic & Manual Control unavailable	Neither the Automatic Control Service nor the Manual Control Service Controlling Unit is not available. If technically possible, the VSP shall set the Reactive Power setpoint of the Technical Unit before the start of the Control unavailability to the Reference Setpoint defined in Annex 1 of the VSP T&C, or if not technically achievable, it shall strive to reach 0 MVAr injection/absorption. The VSP shall provide a reason for the unavailability.
Power Saving Mode	As defined in Art. II.1 Definitions

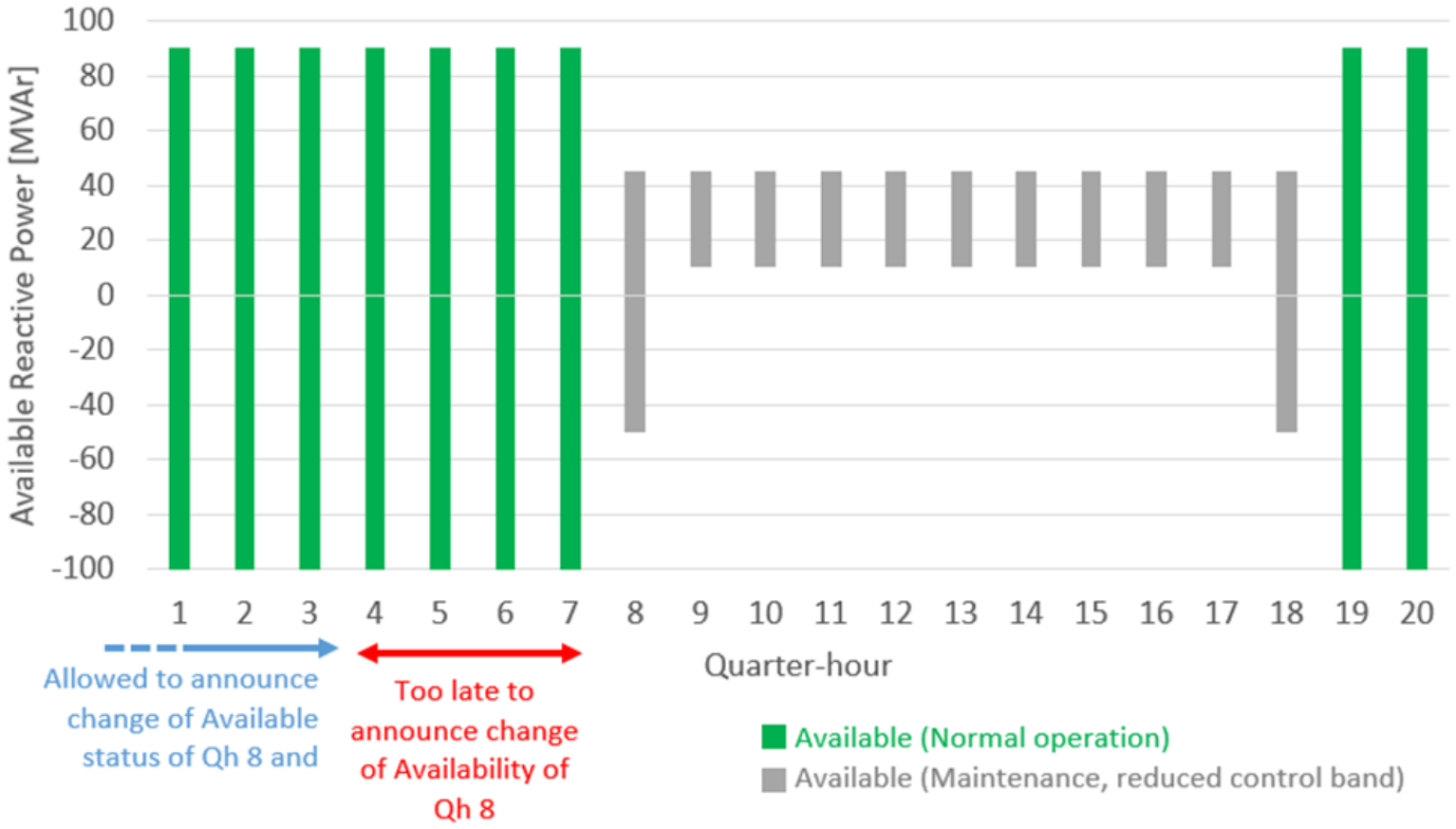
Summary of unavailability modes

Availability Status \ Available Control Service type	(Automatic &) Manual Control available (Q control available)	Automatic & Manual Control unavailable (No Q control available)	Power Saving Mode
Normal Operation or Planned Maintenance (Announced up to 1 hour before)	**Available Status** • Available Q change announced up to 1h before • Q control available - for Controlling Units, Auto & Manual available	**Unavailable Status** • Announced up to 1h before • No Q control available • Qmin avail = Qmax avail	**Available Status** • Available Q change announced up to 1h before • Power Saving Mode is Real Time signal • Q control available in Manual Control, Automatic Control available at the end of unit restart
Testing (Announced up to 1 month before, because possible grid impact)	**Testing Status** • Announced up to 1 month before, because possible grid impact • Q control available - for Controlling Units, Auto & Manual available	**Testing Status** • Announced up to 1 month before, because possible grid impact • No Q control available	
Forced Outage (Announced later than 1h before)	**Forced Outage Status** • Announced later than 1h before • Q control available - for Controlling Units, Auto & Manual available	**Forced Outage Status** • Announced later than 1h before • No Q control available	

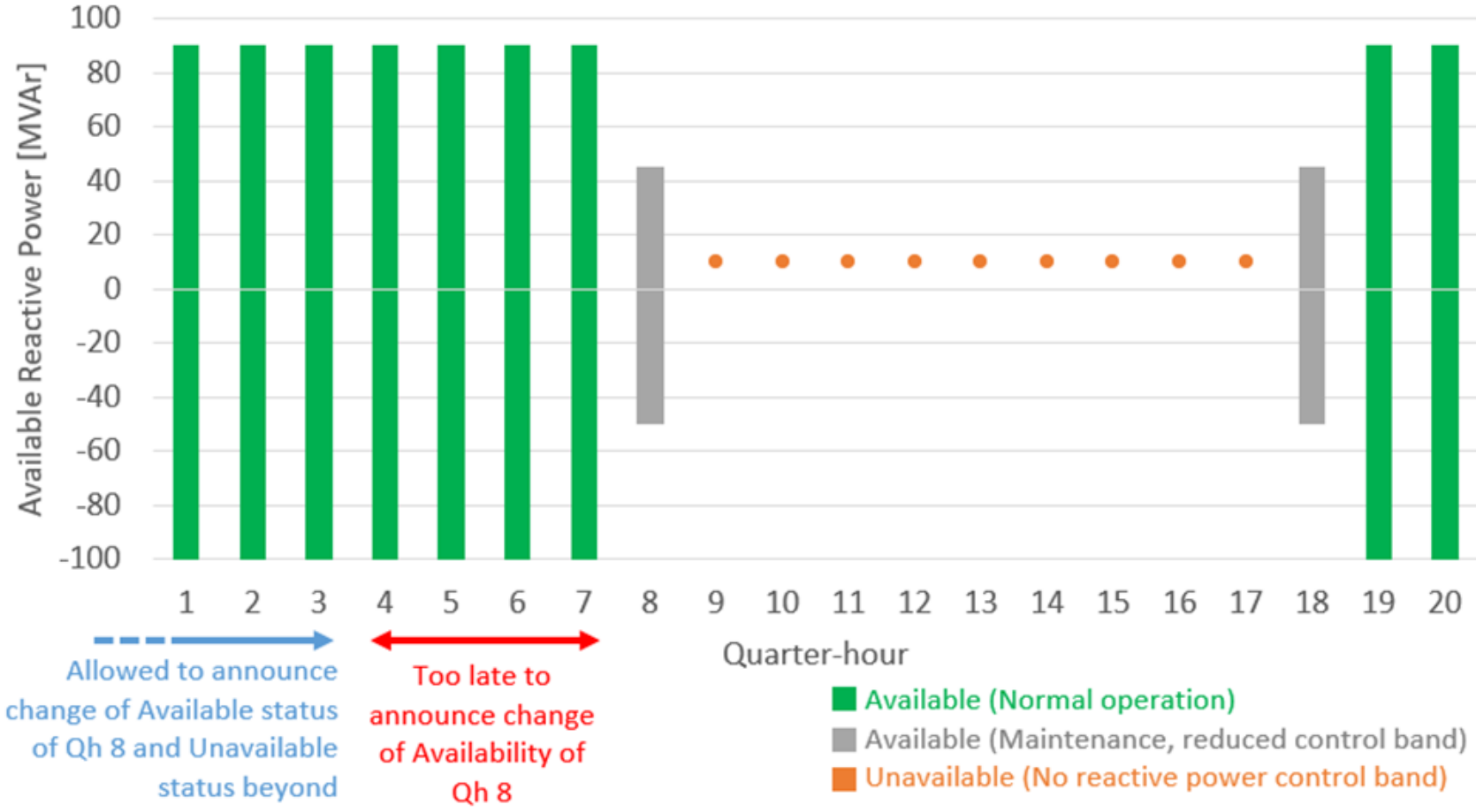
Availability Status: Used to align as much as possible with OPA (SOGL requirement context) and give heads-up to Elia on upcoming unavailabilities to improve grid operation. Quantifies the available Reactive Power Control range.
Availability Control service type: Dimension not fully covered by the Availability Status: how can the TU be controlled

Market Parties must send:
1/ Reactive Power Band
2/ Available Control Service
3/ Event type along with period of modified availability status
4/ Event reason in free text

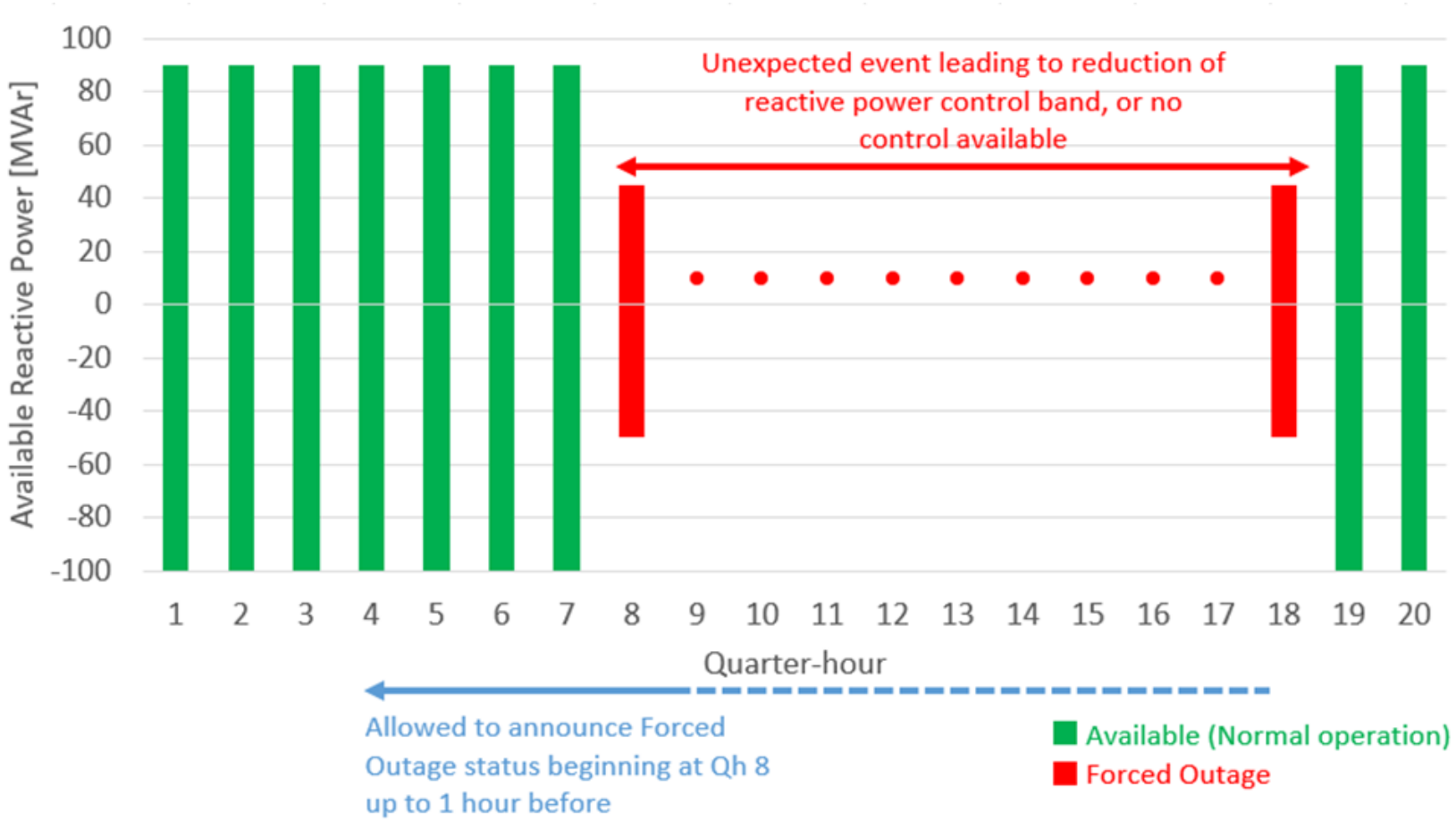
Example of Available Status



Example of Available and Unavailable Status



Example of Available and Forced Outage Status



Declaration of unavailabilities

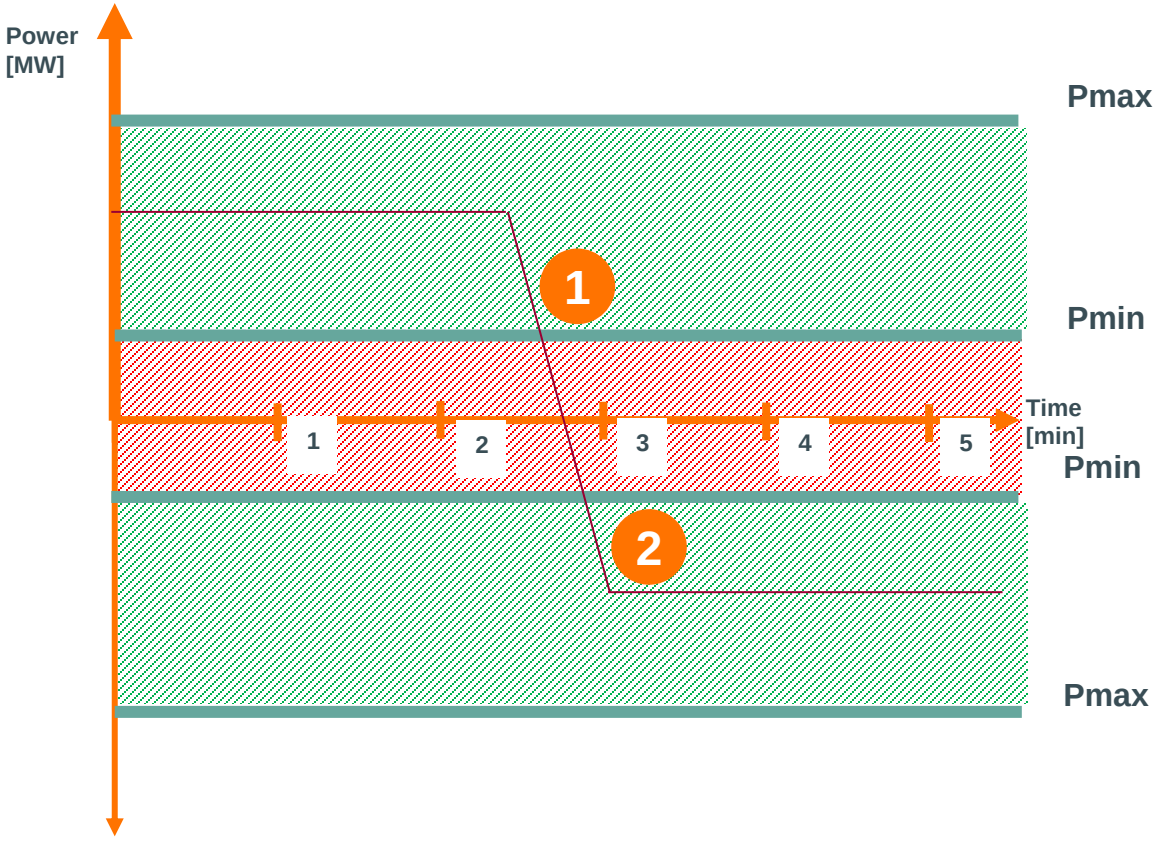
- To ensure grid operation safety, Elia reserves the right to request 5 days in advance:
  - Change from Unavailable to Available
  - Change from Testing to Available
- To limit extensive periods of partial availability of the reactive power control band, Elia reserves the right to request 5 days in advance:
  - Change from Available with reduced reactive power control band to Available with full reactive power control band

II.6.17 ELIA reserves the right to request the following changes to the Availability Status provided by the VSP until 5 Working Days before the day of start of the unavailability:

	ELIA can request	
Indicated by the VSP	**Availability Status**	**Meaning**
Available (A) with $\|Q_{min\ Available}\| < \|Q_{tech\_min}\|$ or $\|Q_{max\ Available}\| < \|Q_{tech\_max}\|$ for excessive lengths of time or too high frequency of occurrences	Available (A) with $\|Q_{min\ Available}\| = \|Q_{tech\_min}\|$ and $\|Q_{max\ Available}\| = \|Q_{tech\_max}\|$	The Technical Unit is requested to be capable to inject (or offtake) reactive power at values set in the Contract and minimise durations of partial Reactive Power availability
Unavailable (U)	Available (A)	The Technical Unit is requested to be capable to inject (or offtake) reactive power
Testing (T)	Available (A)	

Remembering startup voltage

Remembering startup voltage



1. The asset drops below their Pmin and remembers the voltage reference and the manual setpoint

2. The asset goes again above their Pmin within *15 mins* and reuses the reference voltage it "remembered" as well as the manual setpoint

The reference voltage and the manual setpoint that were used before 1 are kept when the asset comes back online in 2

Introduction of reactive power ramp

Introduction of a reactive power ramp rate

- Introduction of a contractual limit on the reactive power ramp rate to avoid operational issues
- Annex 1:
  - Added to the Table
  - Explanation added in footnote: “Reactive Power Ramping Rate: Rate of change of Reactive Power per second that a Controlling Technical Unit must respect when following a new Manual Setpoint (only applies to assets able to modulate their Reactive Power ramp rate)”
- Annex 13:

If the Reactive Power ramp rate technical capability of a VSP Controlling Unit may cause issues for the transmission grid operation, Elia shall indicate in Annex 1 the unit Reactive Power Ramping Rate. This only applies to assets able to modulate their Reactive Power ramp rate.

The Reactive Power ramp rate is also defined during the Pre-Qualification Process. This is the change of Reactive Power allowed per second during a Reactive Power setpoint change of the Manual Control Service, for assets able to modulate their reactive power ramp rate.

Minor changes

Minor changes

- Reference to TRPV articles I.1.2 and IV.4.14.1 in the Whereas section
- Removal of the reference to strategic reserve contract (formerly Art II.3.5)
- Rewording of Art II.3.11 d) “Controlling Technical Units” to be more technology neutral
- Reference to Annex 12.B for the prices applied for the remuneration of the Voltage Service.
- Addition of a description of the parameters of the formula of Annex 3 Delivery Control of the Automatic Control Service Type
- Addition of the definition of the Reference Setpoint in Annex 13
- Addition of the Communication Test details as part of the Annex 13 detailing the Pre-Qualification Procedure
- Update of the references to the Federal Grid Code, in line with the Concordance Table on our website
- Update of the references to the Electricity Act, as the latest release dates from end of November 2024
- “Penalty” is replaced with “Remuneration reduction” in the whole document
- Removal of the reference to the Open Qualification Procedure (Art II.2.6 has been removed)

Thank you!